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Review

Conceptualizing Sustainable Business Models Aligning with Corporate Responsibility

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Abstract: Our research is dedicated to developing sustainable business models (SBMs). In this study, we review numerous empirical articles, reviews, and papers on SBMs, including 17,412 SCIE articles and 17,237 SSCI papers, published between 2009 and 2023. Our research provides guidance on how to achieve and maintain sustainability. We identify the most effective practices for conceptualizing an SBM. Our citations of over 130 articles highlight the importance of integrating corporate actions and consequences across the environmental, societal, and economic spheres, while also considering stakeholder engagement and long-term perspectives. We also emphasize the need to move beyond the traditional dichotomous treatment of SBMs and reflect more contemporary practices. To provide a more practical explanation, we use fuzzy set qualitative comparative analysis to predict the future evolution of SBMs from a corporate responsibility perspective, drawing on the lessons of the China phenomenon. This approach clarifies how the theoretical and practical elements obtained from the literature correspond with the new SBMs.

Keywords: business model; stakeholder perspective; corporate responsibility; ESG

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1. Introduction

The concept of business models was developed during the 1960s to explain how organizations generate, distribute, and obtain value [1]. In recent times, it has been widely used in various fields. The most commonly accepted definition of business models describes how an organization produces, delivers, and captures value [2]. In the corporate world, value is typically associated with financial performance [3]. However, the definition of value has evolved, and businesses are now expected to contribute to the creation of shared value for society [4].

To move towards a sustainable economy, companies must rethink their approach to business by integrating environmental, social, and governance (ESG) concerns. This entails firms innovating and changing their purpose and value-creating logic. According to Bocken, Rana, and Short, a sustainable approach can be achieved by developing a business model that creates superior customer value while contributing to both the company's and the community's sustainable development [5]. Such a business model aims to align interests and create value for a wide range of stakeholders, including the environment and society.

According to Freeman's stakeholder perspective, individuals or groups who assume full responsibility for a company are considered stakeholders, encompassing not only shareholders but also society at large [6]. While some analysts have raised objections to Freeman's stakeholder model [7,8], citing a tendency to prioritize shareholder interests, Friedman remains confident that this concept can be integrated into the stakeholder model, asserting that an executive's main obligation is to generate value for stakeholders, which ultimately benefits shareholders [9].

2. Conceptualizing Sustainability of Business Model

2.1. Sustainable Business Model

We used the term "sustainable business model" (SBM) in the title to perform a thorough search on the Web of Science, a widely regarded academic journal and publishing database. Before 2009, there were fewer than 100 publications published annually; this time frame was thus not included in the analysis. Since 2018, there have been over 1000 publications published in SSCI and SCIE, respectively, each year. A record-breaking 3199 papers were published by SSCI in 2022, whereas a peak of 2987 articles were published by SCIE in 2021. As a result, the concept of SBM has drawn increasing attention in recent years. In total, we located 17,412 SCIE articles and 17,237 SSCI papers covering the years 2009 through 2023. Table 1 lists the many kinds of paper observed.

Table 1. The types of papers.

Types of Paper	SCIE	SSCI
Article	15,816	15,970
Early Access	4561	4820
Review Article	1244	974
Proceeding Paper	211	191
Editorial Material	73	68
Retracted Publication	31	12
Book Chapters	11	5
Correction	6	3
Meeting Abstract	6	6
Letter	5	1
Book Review	3	4
Data Paper	3	0
Reprint	2	1
News Item	1	0
Retraction	0	2

Out of the 486 highly referenced publications in the Web of Science Core Collection, as indicated in Table 2, twelve pieces were chosen to illustrate our research goal on the SBM. Different authors define an SBM differently. While some define it as a model where sustainability principles are the driving force behind the firm's decision-making, others define it as a model where sustainability concepts are important to establishing the mission and serve as the driving force behind decision-making [10].

When conducting a comprehensive review of the literature, it becomes evident that sustainable business models (SBMs) encompass a diverse range of topics. These encompass not only the micro-business environment, involving factors within or between businesses, but also extend to macro-business environment issues, including those related to the natural environment (e.g., climate change, pandemics) and the social environment (e.g., race, gender). Therefore, assessing the "sustainability" of SBMs requires addressing a broad spectrum of interconnected and complex issues beyond traditional business considerations. Therefore, fields such as medicine, general and internal, green and sustainable science and technology, engineering, environmental sciences, environmental studies, etc., could all be included in these categories when discussing SBMs.

Table 2. Highly cited papers in the WOS Core Collection.

Authors/ Year	Paper Title	WOS Citations	Keywords	Categories	Type
Geissdoerfer et al./2017 [11]	The Circular Economy: A New Sustainability Paradigm?	2818	Circular economy, sustainability, sustainable development, closed loop, literature review, circular business model	Green & Sustainable Science & Technology, Engineering, Environmental, Environmental Sciences	Review
Stanaway et al./2018 [12]	Global, Regional, and National Comparative Risk Assessment of Behavioral, Environmental and Occupational, and Metabolic Risks or Clusters of Risks for 195 Countries and Territories, 1990–2017: A Systematic Analysis for the Global Burden of Disease Study 2017	2682	Behavioral, environmental and occupational, metabolic risk factors on global health	Medicine, General & Internal	Article
Kirchherr, Reike, and Hekkert/2017 [13]	Conceptualizing the Circular Economy: An Analysis of 114 Definitions	2676	Circular economy, 4R framework, sustainable development, definitions, content analysis	Engineering, Environmental, Environmental Sciences	Review
Feigin et al./2019 [14]	Global, Regional, and National Burden of Neurological Disorders, 1990–2016: A Systematic Analysis for the Global Burden of Disease Study 2016	2002	Global burden of diseases, injuries, risk factors study	Clinical Neurology	Article
International Wheat Genome Sequencing Consortium (IWGSC) et al./2018 [15]	Shifting the Limits in Wheat Research and Breeding Using a Fully Annotated Reference Genome	1853	Draft genome, adaptation, reveals, tissues, genes, rice, key	Multidisciplinary Sciences	Article
Bocken et al./2014 [16]	A Literature and Practice Review to Develop SBM Archetypes	1726	Business model innovation, industrial sustainability, value creation, stakeholders, sustainable consumption, sustainable production	Green & Sustainable Science & Technology, Engineering, Environmental, Environmental Sciences	Review
Gössling, Scott, and Hall/2020 [17]	Pandemics, Tourism and Global Change: A Rapid Assessment Of COVID-19	1656	Global change, COVID-19, pandemic, crisis, travel restrictions, tourism demand, resilience	Green & Sustainable Science & Technology, Hospitality, Leisure, Sport &Tourism	Article, Early Access

Table 2. *Cont.*

Authors/ Year	Paper Title	WOS Citations	Keywords	Categories	Type
Riahi et al./2017 [18]	The Shared Socioeconomic Pathways and Their Energy, Land Use, and Greenhouse Gas Emissions Implications: An Overview	1520	Shared socioeconomic, pathways, SSP, climate change, RCP, community scenarios, mitigation, adaptation	Environmental Sciences, Environmental Studies, Geography	Article
Saberi et al./2019 [19]	Blockchain Technology and Its Relationships to Sustainable Supply Chain Management	1352	Blockchain technology, supply chain management, sustainability, barriers, research agenda	Engineering, Industrial, Engineering, Manufacturing, Operations Research & Management Science	Article
Boons and Lüdeke-Freund/2013 [20]	Business Models for Sustainable Innovation: State-Of-The-Art and Steps Towards a Research Agenda	1176	Sustainable innovation, SBM, business model for sustainability, literature review, research agenda	Green & Sustainable Science & Technology, Engineering, Environmental, Environmental Sciences	Article

2.2. Corporate Responsibility and SBMs

Business-related economic, social, and environmental disasters have frequently forced many firms to reevaluate their business models. Businesses are compelled to reconsider how they cater to a variety of stakeholder requests. They are eager to embrace sustainability and "more" corporate responsibility, but they struggle to implement these concepts since there are too many contradictory meanings out there. The notions of "corporate responsibility" and "sustainability" highly relate to day-to-day business operations. In addition to fiscal accountability, achieving sustainable success requires a corporation to assume social and ecological responsibilities.

Elkington (2004) offers a sustainable corporate responsibility approach that incorporates every idea from the triple bottom line [21]. The phrase was first used in 1994 by John Elkington as a means of extending the typical company reporting framework to incorporate, in addition to financial success, social and environmental performance. The triple bottom line method encourages businesses to concentrate on three essential performance characteristics. In addition to fiscal accountability, achieving sustainable success requires a corporation to assume social and ecological responsibilities. This model outlines the various approaches to sustainable corporate responsibility, including those solely focused on the short term and the economy and those which are wholly ethical, ecological, and long-term. The relationship between business models and CSR can be viewed as a feedback loop, where certain business model types can encourage greater CSR involvement [22] and CSR implementation can ultimately lead to changes in business models. Schaltegger and Wagner also note that companies adhering to CSR principles are experiencing changes in their business models due to both conscious and inadvertent changes [23].

Despite its theoretical and practical significance, the topic of how businesses with diverse models engage in CSR has been largely overlooked by scholars. While some have proposed changing management paradigms to address environmental and social degradation, few have included business model components in their CSR assessments [24, 25]. However, recent years have seen the emergence of new management concepts, such as "business models for sustainability", "sustaining supply chain management", "SBMs",

and "sustainability of business models", all of which are based on the theory of corporate sustainability management [26,27].

This study aims to integrate corporate actions and consequences across the environmental, societal, and economic spheres, as well as stakeholders and long-term perspectives (Figure 1). We utilize Boolean operators to merge the keywords "environmental stewardship", "social responsibility", "economic viability", "stakeholder engagement", and "long-term perspective". We specifically focus on gathering studies written in English, while excluding those that solely examine theoretical models without empirical evidence.

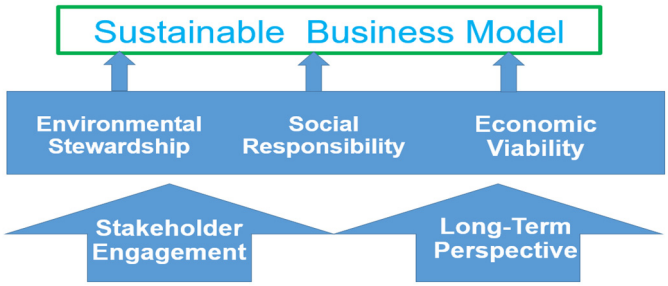

Figure 1. Developing an SBM conceptually using the corporate responsibility concept.

3. Examining Influential Factors of Sustainable Business Practice

3.1. Environmental Stewardship

Organizations must have an SBM and practice environmental stewardship to conduct business in a way that honors and protects the environment. There are some essential components that can support environmental stewardship and an SBM. By reducing resource use, transitioning to renewable energy, minimizing waste and emissions, and incorporating eco-friendly practices into all business operations, the company minimizes its environmental impact. The key findings of the study survey on environmental stewardship on SBMs are compiled in Table 3.

3.1.1. Renewable Energy

In light of this differentiation, two general business models—a customer-side and a utility-side renewable energy business model—can be extracted from the literature [28]. Speaking of the business model for customer-side renewable energy, the customer's property is where the renewable energy systems are situated in this business model. Photovoltaics, geothermal heat pumps, solar thermal hot water, CHP micro-power, and micro wind turbines are examples of potential technologies [29]. Typically, the systems' capacities fall between a few kilowatts and one megawatt. The utility may offer a full suite of services, including funding, asset ownership, and operation, or it may just offer basic consultation services [30–32]. In a utility-side renewable energy business model, the projects range in size from one to several hundred megawatts, and they are larger than customer-side projects. Typical technologies include solar thermal power plants, biomass power plants, large-scale photovoltaic projects, and on- and offshore wind farms [30,33,34]. The business model's value proposition lies in the bulk generation of electricity sent into the grid, resulting in power purchase agreements between businesses rather than a direct relationship with the end user [35].

3.1.2. Sustainable Supply Chain

The terms "environmental proactivity", "strategic purchasing and supply", "supply management capabilities", "product-based green supply", and "greening the supply process" are often discussed in relation to sustainable supply chains [36]. As more businesses consider implementing sustainable practices internally and in conjunction with other businesses along their supply chains, the relationship between environmental sustainability and firm performance has become more and more apparent. The business argument

that sustainable supply chain management boosts company performance is supported by the positive and substantial relationship between environmental supply chain practices and market-, operational-, and accounting-based measures of firm performance [37–40]. Thus, supply chain management encompasses a variety of manufacturing operations, such as the upstream supplier-facing aspect, environmental design, production process, and downstream customer-facing aspect [37].

3.1.3. Biodiversity Protection

Growing acceptance of the financial case for controlling corporate environmental consequences has contributed to the development of more specific and quantitative corporate environmental targets. The two most important of them are net positive impact (NPI) and no net loss (NNL) [41]. An organization looks at particular NNL/NPI goals and evaluates how much the main elements of these goals are likely to improve the goals' ability to protect biodiversity and control business risk. We identify corporate NNL/NPI goals by searching the WOS database for a variety of key terms, broad enough to ensure the retrieval of as many NNL/NPI goals as possible. An overview of the businesses that made NNL/NPI commitments to the environment and/or biodiversity between 2000 and 2010 and between 2011 and 2016 is provided in [42]. Applying an area multiplier in addition to the NNL offsetting effort yields the provided degree of NPI [43,44]. This is the initial and simplest technique for obtaining NPI. After accurately calculating the offsetting effort to attain NNL, adding another multiplier would result in a greater net positive impact (NPI) than the initial residual loss that the project created. The most frequent factor contributing to an NNL policy's success is the application of a sufficiently big multiplier [45]. In summary, the main issues of these studies include alternate mitigation hierarchy, biodiversity offsetting, ecological compensation, net gain, net negative impact, and permanence. To meet the NNL and NPI objectives, the following strategies must be used: ecosystem services to support operations, government leadership to help shape policies and regulations, preferred operator status, better quotas, employee loyalty, brand differentiation, higher profit margins, observance of purchaser policies, and financing availability [41].

