A N M Adnan

Sustainable Business Model Adaptation in International Markets: A Case Study on Circular Economy and Green Supply Chain Integration by Multinational Enterprises

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Author: A N M Adnan
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ABSTRACT :

Sustainability has transitioned from a peripheral concern to a central strategic imperative for Multinational Enterprises (MNEs) in the contemporary global landscape. Within this context, Business Model Innovation (BMI) is recognized as a critical mechanism for embedding sustainability into the core of an organization. Specifically, the integration of Circular Economy (CE) principles, which aim to eliminate waste and circulate resources, and Green Supply Chain Management (GSCM) practices, which embed environmental considerations across the product lifecycle, represents a potent synergistic approach. However, the academic discourse remains fragmented, with limited empirical understanding of how MNEs navigate the integration of these concepts across diverse and often challenging international institutional environments.

The primary goal of this study is to examine how MNEs adapt their business models to incorporate CE and GSCM principles across various international markets. The research is guided by two main questions: first, how are these adaptations reflected in their business models, and second, what internal capabilities and external institutional factors influence this process? To frame this inquiry theoretically, the study is based on Institutional Theory, which explains how external coercive, normative, and mimetic pressures influence organizational behavior, and the Resource-Based View (RBV), which emphasizes the internal resources and capabilities that provide a competitive advantage.

The key findings reveal that the adaptation of Sustainable Business Models (SBMs) is a multifaceted and context-sensitive process. It was found that MNEs do not implement a uniform global strategy but engage in a deliberate balancing act between global strategic alignment and local operational customization. The integration of CE and GSCM imposes a vital reconfiguration of key business model components, including value propositions, key activities, and key partnerships. Externally, the reworking is strongly influenced by a combination of regulatory pressures, market demands, and infrastructural readiness in host countries. Internally, the efficiency of integration is resolved by organizational capabilities such as cross-functional collaboration, technological expertise, senior leadership commitment, and the ability to foster strategic partnerships with suppliers. The interaction between these external pressures and internal capabilities was identified as the central dynamic explaining the alteration in adaptation strategies and outcomes.

KEYWORDS: Sustainability, Circular Economy, Green Supply Chain Management, Sustainable Business Model, Multinational Enterprises, Business Model Innovation, Resource-Based View.

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Abbreviations

CE	Circular Economy
GSCM	Green Supply Chain Management
SBM	Sustainable Business Model
BMI	Business Model Innovation
RBV	Resource-Based View
TBL	Triple Bottom Line
MNE	Multinational Enterprises
SDGs	Sustainable Development Goals
BMC	Business Model Canvas
TLBMC	Triple-Layered Business Model Canvas
SIBMIs	Sustainable International Business Model Innovations

1 Introduction

1.1 Background of the study

Sustainability has shifted from a peripheral corporate concern to a dominant strategic imperative for multinational enterprises (MNEs). The fast-tracking pace of climate change, biodiversity loss, and resource exhaustion has underscored the boundaries of traditional growth models, forcing firms to reexamine their long-term practicality. Stakeholders, extending from customers and investors to regulators and civil society, now expect firms to take an active role in addressing ecological and social concerns, not as an add-on to business but as an essential part of it. The United Nations' Sustainable Development Goals (SDGs) articulate a global program to achieve environmental integrity, social progress, and economic prosperity by 2030 (van der Waal, Thijssens, & Maas, 2021). For MNEs, whose global operations span several markets, supply chains, and regulatory environments, the SDGs signify both a moral imperative and a strategic prospect to shape sustainable development paths across industries and geographies (van Zanten & van Tulder, 2018).

Meeting these potentials demands more than incremental functioning enhancements or isolated environmental initiatives. The discussion on corporate sustainability has evolved from corporate social responsibility as an external practice to the integration of sustainability into the core strategic and operational aspects of the firm (Burritt, Christ, Rammal, & Schaltegger, 2020). This shift necessitates companies to reconsider their fundamental expectations about how value is created, delivered, and captured, implanting sustainability reflections into the very construction of the business. Static business representations are increasingly inadequate in an era marked by rapid technological advances, unstable resource markets, and shifting societal values. Adaptability, resilience, and innovation are now fundamentals for long-term competitiveness.

One tactical approach that addresses these demands is Business Model Innovation (BMI). BMI involves the purposeful reconfiguration of the basics of a business model, which is

in the form of value propositions, value delivery mechanisms, and value capture structures in response to changes in market, technological, institutional, or environmental conditions (Foss & Saebi, 2017). In sustainability contexts, BMI is not about marginal "green" initiatives but about implementing conservation and social objectives into the organization's strategic fundamentals. This involves reforming products, services, processes, and value networks to achieve an equilibrium between economic performance and sustainability results (Bocken et al., 2014). The framework provided by Bocken et al. (2014) offers sustainable business model archetypes, including exploiting material and energy competence, creating value from waste, replacing with renewable resources, carrying functionality over ownership, and encouraging sufficiency-oriented consumption. According to Institutional Theory, organizations operate within broader institutional environments characterized by coercive compressions (laws and regulations), normative pressures (societal values and professional norms), and mimetic pressures (competition of industry leaders) (DiMaggio & Powell, 1983). MNEs are uniquely impacted by these pressures because they function across multiple institutional circumstances, each with diverse regulatory regimes, cultural prospects, and stakeholder priorities. This complication requires them to strike a balance between global tactical coherence and local responsiveness (Zaheer, 1998).

From a Resource-Based View (RBV) perspective, successful BMI for sustainability depends on emerging and positioning valuable, rare, inimitable, and non-substitutable (VRIN) resources and competences (Barney, 1991). These may include technological know-how, supply chain management services, innovation capacity, brand status, and an organizational philosophy that supports environmental stewardship. RBV highlights that even under parallel institutional pressures, firms with greater internal capabilities are better positioned to integrate sustainability into their business models efficiently. Thus, BMI develops as the connection of responding to external institutional forces and leveraging internal strategic resources.

Within this strategic relationship, the Circular Economy (CE) has appeared as a transformative paradigm that essentially challenges the traditional linear "take–make–dispose" model of production and consumption. By stressing the principles of designing out waste and pollution, keeping products and materials in constant circulation, and renewing natural systems, CE encourages an uplifting and regenerative method to industrial activity (Geissdoerfer, Savaget, Bocken, & Hultink, 2017). Moreover, CE boosts innovation in materials science, process engineering, and digital tracking technologies, skills that can strengthen competitive advantage (Murray, Skene, & Haynes, 2017). From an institutional perspective, CE aligns with regulatory trends encouraging waste minimization and resource productivity, as well as with stakeholder hopes for responsible consumption and production, exemplified in SDG 12 (United Nations, 2015). From an RBV lens, executing CE requires abilities such as design innovation, materials science expertise, reverse logistics infrastructure, and knowledge management systems for resource streams. These competences are often path-dependent, meaning they are industrialized over time and cannot be easily replicated by competitors, giving organizations a sustainable, modest advantage.

Green Supply Chain Management (GSCM) represents a comprehensive approach to integrating environmental responsibility throughout the entire product life cycle, encompassing sourcing of raw materials, production, distribution, consumption, and eventual disposal or recovery. Rather than treating sustainability as an isolated operational function, GSCM surrounds environmental thinking in procurement policies, supplier selection criteria, manufacturing procedures, logistics systems, and post-consumer product management (Srivastava, 2007). In global supply networks typical of MNEs, where suppliers function in countries with varying environmental regulations and application capacities, GSCM plays a vital role in maintaining consistency and credibility in sustainability performance (Seuring & Müller, 2008). From an economic standpoint, GSCM can condense costs through improved competence, waste minimization, and energy savings, while also mitigating the risk of supply interruptions caused by resource insufficiency or regulatory changes (Hervani, Helms, & Sarkis, 2005).

When CE and GSCM are combined within a BMI framework, the result is a synergistic approach that aligns strategic vision with operational implementation. CE guides the primary direction for resource circularity and system regeneration, while GSCM offers practical mechanisms for applying this direction across global supply networks. External forces from institutions create the push for adoption, while internal resources and competencies influence how effectively these strategies are executed and maintained over time. High institutional distance may necessitate significant adaptation of global strategies to local frameworks, and the liability of foreignness can add costs and legitimacy challenges for MNEs (Zaheer, 1998). Overcoming these obstacles requires both sensitivity to local institutional contexts and the ability to transfer and adapt VRIN resources in ways that preserve strategic coherence and continuity.

Against this background, this research aims to explore how MNEs employ business model innovation to assimilate circular economy principles and green supply chain management practices into their operations across various institutional circumstances. It aims to understand how external institutional pressures and internal resource capabilities interrelate to shape strategic decisions, operational practices, and performance outcomes in the framework of sustainable business model adaptation. By adopting a qualitative multiple-case study approach, the study will provide insights into the mechanisms, capabilities, and contextual factors that allow MNEs to align economic performance with environmental stewardship and social responsibility on a global scale.

This thesis utilized AI tools, including ChatGPT and Gemini, for ideation, and Grammarly for ensuring grammatical accuracy and coherence of language.

1.2 Research Gap

The academic discourse on sustainability has matured considerably, yet there remain significant areas where knowledge is either incomplete or fragmented, particularly when viewed through the lens of multinational enterprises (MNEs) attempting to reconcile global sustainability imperatives with complex operational realities. Although business

model innovation (BMI), circular economy (CE), and green supply chain management (GSCM) have each been explored extensively, the intersection of these themes within diverse institutional environments is still underdeveloped. Addressing this gap is vital because MNEs are not only subject to the pressures of global environmental agendas but also to the constraints and opportunities that arise from varied regulatory regimes, cultural contexts, and resource conditions.

Gap 1: Limited empirical understanding of business model innovation for sustainability in MNEs across diverse institutional contexts.

BMI for sustainability has been widely acknowledged as a crucial driver for embedding environmental and social considerations into the strategic core of organizations (Foss & Saebi, 2017; Bocken, Short, Rana, & Evans, 2014). By altering value propositions, delivery systems, and revenue structures, BMI offers firms the flexibility to respond to the evolving expectations of stakeholders and the challenges posed by environmental degradation. However, much of the empirical work in this area focuses on case studies within single-country settings or narrow industry contexts, particularly in developed economies where institutional conditions, such as supportive regulation, advanced infrastructure, and sustainability-aware markets, are conducive to innovation (Geissdoerfer, Savaget, Bocken, & Hultink, 2017).

The reality for MNEs is more complex. Institutional theory (DiMaggio & Powell, 1983) posits that organizations are influenced by coercive, normative, and mimetic pressures, all of which can differ substantially across national borders. Zaheer's (1998) concept of the liability of foreignness further highlights that firms face additional costs when operating in unfamiliar environments, not only due to market unfamiliarity but also because of variations in institutional frameworks. In sustainability contexts, these variations manifest as differences in environmental legislation, cultural perceptions of corporate responsibility, and the availability of enabling infrastructure (Xu & Shenkar, 2002). Existing research has not sufficiently examined how MNEs navigate these

disparities when innovating their business models to achieve sustainability. The tension between global standardization for efficiency and local adaptation for legitimacy is particularly underexplored (Burritt, Christ, Rammal, & Schaltegger, 2020). Without empirical evidence of how these strategic adjustments occur in practice across multiple institutional contexts, there is a risk of oversimplifying the pathways through which BMI for sustainability can be achieved in globally distributed organizations.

Gap 2: Insufficient integration of the circular economy and green supply chain management within a unified strategic framework.

While CE and GSCM are both recognized as essential tools for achieving organizational sustainability, their integration into a single strategic framework remains limited in both theory and practice. CE offers a macro-level vision of regenerative economic systems, aiming to design out waste, maintain material utility, and regenerate natural ecosystems (Kirchherr, Reike, & Hekkert, 2017; Geissdoerfer et al., 2017). Its practical applications include eco-design, modular product development, closed-loop manufacturing, and product-as-a-service models (Bocken et al., 2014; Murray, Skene, & Haynes, 2017). GSCM, by contrast, operates at a supply chain level, embedding environmental considerations into procurement, production, logistics, and end-of-life product recovery (Srivastava, 2007; Zhu, Sarkis, & Lai, 2013).

CE discussions tend to prioritize product and system design, while GSCM literature focuses on operational execution and supplier engagement (Seuring & Müller, 2008). Yet in practice, the two are deeply interdependent: CE initiatives require the logistical and operational capabilities that GSCM provides, such as reverse logistics for product take-back, green sourcing strategies, and collaborative supplier development (Carter & Rogers, 2008; Hervani, Helms, & Sarkis, 2005). Conversely, GSCM gains strategic coherence when guided by CE principles that extend environmental considerations beyond supply chain stages to the entire product life cycle (Lewandowski, 2016). Without an integrated framework, organizations risk implementing fragmented initiatives, such as adopting

circular design without enabling supply chain mechanisms, or greening procurement without aligning it to long-term circularity goals. This fragmentation is even more pronounced in MNEs, where diverse institutional environments can create uneven adoption of CE and GSCM practices. Regulatory differences, infrastructure gaps, and cultural variations in consumption norms all influence the feasibility and design of integrated strategies.

Gap 3: Limited research on the interplay between institutional pressures and internal resource capabilities in sustainable business model adaptation.

Institutional theory and the resource-based view (RBV) have each contributed valuable understanding to the organizational approach. Institutional theory explains how organizations reply to external pressures, including formal guidelines, societal standards, and industry standards (DiMaggio & Powell, 1983; van Zanten & van Tulder, 2018). RBV, in contrast, centers on internal organizational strengths, signifying that continued competitive advantage rises from resources and proficiencies that are appreciated, rare, unique, and non-substitutable (Barney, 1991; Teece, Pisano, & Shuen, 1997).

In sustainability frameworks, RBV has been used to showcase abilities such as environmental innovation, process optimization, and strong stakeholder systems as drivers of sustainable act (Hart, 1995). However, the two viewpoints are often applied distinctly, with little combination in illuminating how firms adjust business models for sustainability. This separation limits understanding of the active interaction between external demands and internal capabilities, predominantly in MNEs, where both sets of issues vary expressively across settings. For example, an MNE with advanced R&D in renewable materials may be able to pioneer CE practices in markets with minimal regulatory support, while robust supplier management systems can enable GSCM in challenging institutional settings. Conversely, rigorous environmental regulations in certain jurisdictions may induce firms to develop new organizational capabilities, such as closed-loop supply chains or renewable energy sourcing that later serve as viable assets globally. Burritt et al. (2020)

perceive that the encounter for many MNEs lies not in pronouncing sustainability commitments but in aligning these promises with both external requirements and internal strengths across varied operational circumstances.

1.3 Research Objective and Research Questions

This study's main intention is to find out how MNEs adapt business models for sustainability to fit several international markets by integrating CE and GSCM principles. As sustainability becomes a progressively crucial strategic concern, organizations face growing pressure to assimilate environmental and resource-efficient practices into their operations. However, the edition of SBMs by MNEs differs across markets due to different institutional situations, stakeholder hopes, and infrastructural readiness. Understanding how and why these adaptations happen, as well as what shapes them, is vital for both theory and practice.

To address this objective, the resulting research questions are proposed:
1. In what ways do MNEs adapt business models to integrate CE and GSCM principles across different international markets?
2. What internal capabilities and external institutional aspects influence the adaptation of SBMs by MNEs?

These questions aim to generate insights into the mechanisms through which sustainability-oriented business models evolve in a global context. The first question focuses on the adaptation process itself, looking at the specific ways in which CE and GSCM are integrated into MNE operations across borders. It guides the descriptive and analytical part of the study, helping to map patterns of sustainable practice and innovation. This question will be explored through a qualitative case study method, utilizing interviews and company documentation to understand adaptation strategies in practice. The second question shifts the focus to drivers and barriers. It seeks to identify the internal resources (e.g., organizational capabilities, leadership commitment, technological assets) and external pressures (e.g., regulation, cultural norms, market

demand) that shape how these adaptations unfold. This aligns with theoretical lenses such as the RBV and Institutional Theory, and it will be explored through within-case and cross-case analysis of selected MNEs.

1.4 Definition of Key Concepts.

This study builds on a set of core ideas that shape the direction of the research. These include sustainability, the circular economy, green supply chain management, business model innovation, and sustainable business models. To provide clarity and a shared understanding, definitions of a few important concepts are given below.