3.1.4. Environmental Compliance

Over the past few decades, a large number of studies on regulatory compliance in environmental enterprises have been carried out [46–48]. Companies follow the law because it directs them to fulfill their moral and civic obligations, in addition to helping them to avoid infringing the law [49]. Regulations and responsibility knowledge have long been the cornerstones of environmental compliance within organizations. A wide range of factors, including business compliance with environmental issues, coercive environmental enforcement, cooperative environmental protocols, and attitude toward nature, have been discussed extensively. Apart from the standards set by the company itself, enforcement techniques targeting environmental firms have also been impacted by external government regulations, anti-illegal actions resulting from environmental activism [50], or competitive market dynamics [51]. In the end, these enforcement techniques that cater to external environmental demands subject environmental companies to control measures. Stated differently, corporate rules have tried, with varying degrees of success, to use formal coercive institutions to ensure that enterprises comply with the law. While encouraging enterprises to reduce organizational misbehavior, formal corporate legal responsibility norms and regulations hardly force them to comply in any way, such as implementing special surveillance measures, responding adequately to environmental norms, or developing organizational mechanisms.

After looking at the relevant articles, we can conclude that these studies are primarily concerned with how companies are incorporating sustainability into their models in more and more creative ways. While utility-side models concentrate on large-scale renewable projects to supply the grid, decentralized renewable energy systems enable individuals to create their energy. Operational-based policies improve environmental performance by

cutting waste and increasing efficiency, whereas market-based policies like carbon pricing encourage emission reductions. Accounting-based metrics guarantee that financial systems appropriately account for environmental effects. To actively promote ecological health, businesses also strive for a net positive impact (NPI) or no net loss (NNL), balancing out any negative effects. Adherence to sustainability standards is ensured by compliance with external government rules as well as business regulations. Lastly, adhering to international environmental standards guarantees that companies fulfill sustainability norms that are acknowledged across borders.

Table 3. The environmental stewardship study survey on SBMs.

Dimension	Approach	Study Focus	Practice Example	References
Renewable Energy	• Customer-side renewable energy business model • Utility-side renewable energy business model	• Photovoltaics • Solar thermal hot water • CHP micro-power • Geothermal heat pumps • Micro wind turbines • On- and offshore wind • Large-scale photovoltaic • Mass power plants	• Utility financing • Ownership of customer-side assets • Power purchase • Agreements on a business-to-business level	[30–35]
Sustainable Supply Chain	• Market-based measure • Operational-based measure • Accounting-based measure	• Environmental proactivity • Strategic purchasing • Supply management capabilities • Product-based green supply • Greening the supply process	• Upstream supplier-facing • Design • Production • Downstream customer-facing	[36–40]
Biodiversity Protection	• Net positive impact (NPI) • No net loss (NNL)	• Alternate mitigation hierarchy • Biodiversity offsetting • Ecological compensation • Net gain • Net negative impact Permanence	• Ecosystem services • Government leadership • Preferred operator status • Employee loyalty • Observance of purchaser policies • Financing availability	[41–45]
Environmental Compliance	• Corporate compliance regulation • External government regulation • Global environmental standards	• Business compliance with environmental issues • Coercive environmental enforcement • Cooperative environmental protocols • Attitude toward nature	• Implement special surveillance measures • Responding adequately to the environmental norms • Developing organizational mechanisms • Environmental activism	[46–51]

3.2. Social Responsibility

3.2.1. Social Impact Assessment

Upon examination of the WOS listings for social responsibility, the phrase "social impact assessment" (SIA) appears most frequently with citations. The field of SIA was established by the first "state of the art" papers on the subject in 1975 [52]. The task force has become increasingly involved in SIA as a paradigm over time. When addressing the social repercussions of business actions, a human-based approach is used to take into account factors including human rights, livelihoods, community involvement in decision-making, ethical behavior, and the value of local knowledge and the environment [53]. However, even in cases where a single firm engages in both social impact assessment and CSR, the actions frequently seem to be two sides of the same coin [54]. Even though each practice may be robust on its own, supported by internal guidelines or external laws (or both), and have devoted guardians within the company as well as champions who uphold its

principles and guarantee its regular application, they are nonetheless mostly isolated from one another.

From the business perspective of SIA, social risk arises when its actions or those of others in its workplace result in flaws. In the event of social risk, stakeholders might identify these shortcomings and put pressure on the business to change its behavior. Corporate stakeholders' opinions on social issues need to be taken into consideration as maintaining competitiveness becomes more and more important. The democratizing and empowering influence of globalization has increased the scope and reach of corporate stakeholders. Groups of this kind get together globally to oppose both corporate conduct and governmental policies [55]. The initiatives empowering global stakeholders represent an excellent approach to tackling these challenges in the complex and dynamic realm of social responsibility across the commercial sector. Because of the very nature of social risk, management teams have an extremely difficult problem when it comes to explicitly defining a dispersed function. A more comprehensive integration of social risk management into corporate strategy is required [56].

3.2.2. Ethical Compliance

The rule of joy and the law of duty are two different sorts of ethics that are reflected in law and ethics [57]. Freedom for excellence is different from freedom of indifference, which gives rise to ethics of obligation and is seen as an external constraint placed on the agent. Freedom for excellence fosters ethics of virtue and happiness and directs the development and dynamism of an individual's faculties of action that tend toward perfection and the happiness of the human person. The theoretical underpinnings of both conceptions of freedom also contribute to the explanation of the moral and ethical distinctions that result from the approaches of legal and ethical compliance. As corporate governance becomes more prevalent, it is important to remember that the purpose of new laws and regulations should not be overlooked in the rush to follow their formal requirements [58]. They emphasize that companies have to try their best to abide by the new reforms' spirit, acknowledging three main advantages, as well as the text of the law.

To promote and sustain an ethical corporate culture, Paine identifies an organizational integrity-based strategy that is more extensive and broader than the legal compliance approach [59,60]. Before an organizational integrity approach is successful, it must overcome four obstacles: (1) creating an ethical framework; (2) bringing practice and ideals into alignment; (3) getting over skepticism; and (4) resolving ethical conflicts. Since they inspire confidence, ethical compliance methods support stability and growth. After all, management, leadership, and administration are fundamentally ethical responsibilities. The integration of ethics and law is also necessary to help businesses stay legal and negotiate murky areas, even in cases where the law is unclear or they might not have known that the law was in place in the first place [61].

3.2.3. Community Wellbeing

Over the past ten years, there have been a comparatively large number of empirical studies that have looked at the social obligations, roles, and contributions of business, as interest in and focus on the subjective well-being of society has expanded. This indicates that one of the most common social structures in contemporary civilizations is the company. Furthermore, business initiatives that raise employees' subjective well-being may provide advantageous instrumental outcomes that are relevant to the operation of the company. Participating in the community through CSR initiatives will assist businesses in establishing favorable opinions, a solid corporate image, consumer loyalty, and trust [62]. Similar to this, consumer behavioral loyalty in the hotel sector is influenced by CSR, or corporate social responsibility (duty to customers, staff, and society). In general, a corporation can benefit more from CSR adoption than stakeholders can. Summarily, effective CSR activities should build relationships with pertinent parties and enhance community well-being [63,64]. To measure the impact of CSR, Carroll's pyramid model [65], which consists of economic, legal,

ethical, and philanthropic responsibilities, is implemented. The corporate community-wide strategic approach serves as an underpinning for a conceptual framework of community well-being that balances the benefits of the elements that communities and individuals have identified as social, economic, environmental, cultural, and political. One of the most obvious ways that a business can give back to the community is through corporate philanthropy [66].

3.2.4. Consumer Behavioral Eco-Awareness

To improve consumer eco-awareness, purchasing behavior, and psychographics, businesses nowadays have an immense responsibility to provide knowledge and information to society. Several companies still evaluate the success of their green initiatives using traditional business indicators like earnings, return on investment, market share, etc. However, the greening policy's strategic value is more important for the enterprises. The instruments for putting green marketing strategies [67] and tactics into practice are "green design/new product development, green positioning, green pricing, greening logistics, marketing waste, green promotion, and green alliances" [68].

Companies should educate customers about the issue of "greenwashing" to influence them to take more ecologically friendly actions [69]. Businesses sometimes use such dishonest tactics to fool customers into thinking they are selling eco-friendly goods. For this reason, it is critical to inform customers about the problem of "greenwashing". In light of this, modern business seeks to handle several crucial issues, including marketing responsibility, environmental advocacy, eco-labeling, greenwashing concerns, and identifying genuine and green goods [70]. Table 4 summarizes the main points regarding the debates on enterprises' social responsibility.

Table 4 complies with the main conclusions from the study survey on the social responsibility of SBMs. After reviewing the literature, most studies emphasize the importance of developing a comprehensive strategy that incorporates various tactics and perspectives to promote eco-awareness and sustainable consumer behavior. A human rights-based approach emphasizes the importance of upholding and promoting human rights, including the right to a clean environment, within sustainability efforts. The network-based model recognizes the interdependence of stakeholders and the value of collaboration in shaping sustainable solutions. Risk management systems help to identify and mitigate environmental and social risks associated with consumption and production activities. Different legal and ethical compliance approaches, including rule-based and principle-based approaches, work together to encourage sustainable practices while ensuring accountability and fairness. Community-wide strategic approaches involve local communities in decision-making processes and empower them to take responsibility for environmental initiatives. Investing in eco-friendly infrastructure and technology is crucial for promoting resource efficiency and reducing environmental impacts. Recognizing the strategic value of green policies ensures alignment with long-term sustainability goals and international agreements. Additionally, integrating insights from environmental psychology and educational approaches supports the development of effective behavior change interventions and educational programs that promote eco-awareness and sustainable lifestyles. Lastly, a social approach underscores the importance of social norms, values, and identities in influencing consumer behavior and driving collective action for sustainability. By integrating these components into a coherent framework, stakeholders can collaborate to build a more equitable, resilient, and environmentally sustainable future.

Table 4. The social responsibility study survey on SBMs.

Dimension	Approach	Study Focus	Practice Example	References
Social Impact Assessment	• Human rights-based approach • Network-based model • Risk management systems	• Livelihoods • Community involvement • Ethical behavior • Value of local environment knowledge • Non-technical risks • Social risks	• Empowering global stakeholders • Impacts and benefits agreements	[52–56]
Ethical Governance	• Different legal and ethical compliance approaches • Rule-based or the stick approach • Principle-based or the carrot approach	• Ethos • Objectives • Method • Behavioral assumptions	• Define ethics • Geared to achieving responsible conduct • Treats ethics as infused in business practice • Rooted in communal values	[57–61]
Community Wellbeing	• Community-wide strategic approach • Eco-friendly infrastructure/technology	• Economic responsibility • Legal responsibility • Ethical responsibility • Philanthropic responsibility	• Balance the advantages of the individual and communities • Balance the benefits of social, economic, environmental, cultural, and political	[62–66]
Consumer Behavioral Eco-awareness	• Greening policy's strategic value • Environmental psychology approach • Educational approach • Social approach	• Green marketing strategies • Greenwashing • Social Identity Theory • Environmental perception • Information Provision	• Green design/new product development • Green positioning • Green pricing • Greening logistics • Marketing waste • Green promotion • Green alliances	[67–70]

3.3. Economic Viability

3.3.1. Cost Efficiency

The study of Tolkamp et al. explores business models in the energy efficiency domain, such as LED design. Their objective is to uncover the latest business models in practice and assess the viability of adopting sustainable models that offer various benefits for cost-effectiveness [71]. Utilizing the user's expertise appears to be a financially sensible choice. Nonetheless, the company frequently needs to commit resources like time, money, and staff to absorb the information produced externally. One major step toward more efficient and long-lasting business models is the capacity to both predict consumer demands and incorporate them into a company's value proposition [72].

Previous studies usually show how the commercial model downplays the social importance of these transporters. For example, low-cost carriers frequently disregard the environment because they do not consider their externalities [73]. More specifically, they can prioritize operational effectiveness and the "cult of cost reduction" [74] over the organizational environment and service quality [75]. Nevertheless, because low-cost SBMs differ among industries, researchers must employ a multiple-study strategy to explore low-cost carriers that use various types of businesses based on social orientations.

3.3.2. Market Demand

When discussing how market demand may alter a business and transform it into an SBM, most people consider the energy market [76]. However, since this shift necessitates modifying the asset structure in addition to operational guidelines and legal requirements, a "smart customer" is another prerequisite for a comprehensive approach to the sustainable energy market. An additional essential instrument for maximizing the flexibility of the energy demand is demand side management (DSM) [77]. As a result, the development of the energy industry is intimately tied to shifts in technology and the distribution of roles among market participants. It also opens up opportunities for new, long-lasting business models.