Table 1. Definition of Key Concepts

Key Concepts	Author(s) and Year	Article Title	Definition
Sustainability	McMichael et al., 2003	*New visions for addressing sustainability. Science, 302(5652), 1919–1920*	Sustainability means transforming our ways of living to maximize the chances that environmental and social conditions will indefinitely support human security, well-being, and health.
Circular Economy (CE)	Kirchherr et al., (2017)	*Conceptualizing the CE: An analysis of 114 definitions*	A structure of the economy aimed at putting an end to waste and maintaining resources in a state of use for as long as is feasible through reuse, refurbishment, and recycling.
Green Supply Chain Management (GSCM)	Srivastava, S.K. (2007)	*Green supply-chain management: A state-of-the-art literature review*	The combination of environmental rational into all phases of supply chain administration, including product strategy, sourcing, production, logistics, besides end-of-life practices.
Business Model Innovation (BMI)	Foss & Saebi (2017)	*Fifteen years of business model innovation research: Current status and future challenges*	The purposeful modification or re-configuration of a firm's commercial prototype to familiarize itself with changing market, technological, or environmental demands.
Sustainable Business Model (SBM)	Audretsch & Link (2019)	*Embracing an entre-preneurial ecosys-tem: An analysis of the governance of research joint ventures*	A business model that creates, delivers, and captures value through sustaining or restoring environmental, social, and economic capital.

1.5 Research Process

This research is guided by a well-defined sequence of activities designed to address the stated objectives and thoroughly answer the research questions. The structure ensures academic precision and practical application. The process is broken down into five interconnected phases: (1) an extensive review of relevant literature and foundational theories, (2) development of a tailored research design, (3) systematic collection of empirical data, (4) rigorous analysis of the findings, and (5) interpretation and synthesis of insights.

1.5.1 Literature Review and Theoretical Framework

The research begins with a comprehensive examination of existing academic studies and practitioner reports that focus on the CE, green supply chain practices, and SBM development within multinational settings. The review will draw on established theoretical constructs, including stakeholder theory, institutional theory, and the RBV, to provide conceptual depth. This phase sets the groundwork by identifying existing knowledge gaps and refining the study's direction.

1.5.2 Research Design and Methodological Strategy

Given the exploratory nature of the investigation and the contextual variation associated with it, a qualitative methodology is the most suitable approach. Employed a multiple-case study design to gather rich, contextualized details about how multinational companies integrate sustainability practices into the various geographic and operational contexts in which they operate. This method provides contextual richness and flexible data interpretation. Different industries and global regions were represented in the purposive sampling of organizations selected for this project, thereby enhancing the relevance of the insights to be generated.

1.5.3 Data Collection Procedures

The key players in sustainability, supply chain operations, and regional management within selected MNEs were the primary data sources acquired using semi-structured interviews. These participants have provided the necessary details in their responses, enabling a thorough analysis that addresses all the research questions. An interview guide was used conversationally to ensure that the necessary topics were covered, while also allowing for the natural unfolding of the dialogue. All the interviews were conducted via digital means to ensure that all conversations were recorded and took place in a safe and secure environment.

1.5.4 Analysis of Collected Data

The gathered data have undergone thematic analysis to reveal repeated themes and stories in sync with the study's intent. This method provides a means for augmented interpretation of qualitative data. Coding was performed using software like NVivo to maintain consistency and make the large volume of information manageable. Comparison between cases aided in surfacing and declaring patterns, as well as making distinctions that add interpretive richness.

1.5.5 Interpretation and Final Synthesis

The research aims to provide a precise understanding of how the implementation of sustainable global strategies occurs within transnational corporations across various environments. A detailed, theoretically robust, and practically relevant set of findings was the desired outcome. Hence, the final step is to reframe the analyzed data about the main research questions and theoretical frameworks. Both the academic and real-world significance of the findings were considered, especially in terms of their contribution to corporate sustainability from the MNE's point of view, concerning the integration of sustainability into their overall strategy. At the latter part of the thesis, the study's limitations are discussed, along with some very promising avenues for further research.

2 Literature Review

The existing literature increasingly positions sustainability as a strategic priority for multinational enterprises (MNEs), particularly as they operate in diverse and complex global environments. Rather than treating environmental responsibility as a compliance exercise, recent work views it as a long-term source of competitiveness firmly tied to how firms create, deliver, and capture value (Foss & Saebi, 2016; Bocken et al., 2016). Within this conversation, three interconnected themes dominate: circular economy practices, green supply chain management, and business model innovation. The circular economy advocates for a shift away from linear production towards resource recovery, waste reduction, and regeneration across product lifecycles (Geissdoerfer et al., 2017). Authors stress that MNEs must embed such principles not at the margins, but throughout their value chains and global networks to build resilience and legitimacy in both developed and emerging markets (de Man & Strand, 2020; Lüdeke-Freund et al., 2017).

In parallel, green supply chain scholarship emphasizes the integration of environmental considerations into sourcing, production, logistics, and reverse logistics (Srivastava, 2007; Ahi & Searcy, 2013). Progress in this field emphasises supplier collaboration, eco-design, responsible procurement, and product stewardship as tools for reducing ecological risk and enhancing operational efficiencies (Zhu, Sarkis, & Lai, 2013; Dubey et al., 2017). However, managing such change across countries with different institutional pressures and stakeholder expectations remains highly challenging (Fahimnia et al., 2015; Jia et al., 2020). The business model innovation literature links these strands by arguing that sustainability demands more than incremental improvements; it requires redesigning the organisation's core logic and capabilities (Schaltegger et al., 2016; Pieroni et al., 2019). It is particularly relevant for MNEs balancing globally integrated strategies with the need for responsiveness to local conditions (Meyer & Peng, 2016; Sinkovics et al., 2021).

Although theoretical contributions on sustainable business model adaptation are growing, there remains a limited understanding of how MNEs practically integrate circular economy and green supply chain practices into their business models while navigating

resource constraints, institutional differences, and strategic tensions between headquarters and subsidiaries (Lüdeke-Freund et al., 2017; Foss & Saebi, 2018). This review, therefore, brings together insights from these three strands of literature to build a conceptual foundation for analysing how MNEs pursue sustainability-oriented business model adaptation in international contexts. The following sections develop each thematic area in greater detail to guide the empirical enquiry of this study.

2.1 Sustainability

Sustainability began as an environmental concept and has evolved into a broader mindset that influences how organizations operate and make decisions. The term became mainstream after the Brundtland Report, which defined sustainable development as progress that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). Over time, scholars have agreed that sustainability rests on three interconnected elements: environmental protection, social well-being, and economic stability (Elkington, 1997; Dyllick & Hockerts, 2002). What began primarily as a concern for conserving natural resources (Pearce & Turner, 1990) is now considered a guiding principle influencing how industries operate across international supply chains (Porter & Kramer, 2006; Hart & Milstein, 1999).

The earliest debates on sustainability emerged from ecological thinking in the 1970s, which focused on the limits to growth and the need to conserve resources (Meadows et al., 1972). In the 1990s, this thinking grew in importance in the management world with the overview of the 'Triple Bottom Line' approach, which recommended that companies should report and achieve not just financially, but also socially and environmentally (Elkington, 1997). Scholars claimed that companies cannot continue in the long run without distinguishing their dependence on healthy social and ecological systems (Shrivastava, 1995; Gladwin et al., 1995). More recent advances in sustainability thinking highlight the resilience of structures and planetary limitations, calling for a deeper understanding of how human and natural systems are entangled (Folke et al., 2010; Rockström et al., 2009).

Table 2. Definitions of Sustainability.

Author(s) and Year (Page)	Article Title	Definition (Direct Quote)
Geissdoerfer, Vladimirova & Evans (2018, p. 402)	Sustainable Business Model Innovation: A Review	"Sustainability has been defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs."
Srivastava (2007, p. 54)	Green supply-chain management: A state-of-the-art literature review	"Sustainability is concerned with corporate activities that demonstrate the inclusion of social and environmental concerns in business operations and in interactions with stakeholders."
Hart (1994, p. 991)	A Natural-Resource-Based View of the Firm	"Sustainability implies that firms must develop capabilities that not only reduce their negative environmental impact but also actively contribute to long-term ecological balance."
Burritt, Christ, Rammal & Schaltegger (2020, p. 2)	Multinational Enterprises and Sustainability: A Review and Research Agenda	"Sustainability refers to corporate strategies that integrate economic prosperity, environmental quality, and social equity to create long-term value for both business and society."
van der Waal, Thijssens & Maas (2021, p. 2)	The Innovative Contribution of Multinational Enterprises to the Sustainable Development Goals	"Sustainability is increasingly operationalized through the United Nations' Sustainable Development Goals, which combine environmental, social, and economic dimensions."