In addition to gauging consumer interest in socio-ecological products and services, research must also address the challenge of stimulating widespread market demand for desirable offerings while simultaneously curbing demand for damaging ones [78]. The most pressing issue in marketing today is shifting consumption patterns, which have been established over decades or even centuries, towards more mindful and responsible choices. Investigating the efficacy of sustainability education initiatives and public-private partnerships in shaping consumer values and market trends represents a valuable avenue of inquiry. Value can be created by various players integrating operator resources independently and through institutional arrangements, as emphasized in the service-dominant (S-D) logic [79].

3.3.3. Innovation and Adaptation

Some studies provide preliminary guidelines on becoming and being sustainable, contributing to the ongoing conceptual development of sustainability-oriented innovation (SOI) [80]. In any case, managers, policymakers, and academics have expressed a great deal of interest in the role that innovation plays in assisting businesses in making the transition to sustainability [81]. There is some empirical support for this speculation. Accordingly, start-ups are trying to expand the scope of sustainable innovation beyond the conventional environmental focus by integrating social issues and using their products to raise awareness of sustainable behavior [82]. The tasks associated with SOI include developing an inventive organization through connections to external domain experts, focusing on internal and incremental innovation, adhering to regulations regarding organizational strategy, and learning from existing knowledge to access applicable talents [80].

Organizational sustainability, which is based on capital-based and adaptation-based theories, is the capacity of an organization to strike this equilibrium [83]. The concept of organizational sustainability concerns the dynamic equilibrium that results from a dynamic artificial system and its dynamic environment. For an organization to function as a social system and coexist and evolve with its environment, it must be flexible and functional. To be sustainable, an organization needs to understand how its actions affect the world and be able to innovate, adapt, and learn from its experiences. This article explores the idea of organizational sustainability and how it relates to learning, adaptability, and knowledge processing.

3.3.4. Regulatory Compliance and Risk Management

According to Taylor, Surridge, and Pickering, combining regulatory compliance with other risk management areas can yield valuable insights into a user's sociotechnical infrastructure [84]. By integrating domains like cyber security and privacy, a more comprehensive model can be created. In their study, the authors utilized semantic vocabularies and reasoning techniques to model regulatory requirements as "compliance threats" within an asset-based risk management framework. Additionally, they mapped the General Data Protection Regulation's legal text to various assets, processes, relationships, and mitigation strategies [85]. By identifying threats based on asset configurations and modeling causal dependencies between addressing compliance threats and downstream compliance require-

ments, their research provides a clearer understanding of how different types of regulatory requirements can be represented within this approach.

Despite the inevitability of risk and uncertainty in sustainability, these factors are often overlooked in discussions of sustainable development, particularly in economic analyses. However, several studies have pointed out that this approach ignores the significant connections between risk management and sustainability. By framing sustainability as an obligation to minimize the risk of harm to future generations, risk management tools like mean-variance analysis can be used to evaluate planning decisions and identify policies that minimize risk [86]. There is ongoing debate about the ethical implications of defending a positive chance of injuring future generations and whether this concept of sustainability can be applied. However, certain studies have focused on supply chain sustainability as a risk management process and have distinguished sustainability-related hazards from conventional supply chain risks [87]. These studies provide an analytical framework for handling sustainability risks and incorporating them into supply chain management.

Table 5 displays the main points of discussion about the economic long-term viability of SBMs. Based on a comprehensive review, most studies consider the implications of various concepts such as asset-based risk management, mean-variance analysis, demand-side management, sustainability-oriented innovation, sustainable marketing, the triple bottom line, adaptation-based theory, and sustainable marketing. Understanding the interconnectedness of these concepts and their combined impact on businesses and sustainability practices is crucial. Businesses can develop a comprehensive and dynamic sustainability strategy by considering these factors. This approach will help enterprises to meet customer expectations, drive innovation, effectively manage risks, and promote long-term social, environmental, and financial benefits.

Table 5. The economic viability study survey on SBMs.

Dimension	Approach	Study Focus	Practice Example	References
Cost Efficiency	• User-centered approaches • Triple bottom line approach	• Service-oriented • Active user involvement • Target groups of homeowners	• Co-producing/co-innovating • Design of involvement Facilitation of involvement	[71–75]
Market Demand	• Demand side management Service-dominant logic • Sustainable marketing	• Sustainability education initiatives • Public-private partnerships • Marketing driving	• Sustainable energy market • Socio-ecological products and services	[76–79]
Innovation and Adaptation	• Sustainability-oriented innovation • Adaptation-based theory	• Developing an inventive organization • Internal and incremental innovation • Organizational strategy	• Connections to external domain experts • Adhering to regulations • Learning from existing knowledge to access applicable talents	[80–83]
Regulatory Compliance and Risk Management	• Asset-based risk management framework • Risk management tools like mean-variance analysis	• General data protection • Regulation's legal text • Supply chain risk management	• Evaluate planning decisions and identify policies that minimize risk • Causal dependencies between compliance threats and downstream requirements	[84–87]

In the next section, it is important to consider primary and secondary roles when discussing stakeholders. Understanding the differences between stakeholders and how they are involved in an organization's regulatory and risk management is crucial. Regulatory compliance means following laws, rules, guidelines, and specifications related to a company's business. Risk management involves identifying, evaluating, and prioritizing risks and working together to reduce, watch, and control the chance or impact of adverse events.

Primary stakeholders are people or groups directly affected by a company's activities. They have a strong interest in the company's success. For example, employees must follow internal rules and outside laws, complete training, and help find risks and reduce their impact. Making sure that products are safe and meet certain rules protects customers and upholds trust. Listening to customer feedback and complaints helps enterprises to identify risks early, so the company can fix things before they get worse. Secondary stakeholders are people or groups indirectly affected by a company's activities. Even if they do not directly interact with the company, they are affected by it. Regulators set the rules that companies must follow. Following the rules means that the company is legal and will not be fined. Talking to regulators helps to predict rule changes and change risk plans. Companies must follow environmental and social rules to last and maintain a good name in the community. How the community feels can change a company's risk. Bad feelings from the public can hurt a company's name and work. The media watches how well companies follow rules, do the right thing, and more.

3.4. Driving Force of Stakeholders Engagement

Stakeholder theory and sustainability share key concepts, as businesses today are expected to serve a broader purpose beyond simply maximizing shareholder value in the short term. This involves acknowledging the interplay between business and ethical issues and adopting a long-term perspective that prioritizes value creation [88]. Effectively engaging with stakeholders on various contemporary social and ecological challenges poses a significant sustainability challenge for businesses. Moreover, the United Nations has identified multi-stakeholder partnerships as a crucial element of achieving the Sustainable Development Goals (SDGs). Sustainability requires everyone to be involved, because an ESG approach requires performance improvement and risk management mechanisms. In addition, stakeholders are essential to risk management. Engaging stakeholders and monitoring sentiment will help enterprises to identify and prioritize the environmental and social concerns that need to be addressed and develop solutions that meet their needs [89]. In any organization, stakeholders can wield significant influence as catalysts for change. They can inspire others to join in the mission and promote greater public consciousness of sustainability-related concerns. By affording every stakeholder a platform to express their views and ensuring that the objectives of their ESG program are adequately represented, enterprises can increase the likelihood of their plan achieving long-term success [90]. Figure 2 outlines the primary and secondary constituents of stakeholders; however, it is important to note that it does not encompass all potential components.

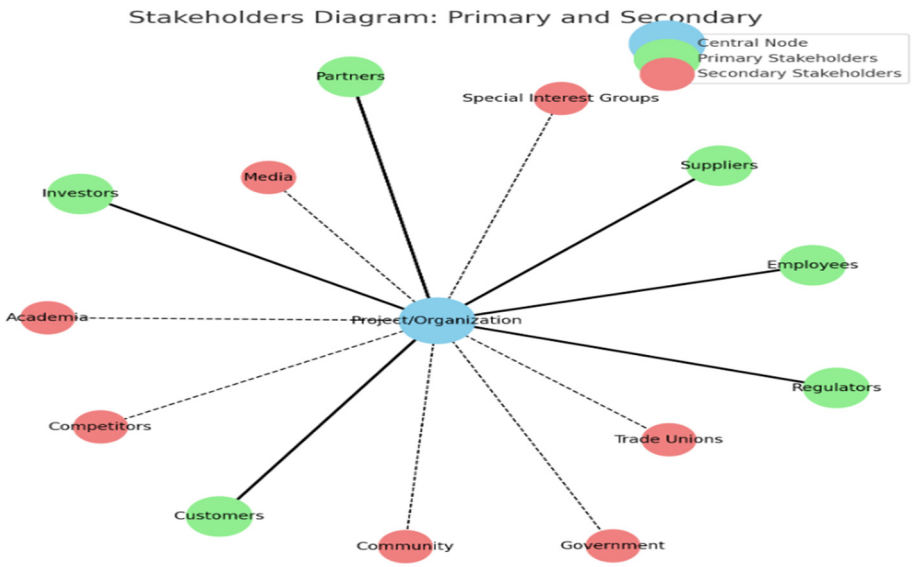

Figure 2. Stakeholders composed of primary and secondary constituents.

We determined the motivations underlying primary and secondary stakeholders' advocacy of SBMs after closely examining 3215 papers (as depicted in Figure 3). The proposed framework aims to enable decision-makers to incorporate sustainability into an organization's business functions and meet stakeholder expectations. To effectively engage each stakeholder group, it is important to consider the specific problem at hand and the organization's relationship with the individual or group. An organization's engagement strategy should align with the goals of its evaluation and the type of involvement it hopes to achieve. Surveys can be a valuable tool for investigating one-way interactions, while focus groups and seminars are effective for facilitating two-way involvement. We recommend testing various stakeholder interaction techniques to determine which approaches work best for each enterprise's unique set of stakeholders.

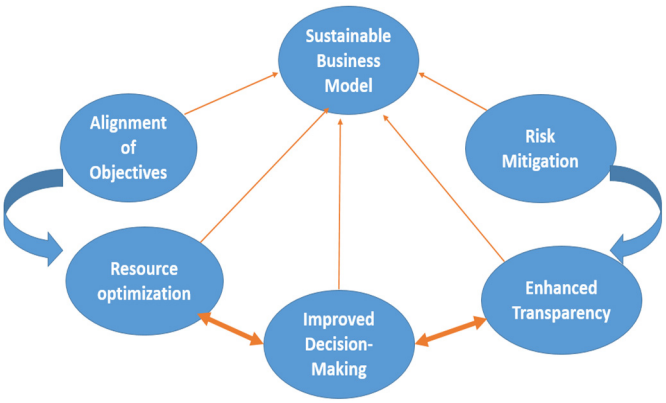

Figure 3. The structure catalyzing stakeholders' engagement.

The following are a few advantages of carrying out a thorough stakeholder engagement plan. The first is the alignment of objectives. Stakeholders ensure that the organization's goals are consistent with the overarching corporate objectives. This boosts the company's worth and promotes its long-term survival. In this regard, and consistent with the growing attention and governmental emphasis on international standards, the terroir and other ecologically connected environmental factors are intrinsic to the sector and have a direct bearing on the product and its sustainability [91–93]. Implementing an efficient resource allocation policy could help to combat numerous waste-related issues [94]. The organizational policy alignment should take into account the process of accurately mapping a job to a virtual resource and a virtual resource to a physical server.

Engaging stakeholders effectively is crucial for mitigating risks in organizational projects [95]. By seeking out diverse viewpoints and ideas, stakeholders can contribute to a comprehensive risk management plan that minimizes the likelihood of future costly issues. Stakeholders are essential partners in achieving sustainability goals, and a suitable stakeholder engagement strategy is worth exploring when undertaking an ESG journey. Research has shown that transparency is critical in promoting sustainable practices and building brand trust. For instance, a study in South Korea found that increased transparency in information leads to higher levels of environmental awareness and willingness to act sustainably [96]. Similarly, organizations can assess transparency levels by comparing questionnaire responses to financial statement disclosures of foreign exchange risk management [97]. Evidence suggests that transparency can help enterprises to establish an advanced SBM by positively impacting environmental concerns, brand trust, and pro-environmental behavior.

There is growing consensus among academics over the degree to which the conceptual foundations of corporate social responsibility (CSR) and stakeholder theory differ or are similar [98]. Important components of the two strategies have always aligned because of concerns about real environmental problems and few resources [99], ongoing public demonstrations of corporate misconduct, and skepticism regarding the sustainability of

applied capitalism principles in the wake of the financial crisis. To improve the decision-making of an organization, obtaining feedback from a range of stakeholders helps it to make more thoughtful, well-informed choices. By drawing on their combined knowledge, an organization can make decisions that take into consideration different viewpoints and possible effects.

In recent years, there has been a growing interest in utilizing decision-making approaches to achieve sustainability goals. However, there has been a lack of systematic reviews on performance indicators, which are essential components of decision-making models used to evaluate a company's social, environmental, and economic performance. By implementing a systematic review methodology, numerous studies have conducted a thorough assessment of the literature [100]. Although systematic reviews represent a comprehensive review process mostly developed in the realm of medicine, they have become increasingly relevant in the field of management and organization studies. The use of an open, reproducible, and scientific process to conduct literature reviews distinguishes systematic reviews from traditional methods, intending to minimize bias and errors through rigorous literature searches and maintaining a transparent audit trail of all decisions and activities undertaken. Gong et al. aimed to investigate the relationship between sustainable triple-bottom performance and decision-making processes [101]. Specifically, it compares academic theory and industry practice regarding performance metrics that are proposed and used. Additionally, it integrates corporate governance mechanisms into the decision-making process for sustainable consideration.