Multinational enterprises (MNEs), given their extensive transnational operations and resource footprints, play a decisive role in advancing sustainability agendas globally (Christmann, 2004; Kolk, 2016). As institutional actors embedded in multiple regulatory, cultural, and market environments, MNEs adopt sustainability not only to ensure legitimacy across host and home countries but also to manage global supply chain risks and capture emerging opportunities (Garriga & Melé, 2004; Doh & Guay, 2006; Kostova & Zaheer, 1999).

2.2 Circular Economy (CE)

The circular economy (CE) has emerged as a prominent alternative to the traditional linear model of "take, make, dispose," which characterizes most industrial structures. Rather than moving materials in a straight line from extraction to waste, the CE framework encourages continuous resource use through strategies such as reuse, refurbishment, remanufacturing, and recycling (Geissdoerfer et al., 2017). The European Commission (2015) describes it as an economy designed to be restorative, where products and materials stay in circulation for as long as possible and waste generation is minimised. While the idea builds on earlier traditions such as industrial ecology, cradle-to-cradle design, and eco-efficiency (Frosch & Gallopoulos, 1989; Braungart et al., 2007), it has developed into a shift in thinking that calls for systemic change across industries and broader value networks. Although the term "circular economy" is relatively recent, its intellectual roots can be traced back to ecological economics, particularly warnings in the 1960s and 1970s about the environmental limits to linear growth (Boulding, 1966; Pearce & Turner, 1990). During the early 2000s, policymakers, especially in Europe and China, began promoting CE through national strategies aimed at decoupling economic prosperity from resource extraction (Murray, Skene & Haynes, 2017; Kirchherr et al., 2018).

CE is often viewed as a practical means of implementing the broader ideals of sustainable development. Rather than addressing environmental harm after it occurs, circularity aims to design waste and pollution out of the system by keeping materials circulating within the economy (Ghisellini, Cialani, & Ulgiati, 2016). From a sustainability standpoint, CE contributes to environmental preservation by reducing pressures on ecosystems, while also yielding social benefits through local employment and economic benefits through cost savings and resource security (Korhonen, Honkasalo, & Seppälä, 2018). Scholars argue that CE's principal value lies in its ability to translate the global sustainability agenda into business-level actions (Blomsma & Brennan, 2017; Ritala et al., 2018). However, this often needs changes in organizations, infrastructure, and consumer behavior, signifying that CE is not just a technological resolution but a more reflective socio-economic shift (Geissdoerfer et al., 2020).

MNEs play a vital role in advancing the circular economy because their operations link suppliers, producers, and consumers across different institutional environments. Their scale and influence allow them to act as drivers of change by transferring technologies, establishing environmental standards, and shaping expectations throughout their supply networks (Kolk & Van Tulder, 2010; Urbinati, Chiaroni & Chiesa, 2017).

Table 3. Definitions of Circular Economy (CE).

Author(s) and Year (Page)	Article Title	Definition (Direct Quote)
Kirchherr, Reike & Hekkert (2017, p. 224)	Conceptualizing the Circular Economy: An Analysis of 114 Definitions	"A circular economy describes an economic system that replaces the 'end-of-life' concept with reducing, alternatively reusing, recycling, and recovering materials in production/distribution and consumption processes."
Geissdoerfer et al. (2017, p. 759)	The Circular Economy – A new sustainability paradigm?	"The circular economy is a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops."
Lewandowski (2016, p. 17)	Designing Business Models for the Circular Economy—Towards a Conceptual Framework	"Circular Economy is an economic system that represents a shift from the linear model of 'take, make, dispose' to a circular flow where resources are kept in use as long as possible, extracting maximum value, and then recovered and regenerated."
Hofstetter et al. (2021, p. 5)	From Sustainable Global Value Chains to Circular Economy	"Circular economy is a concept aiming at closing material loops and extending the lifecycle of products, components, and materials through reuse, refurbishment, remanufacturing, recycling, and other restorative strategies."
Rizos et al. (2016, p. 6)	Implementation of Circular Economy Business Models by SMEs: Barriers and Enablers	"Circular Economy refers to business models and practices that minimize resource input and waste generation while creating economic, social, and environmental value."
Tapaninaho & Heikkinen (2022, p. 145)	Value creation in circular economy business for sustainability: A stakeholder perspective	"Circular economy can be defined as a systemic approach to economic development designed to benefit businesses, society, and the environment, by decoupling growth from the consumption of finite resources."

Scholars have increasingly emphasized the interrelationship between the circular economy, green supply chain management, and business model innovation. Accepting circu-

lar principles necessitates that firms rearrange their supply chain actions so that resources can be recovered, products can circulate longer, and lifecycles can be prolonged. This links directly with recognized practices in green supply chain management, including green procurement, reverse logistics, and the formation of closed-loop systems (Zhu & Sarkis, 2004).

The move toward circularity also compels organizations to reconsider the very foundations of their business logic. In many cases, this takes the form of sustainability-oriented business model innovation, where firms redesign their value propositions, delivery mechanisms, and revenue structures to align with circular principles (Bocken et al., 2014; Foss & Saebi, 2017). Rather than treating circular economy initiatives as isolated projects, this perspective situates them within the broader context of organizational change. In this way, the circular economy operates both as a catalyst and as an outcome of innovation across supply chains and business models. For multinational enterprises in particular, it proposes a strategic pathway to align long-term attractiveness with sustainable development goals, while concurrently reinforcing their part in shaping global business practices (Genovese et al., 2017; Yang et al., 2022).

2.3 Green Supply Chain Management (GSCM)

Green supply chain management (GSCM) has grown as a key response to rising concerns about the environmental impact of global production and distribution. It figures on traditional supply chain management by purposely mixing environmental intelligence into every stage, from product design and raw material tracking to manufacturing, logistics, use, and end-of-life recovery (Srivastava, 2007; Seuring & Müller, 2008). Early thinking in this field originated from corporate environmental management and pollution prevention efforts (Hart, 1995; Porter & van der Linde, 1995), but has since changed into a wider, collaboration-oriented tactic that ranges beyond company limitations.

Table 4. Definitions of Green Supply Chain Management (GSCM).

Author(s) and Year (Page)	Article Title	Definition (Direct Quote)
Srivastava (2007, p. 54)	Green Supply-Chain Management: A State-of-the-Art Literature Review	"Green supply chain management is integrating environmental thinking into supply chain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product to the consumers as well as end-of-life management of the product after its useful life."
Jabbour, Jugend, de Sousa Jabbour et al. (2013, p. 144)	Green Supply Chain Management in Local and Multinational High-Tech Companies in Brazil	"GSCM refers to the extent to which environmental issues are integrated into supply chain management practices, from green purchasing to integrated life-cycle management."
Zhu, Sarkis & Lai (2008, p. 267)	Green Supply Chain Management: Pressures, Practices and Performance within the Chinese Automobile Industry	"Green supply chain management can be defined as the adoption of environmentally friendly practices into the supply chain, ranging from green design to green operations, green manufacturing, green logistics, and reverse logistics."
Dong, Kim & Wu (2021, p. 11)	Green Supply Chain Management and Clean Technology Innovation: Evidence from Multinational Enterprises in China	"GSCM is a set of practices that integrates environmental criteria into upstream and downstream supply chain management activities, aiming at reducing environmental impact and enhancing innovation."
Maeno et al. (2022, p. 108)	CO_2 Mitigation through Global Supply Chain Restructuring	"Green supply chain management seeks to minimize carbon emissions and resource consumption across supply networks, optimizing both environmental and economic outcomes."
Glover et al. (2014, p. 332)	An Institutional Theory Perspective on Sustainable Practices across the Dairy Supply Chain	"Green supply chain management refers to the implementation of environmentally responsible practices in supply chains driven by institutional and stakeholder pressures."