3.5. Long-Term Perspective

Nowadays, sustainability is a crucial factor that can determine a company's long-term success. Researchers like Baines et al. suggest that manufacturers would be more motivated to extend the lifespan of their products if they had ownership [102]. This, in turn, could lead to an increase in long-term profits from end-of-life goods and services. Yang et al. also highlighted the benefits of PSS, which can enhance product usage, provide usage data to manufacturers, and generate long-term service profits [103]. Toossi further emphasizes that this can encourage producers to develop innovative solutions that add value in both the middle-of-life (MOL) and end-of-life (EOL) [104]. Essentially, this concept proposes that unexplored value may be the key to driving business model innovation towards sustainability.

As seen in Figure 4, this study reviews relevant studies to provide a conceptual understanding of this unrealized value from a long-term viewpoint. To achieve lasting success, businesses must develop an SBM and take a long-term approach. Let us delve into what each of these ideas means. A long-term view must, first and foremost, include a clear understanding of the company's future goals, whether those goals are five, ten, or twenty years out [105]. While there have been global efforts to establish an approach to organizational sustainability, research on vision-based leadership often overlooks the quality of the core vision [106]. This is especially true for visions that lead to sustainable business performance. As a result, a model has been proposed to outline the relationships between vision characteristics, vision realization, intervening variables, and business performance. This vision serves as a guiding light for decision-making.

Secondly, strategic planning that goes beyond immediate goals and considers the broader context, including market trends, technological advancements, and potential disruptions, is crucial. Thirdly, investment in research and development is necessary to innovate and stay ahead of the competition. Companies with a long-term perspective understand that what works today may not work tomorrow and continuously seek to improve their products, services, and processes. Fourthly, long-term thinking involves considering and mitigating various risks that could impact the company's future viability, such as economic downturns, regulatory changes, or shifts in consumer preferences. Lastly, businesses with a long-term perspective prioritize sustainable growth that fosters stability and resilience over time, instead of focusing solely on short-term gains.

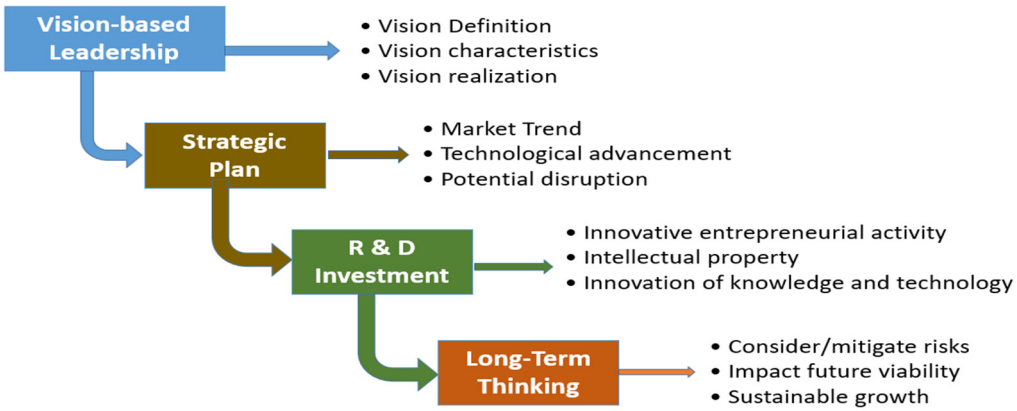

Figure 4. The conceptual understanding from a long-term perspective.

4. Case Study of China

Our study on visual analysis in English literature included an extensive search using the Web of Science (https://www.webofscience.com, accessed on 22 January 2024) with the keyword "SBM" in the title. We examined articles published between 1980 and 2023 and found 4252 articles regarding China that can be sorted based on preference. These articles can be broadly categorized into three groups: macroeconomics (which covers business environment, growth, governance, foreign direct investment, impact, and productivity), microeconomics and companies (encompassing firms, value creation, innovation, strategy, performance, and management), and methodology (model).

We observed a significant increase in the usage of the phrase "business environment" between 2003 and 2006, while "innovation" saw a surge in usage between 2020 and 2022. In 2003, the World Bank Group recognized the need for standardized indicators to aid in the development of new strategies for the private sector in every country. This resulted in the creation of the "Doing Business" indicator system, which has been a crucial tool in assessing economic and social conditions for over two decades, empowering governments to make informed decisions. Figure 5 demonstrates the keyword co-occurrence network analysis, which exhibits the strong correlation between business environment and other relevant keywords such as performance, innovation, management, impact, growth, firms, economic growth, and social responsibility.

As sustainable and high-quality development becomes the norm, an enterprise's social responsibility directly impacts the company's survival and development, as well as the economic growth of the nation [107]. Internal and external factors, including the business environment, affect SBMs, with the governance, credit, legal, and market environments as key factors that promote private enterprises' SBMs [108]. Institutional factors can effectively act as external corporate governance mechanisms that serve to curtail the managerial discretion of family owners. Employees enjoy enhanced institutional protection and greater bargaining power in regions characterized by high institutional development. Interestingly, family firms are typically situated in areas of superior institutional development in comparison to nonfamily firms, within the external institutional environment.

Additionally, market and governance environments were critical to SBMs and created a configuration path when combined with other antecedent conditions [109]. Based on a newly developed framework, an SBM's communication intensity is mostly driven by a country's governance environment, which can be differentiated into rule-based and relation-based governance. Moreover, the business environment can influence the correlation between SBM and sustainable innovation, emphasizing the significance of a favorable setting [110]. In today's dynamic market, characterized by cut-throat competition and consumers' expectations of corporate responsibility, a well-executed SBM strategy can help executives to gain the loyalty and trust of their customers. Consistent engagement with stakeholders on SBM programs can also help executives stay attuned to market trends and introduce innovative solutions. Although previous studies have indicated a

potential relationship between SBM and the business environment, it is crucial to note that there exists a significant lack of research in this particular field. Furthermore, only a limited number of inquiries have delved into the connection between an eco-friendly business setting and SBM, particularly within the framework of environmental, social, and governance (ESG) principles and sustainable development [111].

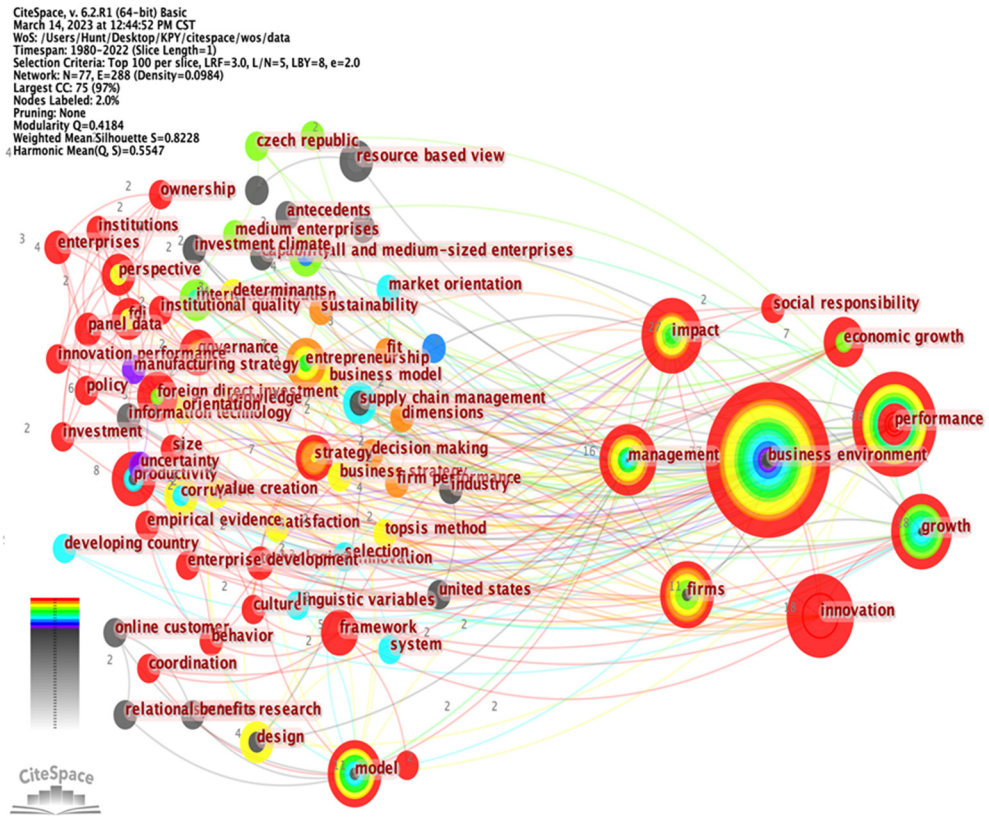

Figure 5. Keyword co-occurrence network analysis summary of articles in English.

4.1. Methodology

4.1.1. Principal Component Analysis

Principal component analysis (PCA) is a crucial statistical tool, initially introduced by Pearson in 1901 and further popularized by Hotelling in 1933. This method has found extensive use in analyzing both non-random and random variable data across various fields, including economics, management, geography, and more [112]. Additionally, due to its ability to provide a thorough score based on multiple indicators, PCA has also been applied to the business environment [113]. The PCA approach can be represented as follows in Equation (1).

$$\begin{cases} F_1 = a_{11}Z_{x1} + a_{21}Z_{x2} + \cdots, +a_{j1}Z_{xj} \\ F_2 = a_{12}Z_{x1} + a_{22}Z_{x2} + \cdots, +a_{j2}Z_{xj} \\ \cdots \\ F_m = a_{1n}Z_{x1} + a_{2n}Z_{x2} + \cdots, +a_{jn}Z_{xj} \end{cases} \quad (1)$$

where $a_{1i}, a_{2i}, \cdots, a_{ji}$ $(i = 1, 2, \ldots, m)$ are the eigenvectors corresponding to the eigenvalues of the variable x covariance matrix and $Z_{x1}, Z_{x2}, \ldots, Z_{xj}$ are the standardized variables to eliminate the magnitude of the different variables.

The PCA method utilizes statistical techniques to extract common components from a group of criteria. It identifies hidden representative factors within multiple criteria to achieve dimension reduction, allowing for the classification of similar criteria into a principal component to test the hypothesis of variable relationships. By applying the idea of dimension reduction, PCA combines complex and related variables or index combina-

tions into a new combination of fewer unrelated indicators or variables. The process of PCA involves several steps, including variable standardization using the z-score method (Equation (2)).

$$Z_{ij} = \frac{X_{ij} - \overline{X_j}}{\sigma_j} \quad (2)$$

Next, the suitability of variables for the PCA was assessed using the Kaiser–Meyer–Olkin (KMO) index and Bartlett's test of sphericity. To ensure the validity of the PCA, this study examined the inter-correlation between variables through Bartlett's test of sphericity ($p < 0.001$) and assessed sampling adequacy with the KMO index. Then, the number of principal components was determined based on the variance contribution rate and eigenvalues. The linear combination expression of the principal components was also established. Finally, the composite index was calculated by using the eigenvalues of the principal components as weights. In 2018, China began implementing its business environment evaluation program. The evaluation index (29 indicators) was established as shown in Table 6 and continually improved based on international evaluation indices that align with international standards, including World Bank criteria, but also incorporate unique Chinese characteristics. This thesis utilizes the PCA method to reduce the dimensions of 29 indicators and calculate the overall score of the green business environment in provinces and municipalities.

Table 6. Green business environment index.

Dimensions	No.	Indicators
Economic Environment	X11	Economic Development
	X12	International Trade
	X13	Foreign Investment
	X14	Fixed Asset and Investment
	X15	Enterprise Digitization
	X16	Capability to Acquire Capital
	X17	Financing Capacity
	X18	Transport Efficiency
Government Environment	X21	Government Revenue Scale
	X22	Government Balance
	X23	Tax
	X24	Land Cost
Social Environment	X31	Population
	X32	Inflation
	X33	Disposable Income
	X34	Employment
	X35	Social Security Level
	X36	Wage Level
Technical Environment	X41	Input of Education
	X42	Higher Education
	X43	Inventions and Patents
	X44	Technology Input
	X45	Technological Innovation
	X46	Cultural Atmosphere
Green Environment	X51	Power Consumption
	X52	Environmental Protection Expenditure
	X53	Waste Disposal
	X54	Air Pollution
	X55	Living Environment

4.1.2. Grey Relational Analysis

Grey relational analysis (GRA) is a powerful technique that can effectively handle incomplete and uncertain data. One of its key applications is as an accumulating generation

operator (AGO), which can uncover hidden information in indirect data. GRA is often used in conjunction with AGO to facilitate multiple criteria decision-making (MCDM) in situations with diverse attributes and uncertain conditions. The GRA method, which examines the strength of the connection between double digits, has been widely utilized in various fields, including energy consumption, regional competitiveness, and sustainable supply chain designation [113]. While its use in the business environment has been limited, recent studies have applied GRA to analyze the entrepreneurial and digital trading business environments, which share similarities with the business environment [114].

To begin the primary process of GRA, it is necessary to standardize the performance of all possible options into a comparable sequence. Within these sequences, the optimal target sequence can be designated as a reference. Subsequently, each comparability sequence is evaluated against the reference sequence to derive the grey relational coefficient. The final step involves utilizing the grey relational grade to determine the level of similarity between each comparability sequence and the reference [115]. The GRA encompasses three distinct stages, which are outlined below.