As supply chains became more multifaceted and globally spread, the scope of GSCM expanded to include reverse logistics, closed-loop systems, and product life-cycle considerations (Guide & Van Wassenhove, 2001; Sarkis, 2012). Researchers began to highlight that real-world environmental improvements in supply chains necessitate cooperation among multiple actors, like manufacturers, suppliers, logistics partners, and customers; rather than secluded efforts by individual firms (Rao & Holt, 2005; Vachon & Klassen, 2006). This understanding slowly shifted the attention from internal operational

changes to synchronized supply network strategies such as information sharing, joint problem-solving, and co-development of green technologies (Zhu, Sarkis & Lai, 2013; Green et al., 2019).

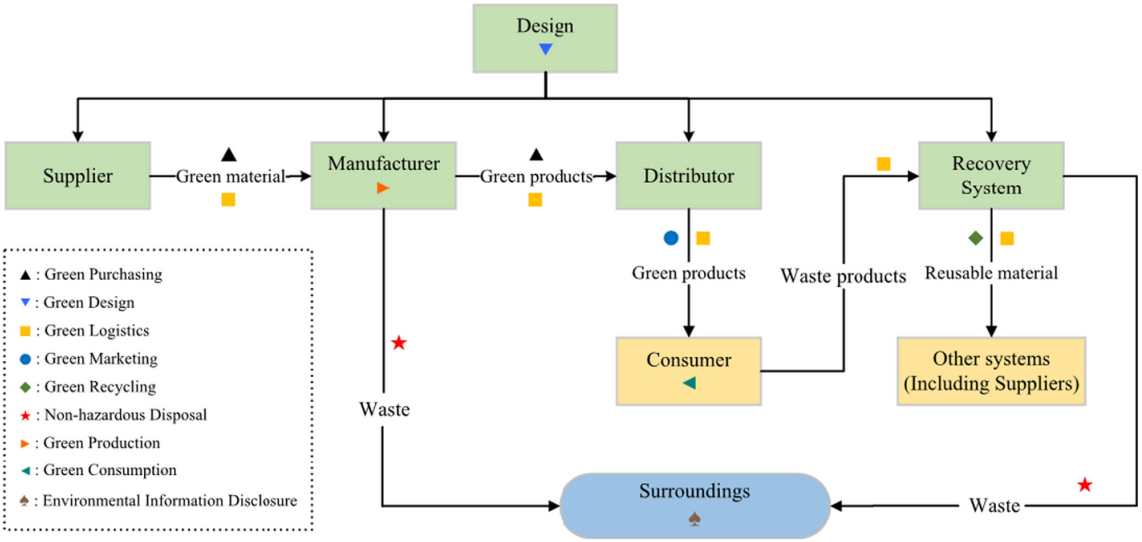

Figure 1. GSCM for a Sustainable Industry (Sheng et al., 2023)**.**

For MNEs, GSCM holds further strategic meaning due to the scale and spread of their global maneuvers. With supply networks spanning several institutional environments, MNEs are often predicted to act as key drivers of environmental progression along international value chains (Christmann, 2004; Lee, 2008). They generally apply tools such as supplier codes of conduct, environmental audits, and capability-building programs to spread green practices across organizational boundaries (Kolk & Van Tulder, 2010; Montiel & Delgado-Ceballos, 2014). At the same time, they must poise global sustainability drives with the need to explain with local expectations and restrictions (Rugman & Verbeke, 2001; Sinkovics et al., 2016), leading to hybrid methods where globally continuous standards are shared with locally open supplier engagement practices (Gimenez & Tachizawa, 2012; Jia et al., 2018). The model in the figure exemplifies the closed-loop nature of Green Supply Chain Management (GSCM), where suppliers, manufacturers, distributors, consumers, and recovery systems are interrelated through sustainable practices such as green purchasing, eco-design, recycling, and non-hazardous removal. Sheng et al. (2023) stress that such integration is vital for MNEs, as it allows them to coordinate

environmental strategies across global operations while addressing local institutional burdens. The movement from green material sourcing to recovery and reuse demonstrates how GSCM reduces waste, promotes circularity, and ensures value creation beyond traditional linear supply chains. For businesses, particularly multinational corporations, implementing this model not only supports compliance with international sustainability standards but also boosts competitiveness by aligning green practices with consumer prospects and regulatory demands (Zhu et al., 2019; Sarkis et al., 2020).

2.4 Business Model Innovation (BMI)

Business Model Innovation (BMI) has emerged as a pivotal mechanism for firms to navigate rapid technological advancements, environmental pressures, and evolving societal expectations. At its core, BMI refers to deliberate changes in a firm's value creation, delivery, and capture logic (Teece, 2010). These innovations extend beyond product or process improvements and involve rethinking how the firm conducts its business. Zott and Amit (2010) emphasize that a business model is a system of interdependent activities that transcend the boundaries of a firm. Foss and Saebi (2017) further refine this by defining BMI as a "designed, non-trivial change to key components of a firm's business model, and/or the architecture linking these components," providing a strategic and integrative lens on innovation that incorporates both organizational and market dynamics.

The development of BMI research echoes a shift from isolated technological or entrepreneurial circumstances to broader strategic and societal concerns. Initially discovered through lenses such as innovation diffusion or competitive advantage, BMI scholarship has matured to integrate multiple theoretical perspectives. This multi-theoretical view emphasizes that value in BMI is co-created among various stakeholders and surrounded by social and ecological systems. Pan, Xu, and Skare (2022) conducted a bibliometric review of over 800 studies, indicating that sustainable business model innovation (SBMI) has emerged as a central theme in recent years, motivated by the joining of sustainability, digitalization, and global competitiveness. In practical terms, BMI is formed by both external and internal drivers. Externally, firms face increasing pressure from regulatory

frameworks, customer demands, technological change, and global sustainability goals. Internally, firm-specific resources, leadership cognition, and organizational routines have a strong influence on BMI outcomes (Ringvold, Saebi, & Foss, 2022).

In the MNE context, BMI becomes more multifaceted due to institutional, cultural, and infrastructural differences across countries. Xu and Shenkar (2002) introduce the concept of "institutional distance" to define how differences in norms, regulations, and cognition influence international processes. Zaheer (1995) adds that MNEs must steer the accountability of foreignness by altering business models to fit local situations. Chabowski, Gabrielsson, Hult, and Morgeson (2025) reply to this encounter by proposing "Sustainable International Business Model Innovations" (SIBMIs), which aligns circular economy (CE) principles with international business inevitabilities.

Table 5. Definitions of Business Model Innovations (BMI).

Author(s) and Year (Page)	Article / Source Title	Definition (Direct Quote)
Foss & Saebi (2017, p. 201)	Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go?	"Business model innovation is defined as designed, nontrivial changes to the key elements of a firm's business model and/or the architecture linking these elements."
Geissdoerfer, Vladimirova & Evans (2018, p. 403)	Sustainable Business Model Innovation: A Review	"Business model innovation refers to the process of innovating the business model components, their interrelations, and/or the business model as a whole."
Evers, Andersson & Hannibal (2023, p. 4)	Unraveling Business Model Innovation in Firm Internationalization: A Systematic Literature Review	"Business model innovation is a dynamic capability that allows firms to create, deliver, and capture value in new ways through reconfigurations of business model components."
Antikainen & Valkokari (2016, p. 8)	A Framework for Sustainable Circular Business Model Innovation	"Business model innovation is understood as the development of novel configurations of business model elements that enable firms to better respond to sustainability and circular economy challenges."
Geissdoerfer et al. (2017, p. 760)	The Circular Economy – A New Sustainability Paradigm?	"Business model innovation for circular economy is the process of changing how value is created, delivered, and captured, so as to close, slow, or narrow resource loops."

The accumulation of CE principles into BMI is mutually beneficial and transformative. Geissdoerfer, Savaget, Bocken, and Hultink (2017) highlight that while CE chains accomplish ecological goals by minimizing waste and closing resource loops, they must be encircled by a wider sustainability context to guarantee social equity and long-term feasibility. Chabowski et al. (2025) highlight that the changeover from linear to circular models in international markets necessitates fundamental redesigns of value logic, particularly for MNEs that work in various regulatory and consumer environments. The business opportunity linked to CE was valued at $1.5 trillion in 2020 and is expected to grow to $4.5 trillion by 2030, further strengthening the strategic significance of circular BMI.

2.5 Institutional Theory

Institutional theory offers a compelling clarification for how MNEs steer the complex web of opportunities, norms, and pressures they meet in diverse global settings. Rather than operating exclusively on economic logic or internal efficacies, organizations are often molded by the external environments in which they function. DiMaggio and Powell (1983) proposed that organizations tend to conform to the institutional norms, rules, values, and belief systems prevalent in their context to gain social legitimacy and maintain stability. This becomes mostly critical for organizations operating in international markets, where regulatory constructions and societal outlooks can differ significantly.

When MNEs enlarge into new countries, they face what Kostova and Zaheer (1999) state as “institutional duality”: the challenge of aligning their operations with both the standards of their home country and those of the host country. This dual alignment often involves negotiating between inconsistent regulatory demands or societal norms, especially in the setting of sustainability and environmental performance. In countries with rigorous environmental laws or strong civil society engagement, firms might adopt forward-thinking sustainability initiatives. In less regulated environments, however, firms may fight to meet even basic ecological opportunities without undermining cost structures.

Institutional theory also emphasizes the process of isomorphism, how companies begin to resemble one another due to similar external pressures. These pressures can be coercive, such as regulatory requirements; mimetic, where firms emulate peers during uncertainty; or normative, stemming from industry standards and professionalization (DiMaggio & Powell, 1983). For example, a multinational might adopt CE practices not necessarily because of internal innovation, but because leading competitors or regional authorities have made such practices a norm. Bansal and Roth (2000) illustrate that many firms implement environmental programs to maintain legitimacy with investors, customers, and regulatory bodies, even in the absence of direct profitability.

However, institutional theory does not represent organizations as passive actors. As Oliver (1991) claims, firms often indicate a spectrum of responses to institutional pressures, including active management or strategic compromise. Large multinational firms, due to their resources and political capital, are principally well-positioned to outline or reinterpret official expectations in ways that align with their internal strengths or market positions. This capability to proactively engage with institutional demands is exclusively relevant in today's climate-conscious business atmosphere. In the context, institutional theory supports expounding on how external expectations impact corporate decisions regarding sustainability. It explains the status of legitimacy and external orientation alongside internal capabilities and strategic commitment.

2.6 Resource-Based View (RBV)

The resource-based view (RBV) is a strategic framework that aids in explaining how organizations gain and continue competitive advantages by leveraging what they already possess. Central to this theory is the idea that certain resources, whether physical, technological, human, or intangible, can help a firm outperform others, especially if those resources are valuable, rare, difficult to imitate, and not easily replaced (Barney, 1991). In today's business world, where environmental and social anxieties are gaining momentum, this standpoint becomes increasingly applicable. It offers insight into how firms can develop sustainability as a core asset rather than giving it as a regulatory burden.

For multinational companies, applying the RBV means spotting how internal strengths, such as sustainability know-how, green technology, and well-developed environmental management practices, can serve as long-term assets. Hart (1995) prolonged the traditional view by suggesting a natural resource-based framework. This disparity highlights how environmentally accountable resources, including pollution control technologies, sustainable design expertise, and waste-minimizing processes, pay directly to a firm's strategic success. Christmann (2000) showed that firms with innovative green technologies and dedicated environmental strategies often enjoy cost savings and boosted reputations. Darnall and Edwards (2006) similarly found that companies that develop internal sustainability capabilities tend to adapt better to external pressures and innovate responsibly.

Beyond tangible resources, the RBV also values less noticeable yet equally powerful elements like leadership commitment, employee engagement, and organizational culture. These softer assets often foster behaviors and progressions that support long-term environmental goals. Firms that implant sustainability into their culture create routines and practices that are difficult for rivals to copy (Wernerfelt, 1984). This kind of implanted knowledge helps companies implement complex strategies like GSCM and circular business models more effectively (Pagell & Wu, 2009). However, relying solely on internal strengths has its limits. Some scholars argue that the RBV may not adequately account for rapid shifts in the external environment, such as regulatory changes or consumer expectations (Priem & Butler, 2001). This has led to the idea of integrating the RBV with other perspectives, particularly institutional theory, to capture a fuller picture of how firms respond to sustainability challenges.

3 Conceptual Framework

This study develops a conceptual framework to define how multinational enterprises (MNEs) streamline their business models for sustainability when operating in various institutional backgrounds. Together with CE and GSCM standpoints, it designates both the strategic foundation for adaptation and the organizational and environmental impacts that affect it. The CE advocates moving away from the traditional linear system towards re-forming cycles that keep materials and products in use for as long as possible (Geissdoerfer et al., 2017). Operationalizing such activities often relies on GSCM, which emphasizes reducing environmental influence across sourcing, production, distribution, use, and reverse logistics (Srivastava, 2007). GSCM provides tangible tools such as eco-design, cleaner production, green procurement policies, and supplier collaboration, which bring CE ambitions to life.

However, the ability of firms to integrate CE and GSCM depends significantly on their internal strengths. According to the Resource-Based View, firms gain a competitive advantage from valuable, rare, inimitable, and non-substitutable resources and capabilities (Barney, 1991). For MNEs, these may include technological expertise, supportive organizational cultures, strong supplier relationships, and experienced management teams. Enterprises with more developed capabilities are better placed to embed CE and GSCM practices, experiment with new forms of value creation, and maintain profitability while pursuing sustainability goals (Hart & Dowell, 2011). Institutional Theory emphasizes that company behavior is shaped by coercive pressures (regulations), normative pressures (social and professional expectations), and mimetic pressures (imitation of industry peers) (DiMaggio & Powell, 1983).

In this study, sustainable business model adaptation is viewed both as a process and an outcome. As a process, it involves an evolving set of actions through which firms introduce, test, and scale sustainable innovations (Foss & Saebi, 2017). As an outcome, it reflects changes to a firm's value proposition, delivery mechanisms, and revenue logic in ways that generate economic, environmental, and social value (Boons & Lüdeke-Freund,

2013). Bringing together operational practices (CE and GSCM), internal strengths (RBV), and external pressures (Institutional Theory), the framework supports a holistic investigation of sustainable business model adaptation.

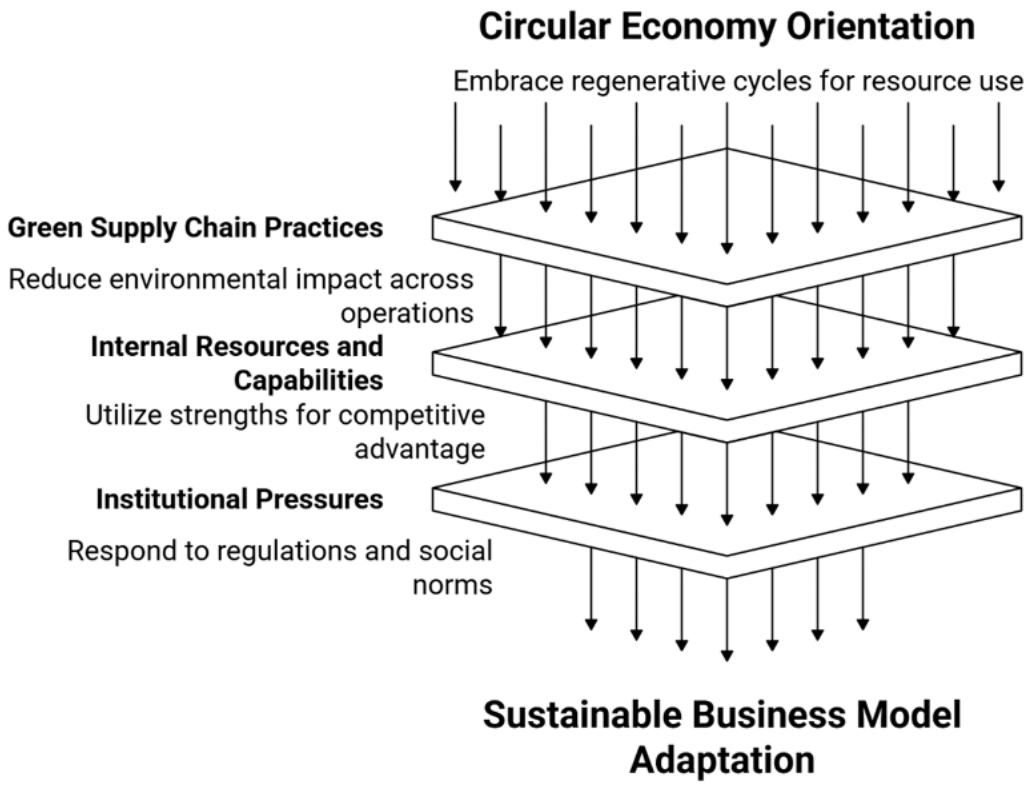

Figure 2. Sustainable Business Model Adaptation Funnel.