Step 1. Normalization: Before calculating the entropy weights, the original data can be normalized using the following three equations to avoid data distortion (Equations (3)~(5)).

Upper-bound effectiveness of measurement (i.e., larger-the-better):

$$p_{ij} = x_{ij} / x_j^{\max} \tag{3}$$

where $x_j^{\max}$ is the maximum value of the jth attribute.

Lower-bound effectiveness of measurement (i.e., smaller-the-better):

$$p_{ij} = x_j^{\min} / x_j \tag{4}$$

where $x_j^{\min}$ is the minimum value of the jth attribute.

Moderate effectiveness of measurement (i.e., nominal-the-best):

$$p_{ij} = \min\{x_{ij}, x_j^d\} / \max\{x_{ij}, x_j^d\} \tag{5}$$

where x_j^d is the most favorable value of the jth attribute.

Step 2. Generate the reference sequence: We find the reference sequence in the normalized matrix. This paper then defines the reference sequence (Equation (6)).

$$p^* = (p_1^*, p_2^*, p_3^*, \ldots, p_j^*) = (1, 1, 1, \ldots, 1) \tag{6}$$

Step 3. Grey relational coefficient (GRC) calculation in Equation (7).

$$\gamma_{it} = \frac{\Delta_{min} + \zeta \Delta_{max}}{\Delta_{ij} + \zeta \Delta_{max}} \tag{7}$$

where $\Delta_{ij} = |p_j^* - p_{ij}|, \Delta_{min} = Min\ \Delta_{ij}, \Delta_{max} = Max\ \Delta_{ij}$ and ζ is the distinguishing coefficient, $\zeta \in [0, 1]$. In most situations, $\zeta = 0.5$, because this value usually offers moderate distinguishing effects and good stability [116].

Step 4. Grey relational grade (GRA) calculation in Equation (8). Finally, we calculate the GRA, which is the average of the grey relational coefficients for each factor.

$$GRA = 1/n \sum_{i=1}^{n} GRC_i \tag{8}$$

where GRA = Grey Relational Grade; n = Number of factors; GRC_i = Grey Relational Coefficient for the ith factor.

The similarity between the reference sequence and the comparable sequence is referred to as the "grey degree" [117]. Thus, the more similar the comparable sequence is to the

reference sequence, the greater its gray correlation level, indicating that this option is the best one. The primary purposes of the gray relational analysis in this thesis are to identify the significant effect aspects and examine the relationship between corporate social responsibility and the green business environment.

4.1.3. Fuzzy Set Qualitative Comparative Analysis

Due to its utilization of a configurational approach informed by statistics, fuzzy set qualitative comparative analysis (fsQCA) has become a highly objective method for drawing predictive conclusions. More precisely, fsQCA represents the asymmetrical thinking of complexity theory since it uses set theory and Boolean algebra to analyze configurational relationships instead of the most common research paradigm, which combines matrix algebra with additive-based statistical methods [118]. Consequently, the fsQCA approach stands out from the rest of the analytical pack because it has a relative advantage in showing the combinations of conditions that result in an outcome, a positive outcome, and a negative outcome [119].

However, traditional regression analysis approaches also assume independent variables, solitary linear correlations, and symmetric causation; in reality, a variety of factors work together and are interrelated. The fsQCA approach adopts a holistic approach from both the grouping and qualitative analysis perspectives to address complex causal relational questions such as multiple concurrent causalities, causal symmetry, and multiple scenario equivalency. By treating the study object as a collection of different combinations of condition variables, it determines the aggregate relationships between elemental groupings and outcomes through ensemble analysis. Consequently, fsQCA is used to perform a comprehensive analysis of the configurational effect of the green business environment on SBMs.

Complexity theory is the basis for the assumption that the configurational model approach is a qualitative comparative study [120]. The investigator can use fsQCA to investigate the combined effects of the incidental factors. Modeling configurations with the fsQCA program involved multiple stages. The imprecise results that are subsequently utilized are the result of calibrating all of the data first. The statement is the result of several intricate causal relationships that truth table analysis reveals during the study's second phase. Additionally, fsQCA was used to analyze significant conditions to help the researchers determine what conditions must be met for the proposed outcome to occur. fsQCA is a novel approach to business environment research that has been used in the last few years [121].

Step 1. Calibration.

In fsQCA, every variable is seen as a fuzzy set with a range of membership values. So, the first step is to calibrate all the data into fuzzy set value systems. Full non-membership, crossover, and full membership—that is, identifying the three scale members—are the three unique positions of membership in a set that can be used for calibration. A direct calibration strategy using three anchors is used because of the scale used in this study. Complete non-members are defined as falling within the 5th percentile, full memberships are defined as falling within the 95th percentile, and the crossover points are defined as falling within the 50th percentile. After the threshold limits are defined, a non-linear stepwise logistics function integrated into the fsQCA is used to transform all possible values for the fuzzy set values.

Step 2. Necessary conditions analysis.

The process of figuring out the requirements for necessity and whether or not each antecedent condition's distinct influence is necessary to the outcome is known as necessary conditions analysis (NCA). According to earlier studies, if the result is consistently anticipated, then the condition is required. If a component's score is more than or equal to 0.90, its consistency can be verified [122].

Step 3. Sufficiency analysis.

An assessment of the truth table or a sufficiency analysis looks at the relationships between cause-and-effect pairings. As a result, the sufficiency analysis yields a set of appropriate conditions, sometimes referred to as configurations or causal models [123]. The two parameters in the truth table that are used to assess the significance of the data are the consistency and coverage levels, which are 0.8 and 0.2, respectively. Coverage is similar to the coefficient of determination (R^2), which measures the relative contribution of each causal explanation to a given outcome. Coverage values range from 0 to 1, with a higher number indicating more comprehensive coverage. Consistency measures how much an ascendant condition contributes to the outcome, the same as the path coefficient (β). When truth tables are evaluated, the fsQCA 3.0 software produces three solutions: complicated, moderate, and parsimonious. They will be employed since the intermediate solutions include both parsimonious and complex solutions. The impact of the green business environment on CSR is the outcome of the interaction of several factors due to the interaction of influencing factors. Therefore, the configuration path for high-level CSR is found using fsQCA in this study.

4.2. Data Collection

Numerous prior studies have explored the connections between business models and corporate social responsibility (CSR). However, different authors have provided diverse definitions of a "sustainable business model" (SBM). Some experts consider it a model where sustainability concepts are central to shaping the mission and driving force behind decision-making, while others view it as a model where sustainability concepts drive a firm's decision-making. The relationship between business models and CSR can be perceived as a feedback loop, as certain business model types can encourage greater CSR involvement, and CSR implementation can ultimately result in changes to business models. Schaltegger and Wagner further note that companies adhering to CSR principles are experiencing changes in their business models due to both conscious and inadvertent changes [122].

Using the GRA and fsQCA methodologies, this study investigates the impact of the business environment on SBMs in 2020. The Hexun website is where listed companies can obtain CSR scores responded to in SBMs. The Provincial and Municipal Economic and Social Development Statistics Bulletin 2020, the China Statistic Yearbook 2021, and the Provincial and Municipal Statistic Yearbook 2021 are the sources of data on the business environment. A "barometer" reflecting the overall trend of China's capital market, Shanghai Shenzhen CSI 300 (CSI300), was jointly released in 2005 by the Shanghai Stock Exchange and the Shenzhen Stock Exchange. The 300 largest and most liquid stocks traded on the Shanghai and Shenzhen exchanges make up the CSI300 index, whose main components' industry distribution essentially mirrors that of the market as a whole. Thus, to investigate the connection between the SBM's environment and CSR, the listed businesses in CSI300 are utilized as a research sample [124].

Except for the CSI 300 companies that did not receive a CSR score in 2020, 290 listed companies are spread across 27 provinces and municipalities. The acronym "ST" stands for "Special Treatment", and it sometimes appears in the CSI300. This indicates that the listed companies have financial or other issues, which is why these companies were removed. Furthermore, none of the businesses in CSI300 are registered in the provinces of Heilongjiang, Hainan, or Gansu. As was previously indicated, the PCA separately scores each of the five dimensions of the business environment: economic environment (ECO), government environment (GOV), social environment (SOC), technical environment (TEC), and green environment (GRE). As a result, 290 listed businesses spread across 27 provinces and municipalities make up the final data. Table 7 shows the descriptive statistics.

Table 7. Descriptive statistics.

Variables	No.	Mean	S.D.	Min.	Max.
CSR	290	26.10	6.59	−0.33	41.74
ECO	27	60.98	11.94	44.87	92.90
GOV	27	60.15	11.99	47.31	96.13
SOC	27	60.57	5.96	49.72	75.67
TEC	27	60.97	10.41	49.19	93.17
GRE	27	60.75	7.77	47.39	83.37

4.3. The Application of GRA on SBM

First, after the analysis process, the PCA was used to calculate the five dimensions of the business environment for 27 provinces and municipalities. The results are shown in Table 8. The GRA is used to investigate the relationship between the business environment and CSR score in the SBM after the five dimensions have been established for different provinces and municipalities.

Table 8. Dimension of business environment in 2020.

Provinces/Municipalities	ECO	GOV	SOC	TEC	ENE
Bejing	70.67	93.22	57.67	72.12	58.93
Tianjin	51.87	72.85	59.94	57.79	47.39
Hebei	61.72	59.18	61.80	59.58	74.28
Shanxi	54.28	64.24	60.27	53.12	62.84
Neimenggu	44.87	61.05	54.84	52.03	65.47
Liaoning	47.77	59.34	59.92	57.93	61.00
Jilin	48.44	52.80	54.47	53.34	53.52
Shanghai	76.95	96.13	61.61	68.25	51.37
Jiangsu	84.76	62.70	64.70	81.99	70.00
Zhejiang	79.07	69.11	63.17	77.23	62.68
Anhui	64.71	52.73	60.08	60.78	61.37
Fujian	62.44	54.16	59.98	59.12	58.44
Jiangxi	60.43	55.90	61.75	57.69	58.79
Shandong	71.82	57.82	66.51	71.20	72.95
Hehan	61.86	52.71	72.84	61.73	65.69
Hubei	57.25	47.31	64.36	62.08	62.54
Hunan	61.68	49.46	61.12	60.08	57.42
Guangdong	92.90	75.31	75.67	93.17	83.37
Guangxi	55.77	49.45	57.66	54.16	54.52
Chongqing	58.62	53.29	56.18	53.91	58.22
Sichuan	63.82	55.55	68.36	62.15	63.43
Guizhou	55.40	55.76	56.71	53.51	58.93
Yunnan	56.29	52.68	62.11	53.90	55.88
Shaanxi	57.71	55.73	60.85	58.21	55.97
Qinghai	48.53	54.86	50.40	49.19	50.16
Ningxia	49.87	55.23	49.72	50.09	59.32
Xinjiang	47.07	55.37	52.75	51.79	55.82

Equation (3) is used to normalize the initial dataset because CSR and the dimensions of the business environment have larger-is-better attributes. The business environment's dimensions serve as the comparability sequences, and the CSR score serves as the reference sequence. The goal was to find the alternative where the comparability sequence is closest to the reference sequence. As a result, Equation (7) is used to calculate the grey relationship coefficients (GRC). Since each component of the business environment is so significant, they are all given equal weight. Then, using Equation (8), one can calculate the grey relational grade (GRG).

Table 9 shows that all five of these dimensions have GRGs greater than 0.6, indicating that each has a significant impact on the CSR score in an SBM. The green environment has

the highest similarity to CSR at 0.739. This suggests that businesses will try to adopt social responsibility as a result of the green environment's influence. The final two dimensions are the social and economic environments. This table demonstrates that while these two factors might affect a business's performance, they are not the main ones that determine a company's level of social responsibility. However, the results only highlight the distinct impacts of each dimension. fsQCA will be employed to evaluate the relationship and assess the combined impact of causal factors on CSR.

Table 9. The result of the grey relational grade.

Dimensions	GRG	Ranking
ECO	0.717	4
GOV	0.720	3
SOC	0.697	5
TEC	0.730	2
GRE	0.739	1

4.4. Combined Effect of Causal Factors on CSR

4.4.1. Calibration and Measurement

The fsQCA method is utilized in the calibration process. A calibration, ranging from 0 to 1, can be used to determine the total membership of the different groups in a given area [125]. Direct and indirect methods are typically used to categorize calibration techniques [126]. The membership levels of full input, crossover, and full output in the fuzzy set are determined by employing the direct calibration method and precisely three qualitative breakpoints. In contrast, the measurement range for the indirect method must be adjusted to reflect the actual circumstances. The present study, in line with earlier research, uses direct calibration to determine the full membership points of five antecedents and one results variable. Specifically, three thresholds of 0.95, 0.5, and 0.05 are used for the complete membership, intermediate membership, and complete non-membership points of the data. For the anchor point calibration, refer to Table 10 below.

Table 10. Calibration of variables.

Variable Classification	Variables	Fully In	Crossover	Fully Out
Result variable	CSR	36.42	26.22	15.06
Antecedent variables	ECO	92.90	71.82	51.87
	GOV	96.13	75.31	52.69
	SOC	75.67	61.61	56.42
	TEC	93.17	72.12	53.51
	GRE	83.37	61.37	51.37

4.4.2. Necessary Conditions Analysis

A necessary condition is required for the outcome to happen, but its existence does not ensure that it will. According to Huang et al., the event is made possible by the necessary condition [127]. Previous research led to the decision to set the necessity analysis's consistency threshold at 0.9. Following the nomenclature, the symbol "~" represents the negation of the characteristics.