The sustainable business model adaptation framework includes five interconnected constructs: (1) Circular Economy Orientation, (2) Green Supply Chain Practices, (3) Sustainable Business Model Adaptation Strategy, (4) Internal Resources and Capabilities, and (5) Institutional Pressures. It recommends that MNEs with a solid CE orientation and deeper GSCM integration are more likely to adapt their business models to attain sustainability. However, this affiliation is legalized by adequate internal capabilities and moderated by the institutional circumstances of the markets in which they operate.

3.1 Sustainability through the Lens of Circular Economy

The Circular Economy (CE) offers a persuasive approach for firms, principally multinational enterprises (MNEs), to reexamine what sustainability means in practice. Rather than following the traditional model that ultimately leads to waste and environmental degradation, CE inspires organizations to hold materials in use for as long as possible, designing out waste from the beginning and supporting the transformation of natural systems (Geissdoerfer et al., 2017). This necessitates businesses to query long-held resolutions about value creation and to design products that are robust, repairable, and recyclable so that valuable materials are not rejected but repeatedly cycled back into production (Kirchherr, Reike, & Hekkert, 2017).

For MNEs navigating complex global markets, CE signifies more than an environmental model, which is increasingly a strategic pathway for flexibility and revolution. By reducing dependence on freshly extracted resources, circular tactics can help firms defend themselves against price instability and supply risks, while also finding new revenue opportunities embedded in reuse, refurbishment, and product-service systems (Ellen MacArthur Foundation, 2015). Rather than selling more products, companies can profit from longer-lasting customer relationships and service-based offers, such as leasing or take-back models, that encompass product lifespans and capture residual value (Bocken et al., 2014). These methods often catalyze innovation in areas such as materials engineering, digital tracking, and industrial symbiosis, fostering unique proficiencies and competitive advantages (Murray, Skene, & Haynes, 2017).

Crucially, shifts towards CE are not occurring in a vacuum. They are fueled by growing external pressures from tighter environmental regulations in key markets to evolving expectations from consumers, investors, and civil society groups. These institutional forces encourage firms to take more responsibility for waste reduction, resource stewardship, and sustainable production and consumption goals, which are strongly echoed in Sustainable Development Goal 12 (United Nations, 2015). For high-profile MNEs operating at the global forefront, failing to engage with CE can carry reputational and compliance

risks, while early adoption can reinforce leadership credentials and stakeholder trust (DiMaggio & Powell, 1983). At the same time, the ability to engage meaningfully with CE depends heavily on a firm's internal set of capabilities. According to the resource-based view, it is not enough to simply respond to external pressure; firms must also possess distinctive, hard-to-replicate strengths such as circular design expertise, reverse logistics infrastructure, and sophisticated systems for managing material flows (Barney, 1991; Lewandowski, 2016). These capabilities take time to build and become sources of long-term advantage for firms that can integrate circular thinking into their core operations, not just their communications. However, implementing CE across global value chains is rarely straightforward. MNEs must translate circular principles into action across very different institutional settings, adapting to diverse regulatory environments, stakeholder expectations, and infrastructure levels in each location (Xu & Shenkar, 2002). Those that succeed typically strike a careful balance, retaining a clear strategic vision for circularity at the global level while tailoring their business models locally to ensure feasibility and legitimacy (Zaheer, 1998).

The circular economy offers companies an opportunity to reevaluate their growth strategies and competitive approaches while tackling urgent environmental and social issues. Instead of following the traditional linear path of extracting resources, producing goods, and disposing of them after use, companies are increasingly adopting circular economy principles to shape their strategies. At the heart of this approach is the idea of designing products and systems that reduce waste, enhance material reuse, and ensure business activities help restore rather than harm natural systems (Ellen MacArthur Foundation, 2025). In practice, this means implementing strategies like eco-design, modular manufacturing, remanufacturing, and service-based models that extend product lifespans and recover value that might otherwise be lost. Companies that use leasing, refurbishment programs, or product take-back schemes can lower their environmental impact while creating new revenue streams. Importantly, circular business models provide opportunities for differentiation and innovation, helping companies strengthen stakeholder trust and position themselves as leaders in a global movement toward more regenerative and

low-carbon growth (Ellen MacArthur Foundation, 2015). In this way, circular economy thinking shifts sustainability from a mere compliance requirement into a strategic advantage and a path to long-term value generation.

3.2 Sustainability through the Lens of GSCM

Green Supply Chain Management (GSCM) has become one of the most practical and powerful ways for multinational enterprises (MNEs) to translate their sustainability commitments into meaningful action across their global operations. Rather than focusing solely on what happens within the boundaries of the firm, GSCM encourages companies to integrate environmental thinking into every stage of the supply chain, from how raw materials are sourced and products are designed, to how they are manufactured, transported, used, and eventually recovered or disposed of (Srivastava, 2007). For MNEs, GSCM is progressively not just an environmental initiative but a strategic obligation. By reducing material and energy use, companies can lower costs, limit exposure to unpredictable commodity markets, and guarantee compliance with tightening environmental regulations (Hervani, Helms, & Sarkis, 2005). At the same time, embracing GSCM can improve corporate status and strengthen relationships with environmentally sensitive consumers, investors, and policymakers, opening up opportunities in sustainability, focused markets, and strengthening competitive advantage (Green et al., 2012; Carter & Rogers, 2008). Notably, GSCM can also become a basis of innovation, enabling firms to develop cleaner processes, more resilient supplier networks, and greener products that better align with the sustainability priorities shaping global markets (Vachon & Klassen, 2008).

The growing thrust behind GSCM is powerfully linked to institutional pressures. MNEs now face regulatory demands to diminish emissions and waste, rising expectations from societies and industry bodies to function responsibly, and competitive pressures as sustainability leaders set new standards in supply chain management (DiMaggio & Powell, 1983). Yet, meaningful progress depends not only on responding to these external forces but on possessing the right internal capabilities. Firms with strong competencies in areas

such as supplier relationship building, environmental performance monitoring, logistics optimization, and integrating sustainability data into procurement systems are far better equipped to implement GSCM effectively (Barney, 1991; Sarkis, Zhu & Lai, 2011). These internal strengths are often built over time and become difficult for competitors to imitate, providing the basis for lasting strategic advantage. From this perspective, GSCM is best understood not as a one-off program but as a dynamic capability that helps firms operate sustainably across widely differing regulatory, cultural, and infrastructural settings (Xu & Shenkar, 2002). Ultimately, MNEs that embed GSCM into the heart of their business models are likely to be better positioned to navigate institutional complexity, meet growing stakeholder expectations, and create long-term value in line with the principles of sustainable development (Pagell & Wu, 2009; Lee & Klassen, 2008).

3.3 Business Model Innovation (BMI) through the Lens of Sustainability

Business Model Innovation (BMI) is increasingly viewed as an essential pathway for firms seeking to integrate sustainability meaningfully into their strategic and operational core. Traditionally, business models explain how organizations create, deliver, and capture value (Teece, 2010). Under a sustainability perspective, this idea expands to include environmental integrity and social responsibility alongside financial outcomes. Sustainable BMI, therefore, requires firms to rethink how value is defined and constructed so that business success is linked to positive outcomes for society and the planet (Boons & Lüdeke‐Freund, 2013). Rather than making incremental process improvements, sustainable BMI often involves reimagining what the company offers, how it delivers those offerings, and which stakeholders it needs to collaborate with. This might mean shifting from selling products to providing services, developing take‐back systems to recover materials, or working with partners outside the traditional business network to co‐develop sustainable solutions (Bocken et al., 2014). Such changes usually unfold through experimentation and learning, where firms test new ideas, adjust systems, and cultivate organizational cultures that are open to transformation and long‐term thinking (Stubbs & Cocklin, 2008).