The necessary conditions analysis is conducted using the fsQCA 3.0 software, and Table 11 presents the findings. According to the results of the necessary conditions, no single aspect of the green business environment is required for either CSR or non-CSR, as the necessary consistency of the single antecedent condition on CSR and non-CSR is less than 0.9. Stated differently, the explanatory power of a single antecedent condition for CSR is inadequate. Consequently, additional research must be conducted to evaluate the combined impact of the antecedent circumstances.

Table 11. Necessary conditions for the CSR score in SBM.

Condition	CSR		~CSR	
	Consistency	Coverage	Consistency	Coverage
ECO	0.712	0.672	0.692	0.625
~ECO	0.602	0.671	0.637	0.680
GOV	0.600	0.646	0.593	0.611
~GOV	0.639	0.621	0.657	0.612
SOC	0.644	0.675	0.642	0.644
~SOC	0.661	0.659	0.676	0.645
TEC	0.663	0.688	0.646	0.642
~TEC	0.655	0.659	0.686	0.661
GRE	0.652	0.680	0.646	0.645
~GRE	0.659	0.660	0.679	0.651

4.4.3. Sufficiency Analysis

In essence, configuration analysis shows whether the different configurations of the diverse antecedent conditions are enough to generate CSR. This study further analyzes the configuration path formed by the interaction of five dimensions, as there was no single antecedent condition for CSR. The sufficiency test is used to ascertain whether configuration sets with multiple antecedent conditions are included in the result set, based on the principles of set theory. The algorithm used is fsQCA [128]. The literature indicates that the consistency threshold can be set to either the natural discontinuity value of the consistency score for truncation or the range of 0.75–0.85. To ensure that the consistency meets the requirements of the fuzzy set theory, the consistency threshold for this study is set at 0.85 in this study.

The frequency threshold is usually determined by the sample size. Previous studies have indicated that at least 75% of the sample cases should be reserved for the frequency threshold setting [129]. Since there are 290 sample cases in all in this research, the frequency threshold is set at 2. Ultimately, the parsimonious, complex, and intermediate solutions are the three distinct solutions for the sufficiency analysis that the fsQCA algorithm presents. Whether or not these three solutions include the logical remainders in the analysis is what separates them [130]. While presenting intermediate and reduced solutions, this article uses these same solutions to differentiate between the core and edge conditions. If the antecedent condition is shared by the intermediate and reduced solutions, then the core condition, which has a substantial impact on the result, is present. On the other hand, an antecedent condition is deemed an edge condition if it appears exclusively in the intermediate solution. By using fsQCA, two low-level and four high-level CSR configuration paths are determined, highlighting the various concurrent aspects of CSR. For a sufficient configuration of antecedent conditions for CSR, see Table 12. The consistency level of the overall solution is greater than 0.7, meaning that there are enough antecedent conditions in each of the six configurations for a CSR to occur at a high or low level. The coverage statistics demonstrate that the configurations can account for a substantial amount of the organizations' social responsibility.

Configuration paths 1, 2, 3, and 4 are the combinations that produce a high level of CSR; configuration paths 5 and 6 produce a low level of CSR. The ECO leading path, represented by Configuration 1 (ECO*GOV*SOC*GRE), demonstrates the central role that the environment plays. The government environment is irrelevant in Path 1, but the social and green environments play supporting roles. Therefore, a sufficient condition for a high CSR may be the economic environment combined with the social environment and the green environment. An enterprise is an organization whose main purpose is to make money, and which also happens to be its primary objective. As a result, lowering operating expenses and making significant profits is not difficult for companies operating in a robust economic climate. The social and environmental conditions also make businesses more likely to engage in CSR.

Table 12. Sufficient configuration of antecedent conditions for CSR.

	High-Level CSR				Low-Level CSR	
	1	**2**	**3**	**4**	**5**	**6**
ECO	★	★	★	○	☆	☆
GOV	○		★	★	○	○
SOC	●	●	●	○	★	
TEC		★	○	★	○	○
GRE	●	●	○	○		★
Consistency	0.422	0.464	0.246	0.342	0.324	0.319
Unique coverage	0.020	0.055	0.023	0.130	0.041	0.036
Raw coverage	0.804	0.695	0.868	0.825	0.843	0.838
Solution coverage	0.688				0.360	
Solution consistency	0.705				0.816	

Note: ★ indicates the core condition; ● indicates the edge condition; ☆ indicates the absence of the core condition; ○ indicates the absence of the edge condition.

Configuration paths 2, 3, and 4 are impacts that are dual-driven and have different combinations of core conditions. Configuration 2 is known as the ECO-TEC leading path (ECO*SOC*TEC*GRE), which combines the technical and economic environments as the core conditions and the social and environmental environments as the edge conditions. Path 2 enhances the initial economic environment with a technological environment, in contrast to Path 1. In addition to raising productivity, technological advancement will promote social progress. Since technology is always changing, businesses are better equipped than ever to take on social responsibility. Meanwhile, high CSR can be achieved by taking into account the effects of the social and natural environments.

Configuration 3 (ECO*GOV*SOC*~TEC*~GRE) indicates the ECO-GOV leading path. Path 3 views the social environment as an edge condition and the political and economic environments as core conditions. It represents when the government incentivizes businesses to adopt CSR. In other words, CSR can reach a high level when the government and economy are functioning at a high level, regardless of the existence or lack of a technology environment and a green environment. The government environment is introduced in Path 1 and takes on the role of the technological environment in Path 2, in contrast to the other two paths. As a result, the government may encourage businesses to adopt CSR by boosting awareness and offering advice based on guaranteeing the financial basis.

Configuration 4 (~ECO*GOV*~SOC*TEC*~GRE), the GOV-TEC leading path, illustrates how, in the absence of other edge conditions, the role of the government environment is not only to consolidate favorable conditions but also to dominate CSR as a core condition if the technological environment is the core condition. The government directs the growth of corporate social responsibility. The government uses a variety of tools, preferential policies, legislation, and relevant rules to encourage businesses to carry out their CSR. Thus, in Path 4, having a highly developed political system and cutting-edge technology will help enterprises to achieve high CSR.

This study also compares and contrasts the configurations that lead to high and low levels of CSR in order to expand the theoretical interpretation component of the result analysis. According to the theory of causal asymmetry, there might be variations in the antecedent conditions that determine whether or not the result variable appears. The combinations of antecedent conditions that lead to the low level of CSR are represented by configurations 5 (~ECO*~GOV*SCO*~TEC) and 6 (~ECO*~GOV*~TEC*GRE). Paths 5 and 6 show that when the fundamental component of the economic environment is lacking, the existence of a social environment or a green environment by itself cannot lead to a high level of corporate social responsibility.

5. Conclusions

We have compiled a comprehensive survey that recognizes the critical role that incorporating sustainable business models (SBMs) in scholarly research plays, based on a review of articles published over several decades. Several theories, such as the triple bottom line (TBL) idea, which assesses performance in three areas—social, environmental, and financial—are the foundation of sustainable business models. This acknowledgment underscores the significance of considering the impact of social behaviors when analyzing and interpreting research findings. The concept of sustainable business models, which emerged from the literature analysis, combines economic, social, and environmental factors to produce long-term benefits for the company and the community. These approaches endeavor to attain an equilibrium among financial prosperity, environmental preservation, and social accountability.

This research emphasizes the importance of not only financial profits but also social fairness and environmental sustainability. Sustainable business models often incorporate circular economy practices to reduce environmental impact and resource consumption. Circular economy principles involve minimizing waste and maximizing resource efficiency by creating durable items that are recyclable, regenerative, or reusable. Therefore, it is essential to acknowledge the challenges involved in evolving sustainable business models, as illustrated in Figure 6. This summary outlines essential elements and factors to consider when conceptualizing and developing sustainable company concepts.

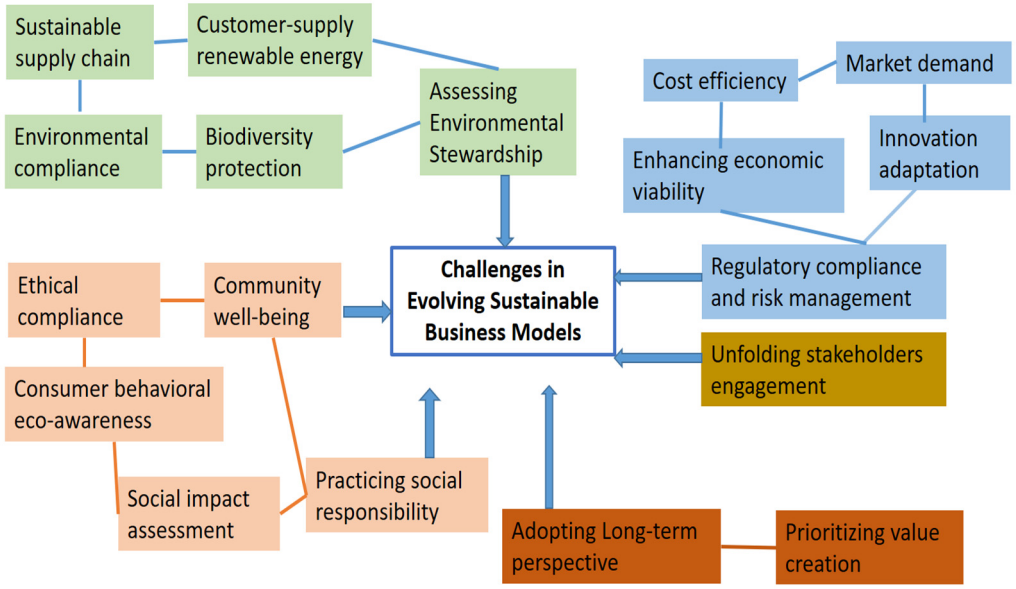

Figure 6. The challenges involved in evolving sustainable business models.

In addition, it is important to adopt a lifecycle approach when assessing the impact of goods and services on society and the environment. This approach takes into account the entire lifecycle of a product or service, from the extraction of raw materials to the product's eventual disposal or recycling. By considering each stage of the value chain, it is possible to identify areas for improvement and optimize the use of resources. This can lead to more sustainable practices and a reduced environmental impact. Eco-friendly business models incorporate risk management techniques to reduce hazards related to the environment, society, and governance (ESG). By proactively managing these risks, the business can lower possible liabilities, improve resilience, and safeguard its good name and operating license.

Stakeholder engagement is given top priority in successful sustainable business models, taking into account the needs of investors, communities, consumers, suppliers, workers, and other stakeholders. This strategy promotes cooperation, openness, and trust, which improves decision-making and creates long-term value. Additionally, continuous innova-

tion and adaptation are necessary for sustainable business models to meet changing social and environmental issues. To improve sustainability performance and maintain a competitive edge, businesses might innovate in their business structures, distribution networks, production methods, and product design. Establishing quantifiable and unambiguous sustainability objectives is crucial for monitoring advancements and exhibiting responsibility. Key performance indicators (KPIs) related to economic, social, and environmental implications are established by sustainable business models, and stakeholders are routinely updated on performance.

Collaboration and partnerships are crucial for businesses to advance sustainability goals. Sustainable business models often involve forming partnerships and alliances with other businesses, governments, NGOs, academia, and other stakeholders to leverage complementary expertise, share best practices, and drive collective action on sustainability challenges. Adhering to relevant regulations, standards, and certifications is fundamental for sustainable business models to ensure legal compliance and maintain credibility in sustainability efforts. Companies that prioritize sustainable practices proactively seek to exceed minimum legal requirements and align with internationally recognized sustainability standards and frameworks. Sustainable business models prioritize long-term value creation over short-term gains, recognizing that sustainable practices contribute to resilience and enduring success in a rapidly changing world. By integrating these principles and considerations, companies can develop sustainable business models that not only deliver financial returns but also contribute positively to society and the environment.

To sum up, considering unexplored value as a key driver toward sustainability is innovative because it challenges businesses to think beyond the conventional. It encourages the integration of advanced technologies, stakeholder insights, and circular economy principles into business strategies. This approach not only enhances sustainability but also drives competitive advantage, fosters a culture of continuous improvement, and ensures a holistic integration of sustainability into core business operations. By embracing the concept of unexplored value, businesses can innovate in ways that are not only beneficial for the environment but also for their long-term success.

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References

1. Díaz-Díaz, R.; Muñoz, L.; Pérez-González, D. Business model analysis of public services operating in the smart city ecosystem: The case of SmartSantander. *Future Gener. Comput. Syst.* **2017**, *76*, 198–214. [CrossRef]
2. Osterwalder, A.; Pigneur, Y.; Clark, T. *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*; Wiley: Hoboken, NJ, USA, 2010.
3. Tokoro, N. *The Smart City and the Co-Creation of Value: A Source of New Competitiveness in a Low-Carbon Society*, 1st ed.; Springer Briefs in Business; Springer: Tokyo, Japan, 2016.
4. Teece, D.J. Business models, business strategy and innovation. *Long Range Plan.* **2010**, *43*, 172–194. [CrossRef]
5. Bocken, N.M.P.; Rana, P.; Short, S.W. Value mapping for sustainable business thinking. *J. Ind. Prod. Eng.* **2015**, *32*, 67–81. [CrossRef]
6. Freeman, D.; Freeman, J.P. *The 21st Century Fear*; Oxford University Press: Oxford, UK, 2008.
7. Wagner-Tsukamoto, S. Moral agency, profits and the firm: Economic revisions to the Friedman theorem. *J. Bus. Ethics* **2007**, *70*, 209–220. [CrossRef]

8. Bowie, N. New directions in corporate social responsibility. *Bus. Horiz.* **1991**, *34*, 56–66. [CrossRef]
9. Friedman, A.L.; Miles, S. Developing stakeholder theory. *J. Manage. Stud.* **2002**, *39*, 1–21. [CrossRef]
10. Weber, M. The business case for corporate social responsibility: A company-level measurement approach for CSR. *Eur. Manag. J.* **2008**, *26*, 247–261. [CrossRef]
11. Geissdoerfer, M.; Savaget, P.; Bocken, N.M.; Hultink, E.J. The circular economy: A new sustainability paradigm? *J. Clean. Prod.* **2017**, *143*, 757–768. [CrossRef]
12. Stanaway, J.D.; Afshin, A.; Gakidou, E.; Lim, S.S.; Abate, D.; Abate, K.H.; Abbafati, C.; Abbasi, N.; Abbastabar, H.; Murray, C.J.L. Global, regional, and national comparative risk assessment of behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017. *Lancet* **2019**, *392*, 1923–1994.
13. Kirchherr, J.; Reike, D.; Hekkert, M. Conceptualizing the circular economy: An analysis of 114 definitions. *Resour. Conserv. Recycling* **2017**, *127*, 221–232. [CrossRef]
14. Feigin, V.L.; Nichols, E.; Alam, T.; Bannick, M.S.; Beghi, E.; Blake, N.; Culpepper, W.J.; Dorsey, E.R.; Elbaz, A.; Fischer, F. Global, regional, and national burden of neurological disorders, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *Lancet Neurol.* **2019**, *18*, 459–480. [CrossRef] [PubMed]
15. International Wheat Genome Sequencing Consortium (IWGSC); Appels, R.; Eversole, K.; Stein, N.; Feuillet, C.; Keller, B.; Rogers, J.; Pozniak, C.J.; Choulet, F.; Singh, N.K. Shifting the limits in wheat research and breeding using a fully annotated reference genome. *Science* **2018**, *361*, eaar7191.
16. Bocken, N.M.; Short, S.W.; Rana, P.; Evans, S. A literature and practice review to develop SBM archetypes. *J. Clean. Prod.* **2014**, *65*, 42–56. [CrossRef]
17. Gössling, S.; Scott, D.; Hall, C.M. Pandemics, tourism and global change: A rapid assessment of COVID-19. *J. Sustain. Tour.* **2020**, *29*, 1–20. [CrossRef]
18. Riahi, K.; Van Vuuren, D.P.; Kriegler, E.; Edmonds, J.; O'neill, B.C.; Fujimori, S.; Bauer, N.; Calvin, K.; Dellink, R.; Tavoni, M. The shared socioeconomic pathways and their energy, land use, and greenhouse gas emissions implications: An overview. *Glob. Environ. Chang.* **2017**, *42*, 153–168. [CrossRef]
19. Saberi, S.; Kouhizadeh, M.; Sarkis, J.; Shen, L. Blockchain technology and its relationships to sustainable supply chain management. *Int. J. Prod. Res.* **2019**, *57*, 2117–2135. [CrossRef]
20. Boons, F.; Lüdeke-Freund, F. Business models for sustainable innovation: State-of-the-art and steps towards a research agenda. *J. Clean. Prod.* **2013**, *45*, 9–19. [CrossRef]
21. Elkington, J. Enter the Triple Bottom Line. In *The Triple Bottom Line: Does it All Add Up*; Routledge: London, UK, 2004; pp. 1–16.
22. Schaltegger, S.; Wagner, M. Integrative management of sustainability performance, measurement and reporting. *Int. J. Account. Audit. Perform. Eval.* **2006**, *3*, 1–19. [CrossRef]
23. Stubbs, W.; Cocklin, C. Conceptualizing a "Sustainability Business Model". *Organ. Environ.* **2008**, *21*, 103–127. [CrossRef]
24. Doppelt, B. *Leading Change toward Sustainability*; Greenleaf Publishing: Sheffield, UK, 2003.
25. Dunphy, D.; Griffiths, A.; Benn, S. *Organizational Change for Corporate Sustainability*; Routledge: London, UK, 2003.
26. Wicks, A.C. Overcoming the separation thesis: The need for a reconsideration of business and society research. *Bus. Soc.* **1996**, *35*, 89–118. [CrossRef]
27. Høgevold, N.M.; Svensson, G.; Wagner, B.; Petzer, D.J.; Klopper, H.B.; Varela, J.C.S.; Padin, C.; Ferro, C. SBMs. *Balt. J. Manag.* **2014**, *9*, 357–380.
28. Richter, M. Utilities' business models for renewable energy: A review. *Renew. Sust. Energ. Rev.* **2012**, *16*, 2483–2493. [CrossRef]
29. Akorede, M.F.; Hizam, H.; Pouresmaeil, E. Distributed energy resources and benefits to the environment. *Renew. Sust. Energ. Rev.* **2010**, *14*, 724–734. [CrossRef]
30. Klose, F.; Kofluk, M.; Lehrke, S.; Rubner, H. *Toward a Distributed-Power World: Renewables and Smart Grids Will Reshape the Energy Sector*; The Boston Consulting Group: Hong Kong, China, 2010; pp. 1–14.
31. Duncan, R. Renewable energy and the utility: The next 20 years. *Renew. Energy World* **2010**, *2*, 3.
32. Frantzis, L.; Graham, S.; Katofsky, R.; Sawyer, H. *Photovoltaic Business Models. (No. NREL/SR-581-42304)*; National Renewable Energy Lab.(NREL): Golden, CO, USA, 2008.
33. Schoettl, J.; Lehmann-Ortega, L. Photovoltaic business models: Threat or opportunity for utilities? In *Handbook of Research on Energy Entrepreneurship*; Wustenhagen, R., Wuebker, R., Eds.; Edward Elgar Publishing, Ltd.: Cheltenham, UK, 2010.
34. Nimmons, J.; Taylor, M. Utility solar business models. In *Emerging Utility Strategies & Innovation*; Solar Electric Power Association (SEPA) Publication: Washinton, DC, USA, 2008.
35. Baden-Fuller, C.; Morgan, M.S. Business models as models. Business models. *Long Range Plan.* **2010**, *43*, 156–171. [CrossRef]
36. Gold, S.; Seuring, S.; Beske, P. Sustainable supply chain management and inter-organizational resources: A literature review. *Corp. Soc. Responsib. Environ. Manag.* **2010**, *17*, 230–245. [CrossRef]
37. Golicic, S.L.; Smith, C.D. A meta-analysis of environmentally sustainable supply chain management practices and firm performance. *J. Supply Chain Manag.* **2013**, *49*, 78–95. [CrossRef]
38. Gunasekaran, A.; Kobu, B. Performance measures and metrics in logistics and supply chain management: A review of recent literature (1995–2004) for research and applications. *Int. J. Prod. Res.* **2007**, *45*, 2819–2840. [CrossRef]

39. Hult, G.T.M.; Ketchen, D.J.; Griffith, D.A.; Chabowski, B.R.; Hamman, M.K.; Dykes, B.J.; Pollitte, W.A.; Cavusgil, S.T. An assessment of the measurement of performance in international business research. *J. Int. Bus. Stud.* **2008**, *39*, 1064–1080. [CrossRef]
40. Vachon, S.; Klassen, R.D. Extending green practices across the supply chain: The impact of upstream and downstream integration. *Int. J. Oper. Prod. Manag.* **2006**, *26*, 795–821. [CrossRef]
41. Rainey, H.J.; Pollard, E.H.; Dutson, G.; Ekstrom, J.M.; Livingstone, S.R.; Temple, H.J.; Pilgrim, J.D. A review of corporate goals of no net loss and net positive impact on biodiversity. *Oryx* **2015**, *49*, 232–238. [CrossRef]
42. de Silva, G.C.; Regan, E.C.; Pollard, E.H.B.; Addison, P.F.E. The evolution of corporate no net loss and net positive impact biodiversity commitments: Understanding appetite and addressing challenges. *Bus. Strateg. Environ.* **2019**, *28*, 1481–1495. [CrossRef]
43. Bull, J.W.; Brownlie, S. The transition from no net loss to a net gain of biodiversity is far from trivial. *Oryx* **2017**, *51*, 53–59. [CrossRef]
44. Moilanen, A.; Kotiaho, J.S. Fifteen operationally important decisions in the planning of biodiversity offsets. *Biol. Conserv.* **2018**, *227*, 112–120. [CrossRef]
45. zu Ermgassen, S.O.; Baker, J.; Griffiths, R.A.; Strange, N.; Struebig, M.J.; Bull, J.W. The ecological outcomes of biodiversity offsets under "no net loss" policies: A global review. *Conserv. Lett.* **2019**, *12*, e12664. [CrossRef]
46. Dechant, K.; Altman, B. Environmental leadership: From compliance to competitive advantage. *Acad. Manag. Perspect.* **1994**, *8*, 7–20. [CrossRef]
47. Biondi, V.; Frey, M.; Iraldo, F. Environmental management systems and SMEs. *Greener Manag. Int.* **2000**, *29*, 55–69. [CrossRef]
48. Kagan, R.A.; Gunningham, N.; Thornton, D. Explaining corporate environmental performance: How does regulation matter? *Law Soc. Rev.* **2003**, *37*, 51–90. [CrossRef]
49. Hawkins, K.; Hutter, B. The Response of Business to Social Regulation in England and Wales. *Law Policy* **1993**, *15*, 199–218. [CrossRef]
50. Reid, E.M.; Toffel, M.W. Responding to public and private politics: Corporate disclosure of climate change strategies. *Strat. Manag. J.* **2009**, *30*, 1157–1178. [CrossRef]
51. Chatterji, A.K.; Toffel, M.W. How companies respond to being rated. *Strat. Manag. J.* **2010**, *31*, 917–945. [CrossRef]
52. Wolf, S. Majority and minority influence: A social impact analysis. In *Social Influence*; Psychology Press: London, UK, 2014; pp. 207–235.
53. Crane, A.; Matten, D.; Moon, J. *Corporations and Citizenship: Business, Responsibility and Society*; Cambridge University Press: Cambridge, UK, 2008.
54. Bice, S. Bridging corporate social responsibility and social impact assessment. *Impact Assess. Proj. Apprais.* **2015**, *33*, 160–166. [CrossRef]
55. Holliday, C.O.; Schmidheiny, S., Jr.; Watts, P. *Walking the Talk: The Business Case for Sustainable Development. San Francisco*; Greenleaf Publishing: Austin, TX, USA, 2002; p. 46.
56. Kytle, B.; Ruggie, J. *Corporate Social Responsibility as Risk Management: A Model for Multinationals*; Working Pape #4; Kennedy School of Government: Cambridge, MA, USA, 2005; pp. 1–7.
57. Pinckaers, S. Morality: The Catholic View. In *Notre Dame Center for Ethics and Culture*; St. Augustine Press: South Bend, IN, USA, 2001.
58. Harshbarger, S.; Holden, T. The new realities of corporate governance. In *Ethics Matters*; Center for Business Ethics: Bentley College, MA, USA, 2004.
59. Paine, L. Venturing beyond compliance. In *The Evolving Role of Ethics, in Business, Report No. 1141-1196-ch*; The Conference Board Inc.: New York, NY, USA, 1996; pp. 13–16.
60. Paine, L. Managing for organizational integrity. *Harv. Bus. Rev.* **1994**, *72*, 106–117.
61. Seidman, D. The essential union of law and ethics. In *Ethic Matters*; Center for Business Ethics: Bentley College, MA, USA, 2004.
62. Deigh, L.; Farquhar, J.; Palazzo, M.; Siano, A. Corporate social responsibility: Engaging the community. *Qual. Mark. Res. Int. J.* **2016**, *19*, 225–240. [CrossRef]
63. Kotler, P.; Lee, N. *Social Marketing: Influencing Behaviors for Good*; Sage: Melbourne, Australia, 2008.
64. Knox, S.; Maklan, S.; French, P. Corporate social responsibility: Exploring stakeholder relationships and programme reporting across leading FTSE companies. *J. Bus. Ethics* **2005**, *61*, 7–28. [CrossRef]
65. Ibrahim, O.; Samsi, S.Z.M.; Ahmad, M.F. Halal business corporate social responsibility. In *International University Social Responsibility Conference and Exhibition 2010 (IUSRCE 2010 & 2nd USRIC 2010)*; PWTC: Kuala Lumpur, Malaysia, 2010.
66. Wulfson, M. The ethics of corporate social responsibility and philanthropic ventures. *J. Bus. Ethics* **2001**, *29*, 135–145. [CrossRef]
67. DEMİRBAŞ, E. Pro-environmental conclusions of consumers' enduring involvement with recycled products: Eco-aware purchasing behavior and psychographics. *Yönetim Bilimleri Dergisi* **2023**, *21*, 275–309. [CrossRef]
68. Polonsky, M.J.; Rosenberger, P.J., III. Reevaluating green marketing: A strategic approach. *Bus. Horiz.* **2001**, *44*, 21. [CrossRef]
69. Shahrin, R.; Quoquab, F.; Jamil, R.; Mahadi, N.; Mohammad, J.; Salam, Z.; Hussin, N. Green "eco-label" or "greenwashing"? building awareness about environmental claims of marketers. *Adv. Sci. Lett.* **2017**, *23*, 3205–3208. [CrossRef]
70. Delmas, M.A.; Burbano, V.C. The drivers of greenwashing. *Calif. Manage. Rev.* **2011**, *54*, 64–87. [CrossRef]

71. Tolkamp, J.C.; Huijben, J.C.; Mourik, R.M.; Verbong, G.P.J.; Bouwknegt, R. User-centred SBM design: The case of energy efficiency services in the Netherlands. *J. Clean. Prod.* **2018**, *182*, 755–764. [CrossRef]
72. Liedtke, C.; Baedeker, C.; Hasselkuß, M.; Rohn, H.; Grinewitschus, V. User integrated innovation in Sustainable LivingLabs: An experimental infrastructure for researching and developing sustainable product service systems. *J. Clean. Prod.* **2015**, *97*, 106e116. [CrossRef]
73. Graham, B.; Shaw, J. Low-cost airlines in Europe: Reconciling liberalization and sustainability. *Geoforum* **2008**, *39*, 1439e1451. [CrossRef]
74. Lawton, T.C. Managing proactively in turbulent times: Insights from the low-fare airline business. *Ir. J. Manag.* **2003**, *24*, 173e193.
75. Franke, M. Competition between network carriers and low-cost carriers-retreat battle or breakthrough to a new level of efficiency? *J. Air Transp. Manag.* **2004**, *10*, 15e21. [CrossRef]
76. Gellings, C.W.; Parmenter, K.E. Demand-side management. In *Energy Management and Conservation Handbook*; CRC Press: Boca Raton, FL, USA, 2016; pp. 399–420.
77. Strbac, G. Demand side management: Benefits and challenges. *Energ. Policy* **2016**, *36*, 4419–4426. [CrossRef]
78. Sheth, J.N.; Parvatiyar, A. Sustainable marketing: Market-driving, not market-driven. *J. Macromarketing* **2021**, *41*, 150–165. [CrossRef]
79. Vargo, S.L.; Lusch, R.F. Institutions and axioms: An extension and update of service-dominant logic. *J. Acad. Market. Sci.* **2016**, *44*, 5–23. [CrossRef]
80. Adams, R.; Jeanrenaud, S.; Bessant, J.; Denyer, D.; Overy, P. Sustainability-oriented innovation: A systematic review. *Int. J. Manage. Rev.* **2016**, *18*, 180–205. [CrossRef]
81. Hall, J. Sustainable development innovation; a research agenda for the next 10 years Editorial for the 10 Anniversary of the Journal of Cleaner Production. *J. Clean. Prod.* **2002**, *10*, 195–196. [CrossRef]
82. Keskin, D.; Diehl, J.C.; Molenaar, N. Innovation process of new ventures driven by sustainability. *J. Clean. Prod.* **2013**, *45*, 50–60. [CrossRef]
83. Jorna, R.J.; Hadders, H.; Faber, N. Sustainability, learning, adaptation and knowledge processing. *Knowl. Manag. Organ. Learn.* **2009**, *4*, 369–384.
84. Taylor, S.; Surridge, M.; Pickering, B. Regulatory compliance modelling using risk management techniques. In *2021 IEEE World AI IoT Congr. (AIIoT)*; IEEE: Piscataway, NJ, USA, 2021; pp. 0474–0481.
85. European Union. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation). *Eur. Comm.* **2016**, *679*, 2016.
86. Krysiak, F.C. Risk management as a tool for sustainability. *J. Bus. Ethics* **2009**, *85*, 483–492. [CrossRef]
87. Giannakis, M.; Papadopoulos, T. Supply chain sustainability: A risk management approach. *Int. J. Prod. Econ.* **2016**, *171*, 455–470. [CrossRef]
88. Hörisch, J.; Freeman, R.E.; Schaltegger, S. Applying stakeholder theory in sustainability management: Links, similarities, dissimilarities, and a conceptual framework. *Organ. Environ.* **2014**, *2*, 328–346. [CrossRef]
89. Manetti, G. The quality of stakeholder engagement in sustainability reporting: Empirical evidence and critical points. *Corp. Soc. Responsib. Environ. Manag.* **2011**, *18*, 110–122. [CrossRef]
90. Valeska, T. A Press Clause Right to Cover Protests. *Wash. UJL Poly* **2021**, *65*, 151.
91. Gilinsky, A.; Newton, S.K.; Vega, R.F. Sustainability in the global wine industry: Concepts and cases. *Agric. Agric. Sci. Procedia* **2016**, *8*, 37–49. [CrossRef]
92. Maicas, S.; Mateo, J.J. Sustainability of wine production. *Sustainability* **2020**, *12*, 559. [CrossRef]
93. Santini, C.; Cavicchi, A.; Casini, L. Sustainability in the wine industry: Key questions and research trends a. *Agric. Food Econ.* **2013**, *1*, 9–22. [CrossRef]
94. Shrimali, B.; Patel, H. Multi-objective optimization oriented policy for performance and energy efficient resource allocation in Cloud environment. *J. King Saud Univ.-Comput. Inf. Sci.* **2020**, *32*, 860–869. [CrossRef]
95. Xia, N.; Guo, J.; Lin, Y.H. Managing stakeholder attributes for risk mitigation: Evidence from construction project contractors. *Int. J. Manag. Proj. Bus.* **2021**, *14*, 1605–1625. [CrossRef]
96. Chun, E.; Joung, H.; Lim, Y.J.; Ko, E. Business transparency and willingness to act environmentally conscious behavior: Applying the sustainable fashion evaluation system "Higg Index". *J. Glob. Scholar Mark. Sci.* **2021**, *31*, 437–452. [CrossRef]
97. Marshall, A.; Weetman, P. Modelling transparency in disclosure: The case of foreign exchange risk management. *J. Bus. Financ. Account.* **2007**, *34*, 705–739. [CrossRef]
98. Brown, J.A.; Forster, W.R. CSR and stakeholder theory: A tale of Adam Smith. *J. Bus. Ethics* **2013**, *112*, 301–312. [CrossRef]
99. Savarese, M.; Chamberlain, K.; Graffigna, G. Co-Creating Value in sustainable and alternative food networks: The case of community supported agriculture in New Zealand. *Sustainability* **2020**, *12*, 1252. [CrossRef]
100. Tranfield, D.; Denyer, D.; Smart, P. Towards a methodology for developing evidence: Informed management knowledge by means of systematic review. *Br. J. Manag.* **2003**, *14*, 207–222. [CrossRef]
101. Gong, M.; Simpson, A.; Koh, L.; Tan, K.H. Inside out: The interrelationships of sustainable performance metrics and its effect on business decision making: Theory and practice. *Resour. Conserv. Recycl.* **2018**, *128*, 155–166. [CrossRef]

102. Baines, T.S.; Lightfoot, H.W.; Benedettini, O.; Kay, J.M. The servitization of manufacturing: A review of literature and reflection on future challenges. *J. Manuf. Tech. Manag.* **2009**, *20*, 547–567. [CrossRef]
103. Yang, T.C.; Hwang, G.J.; Yang, S.J.H. Development of an adaptive learning system with multiple perspectives based on students' learning styles and cognitive styles. *J. Educ. Technol. Soc.* **2013**, *16*, 185–200.
104. Toossi, M. A behavioral model for projecting the labor force participation rate. *Monthly Lab. Rev.* **2011**, *134*, 25.
105. Kantabutra, S.; Ketprapakorn, N. Toward a theory of corporate sustainability: A theoretical integration and exploration. *J. Clean. Prod.* **2020**, *270*, 122292. [CrossRef]
106. Avery, G.C. *Paradigms of Leadership: Theory and Cases*; Sage: Thousand Oaks, CA, USA, 2004.
107. Wang, S.J.; Tian, Y.; Dang, L.L. ESG implementation, competition strategy and financial performance of industrial enterprises. *Account. Res.* **2022**, *3*, 77–92.
108. Ye, Y.; Li, K. Impact of family involvement on internal and external corporate social responsibilities: Evidence from Chinese publicly listed firms. *Corp. Soc. Responsib. Environ. Manag.* **2021**, *28*, 352–365. [CrossRef]
109. Li, S.; Fetscherin, M.; Alon, I.; Lattemann, C.; Yeh, K. Corporate social responsibility in emerging markets: The importance of the governance environment. *Manag. Int. Rev.* **2010**, *50*, 635–654. [CrossRef]
110. van Tonder, E.; Roberts-Lombard, M. A theoretical framework for managing CSR plans and related initiatives in the modern business environment. *J. Bus. Econ. Res.* **2013**, *11*, 503–520. [CrossRef]
111. Chen, J.B.; Cao, X.D.; Xiao, Z.N.; Huang, W.J. Research on urban innovation competitiveness evaluation and influencing factors based on the five development concepts. *Chongqing Soc. Sci.* **2021**, *12*, 30–44.
112. Jiang, A.H. Research on the business environment of government procurement based on the perception of suppliers: Index construction and comprehensive evaluation. *Rev. Econ. Manag.* **2021**, *37*, 89–101.
113. Peng, Z.X.; He, L.N.; Xie, Y.S.; Song, W.Y.; Liu, J.; Ming, X.G.; Goh, M. A pythagorean fuzzy ANP-OFD-Grey relational analysis approach to prioritize design requirements of sustainable supply chain. *J. Intell. Fuzzy Syst.* **2022**, *42*, 3893–3907. [CrossRef]
114. Zhu, R.; Bhutta, Z.M.; Zhu, Y.; Ubaidullah, F.; Salleem, M.; Khalid, S. Grey relational analysis of country-level entrepreneurial environment: A study of selected forty-eight countries. *Front. Environ. Sci.* **2022**, *10*, 985426. [CrossRef]
115. Deng, J.L. Introduction to grey system theory. *J. Grey Syst.* **1989**, *1*, 1–24.
116. Lin, S.J.; Liu, I.J.; Lewis, C. Grey relation performance correlations among economics, energy use and carbon dioxide emission in Taiwan. *Energy Policy* **2007**, *35*, 1948–1955. [CrossRef]
117. Fung, C.P. Manufacturing process optimization for wear property of fiber-reinforced polybutylene terephthalate composites with grey relational analysis. *Wear* **2003**, *3–4*, 298–306. [CrossRef]
118. Llopis-Albert, C.; Palacios-Marqués, D.; Simón-Moya, V. Fuzzy set qualitative comparative analysis (fsQCA) applied to the adaptation of the automobile industry to meet the emission standards of climate change policies via the deployment of electric vehicles (EVs). *Technol. Forecast. Soc. Chang.* **2021**, *169*, 120843. [CrossRef]
119. Huang, Y.J.; Li, S.H.; Xiang, X.Y.; Bu, Y.J.; Guo, Y. How can the combination of entrepreneurship policies activate regional innovation capability? A comparative study of Chinese provinces based on fsQCA. *J. Innov. Knowl.* **2022**, *7*, 100227. [CrossRef]
120. Abbasi, G.A.; Sandran, T.; Ganesan, Y.; Iranmanesh, M. Go cashless! Determinants of continuance intention to use E-wallet apps: A hybrid approach using PLS-SEM and fsQCA. *Technol. Soc.* **2022**, *68*, 101937. [CrossRef]
121. Estevão, J.; Lopes, J.D.; Penela, D. The importance of the business environment for the informal economy: Evidence from the Doing Business ranking. *Technol. Forecast. Soc. Chang.* **2022**, *174*, 121288. [CrossRef]
122. Dul, J. Identifying single necessary conditions with NCA and fsQCA. *J. Bus. Res.* **2016**, *69*, 1516–1523. [CrossRef]
123. Pappas, I.O.; Woodside, A.G. Fuzzy-set qualitative comparative analysis (fsQCA): Guidelines for research practice in information systems and marketing. *Int. J. Inform. Manag.* **2021**, *58*, 102310. [CrossRef]
124. Wan, S.Y.; Liu, Z.Y. Institutional background, company value and social responsibility cost: The evidence from listed companies of CSI300 index. *Nankai Bus. Rev.* **2013**, *16*, 83–91.
125. Gillan, S.L.; Koch, A.; Starks, L.T. Firms and social responsibility: A review of ESG and CSR research in corporate finance. *J. Corp. Financ.* **2021**, *66*, 101889. [CrossRef]
126. Ragin, C.C. Reflections on casing and case-oriented research. *Sage Handb. Case-Based Methods* **2009**, *31*, 522–534.
127. Ragin, C.C.; Drass, K.A.; Davey, S. *Fuzzy-Set/Qualitative Comparative Analysis 2.0*; Department of Sociology, University of Arizona: Tucson, AZ, USA, 2006; Volume 23, pp. 1949–1955.
128. Zhang, Y.W.; Lu, X.H.; Zhang, M.M.; Ren, B.; Zou, Y.C.; Lv, T.G. Understanding farmers' willingness in arable land protection cooperation by using fsQCA: Roles of perceived benefits and policy incentives. *J. Nat. Conserv.* **2022**, *68*, 126234. [CrossRef]
129. Du, Y.Z.; Jia, L.D. The configuration perspective and qualitative comparative analysis (QCA): A new path to management research. *J. Manag. World* **2017**, *6*, 155–167.
130. Jovanovic, J.; Morschett, D. Under which conditions do manufacturing companies choose FDI for service provision in foreign markets? An investigation using fsQCA. *Ind. Market. Manag.* **2022**, *104*, 38–50. [CrossRef]