Firms are prompted toward sustainable BMI by both external and internal forces. Externally, regulatory changes, competitive pressures, and rising expectations from customers, investors, and civil society have created a powerful push for business models that do more than generate profit (DiMaggio & Powell, 1983; Burritt et al., 2020). Internally, successful BMI depends on the firm’s resources and capabilities, especially those that are difficult to copy, such as technological know‐how, partner networks, or specialized knowledge systems (Barney, 1991). This blend of institutional pressure and internal capability shapes whether and how a firm can create sustainable business models that are both innovative and commercially viable. The literature highlights several types of sustainable business model innovations, including those focused on improving resource efficiency, closing material loops, providing access instead of ownership, and delivering social benefits (Bocken et al., 2014).

In this context, the Business Model Canvas has appeared as a practical and broadly adopted means for guiding and constructing BMI for sustainability (Osterwalder & Pigneur, 2010). By breaking the business model into nine related components, key partners, activities, resources, value propositions, customer relationships, channels, customer segments, revenue streams, and cost structure, the canvas allows managers to scientifically assimilate sustainability into each part of the value logic (Joyce & Paquin, 2016). In doing so, the Business Model Canvas supports multinational enterprises in designing business models that are not only competitive but are also engines of sustainable development.

3.4 Business Model Canvas: Sustainability Orientation in the Context of CE and GSCM

The Business Model Canvas (BMC) is commonly familiar as a practical instrument for describing how organizations create, deliver, and capture value (Osterwalder & Pigneur, 2010). However, as sustainability becomes central to strategic thinking, the traditional economic logic embedded in the BMC is progressively viewed as insufficient (Boons &

Lüdeke-Freund, 2013). Firms are now expected to develop business models that not only remain commercially feasible but also demonstrate responsible environmental stewardship and make positive social contributions. This segment offers an in-depth discussion of how each component of the BMC evolves when sustainability is at the center of its strategic intent.

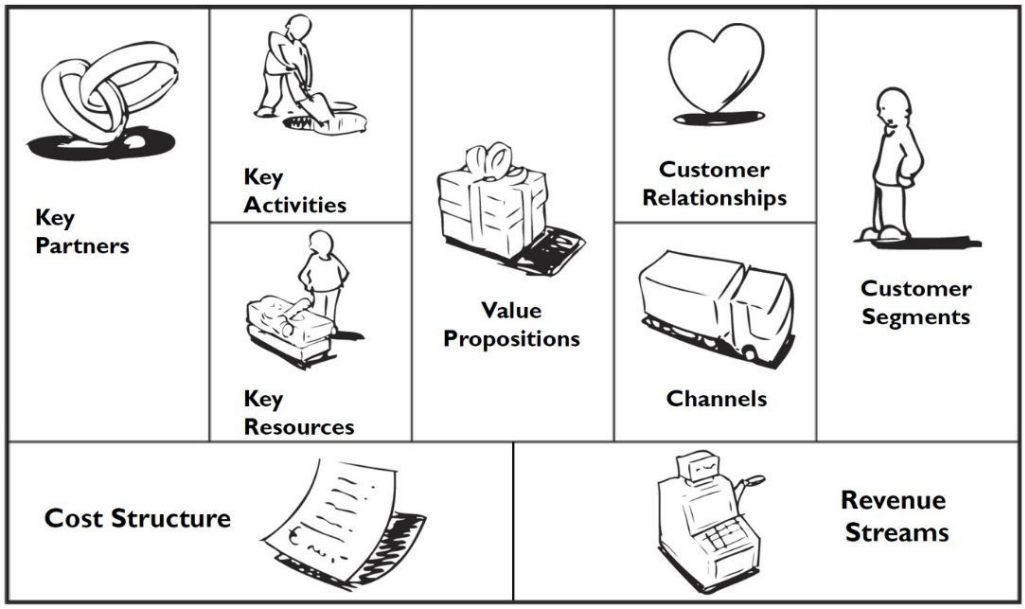

Figure 3. Business Model Canvas (Osterwalder et al., 2010).

At the center of any business model lies the value proposition. Conventionally well-defined in practical and economic terms, the value proposition in a sustainability-oriented model extends beyond these borders by also talking about environmental and social concerns. Under the CE logic, value is attained through products and services that are planned for longevity, reparability, reusability, and recyclability, thereby minimizing waste generation and reducing reliance on virgin resources (Kirchherr, Reike, & Hekkert, 2017). Likewise, GSCM highlights minimizing pollution, conserving energy, and using environmentally friendly inputs throughout the supply chain (Srivastava, 2007). Firms thus slowly craft value propositions that highlight environmental identifications (e.g., low-carbon footprint, recycled materials) and broader societal assistances (Bocken et al., 2014), thereby tapping into a rising market of sustainability-conscious stakeholders.

The idea of customer segments is also ever-changing. Rather than aiming customers exclusively by demographic traits, firms are increasingly considering behavioral and psychographic variables, such as environmental awareness, willingness to contribute in circular structures, and preference for socially accountable brands (Peattie & Belz, 2010). Moreover, in sustainability-oriented models, stakeholders such as regulators, NGOs, and local communities also play a significant role. They may be conceptualized as indirect customer groups whose perspectives must be considered to maintain legitimacy (DiMaggio & Powell, 1983). In CE systems, customers are not merely end-users; they become collaborators in extending product lifespans through repair, return, and reuse behaviors (Lewandowski, 2016).

Parallel changes occur in channels through which firms deliver and recover value. While traditional models emphasize outbound logistics, CE and GSCM frameworks highlight the importance of reverse logistics systems capable of retrieving products and materials after use so that they can be reused, remanufactured, or recycled (Carter & Rogers, 2008). Digital tools, such as QR-coded labeling, tracking technologies, and online platforms, become crucial to enhancing transparency and traceability along supply chains (Tachizawa & Wong, 2014). Consequently, channels evolve to serve two-way flows of materials, information, and environmental performance data. Sustainability-oriented customer relationships rely less on transactional exchanges and more on ongoing interaction, mutual learning, and co-creation of environmental value (Evans et al., 2017). Firms engage consumers through educational content that encourages environmentally conscious consumption behavior, while incentive mechanisms encourage the return of end-of-life products or the use of reusable packaging. These efforts reinforce trust and strengthen the shared responsibility ethos underpinning both CE and GSCM approaches (Seuring & Müller, 2008). Shifts in value logic also trigger changes in revenue streams. In place of one-off product sales, firms are increasingly adopting circular business models, such as “product-as-a-service,” performance-based contracting, leasing, and pay-per-use models (Michelini et al., 2020). These mechanisms enable firms to retain ownership of products and recover them at the end of use, fostering incentives for durability and efficient

resource utilization. GSCM strengthens this longer-term orientation, as revenue becomes tied not only to sales but also to environmental performance and regulatory compliance, bringing new forms of financial value derived from waste reduction and an improved brand reputation (Bocken et al., 2014).

From an operational standpoint, key resources increasingly include not only physical and financial assets but also knowledge-based capabilities, partnerships, and technological tools that support eco-design, life-cycle assessment, renewable energy integration, and environmental data analytics (Barney, 1991). Such resources underpin a firm's ability to implement CE practices such as remanufacturing or material substitution and to ensure cleaner production in line with GSCM principles (Zhu, Sarkis, & Lai, 2013). Over time, firms may develop rare and inimitable sustainability resources, such as expertise in green innovation or robust reverse logistics networks, which form the basis of a lasting competitive advantage. Under CE frameworks, firms engage in eco-design, repair services, refurbishment, recycling, disassembly, and product recovery alongside their traditional production and distribution functions (Ellen MacArthur Foundation, 2015). Under GSCM, attention shifts to running greener operations across the entire supply chain, including sourcing, manufacturing, warehousing, and distribution. This includes incorporating energy-saving technologies, cleaner production methods, and supply chain collaborations aimed at reducing environmental footprints (Srivastava, 2007). Robust information sharing, monitoring, and reporting become core activities that enable continuous improvement and compliance with environmental regulations (Hervani, Helms, & Sarkis, 2005).

Sustainability also transforms the landscape of key partnerships. Firms must actively collaborate with a wide variety of factors, including suppliers with green capabilities, recovery and recycling firms, government agencies, research institutions, and community organizations (Boons & Lüdeke-Freund, 2013). Such networks enable businesses to access specialized sustainability technologies and infrastructure, including closed-loop supply chain systems, renewable energy installations, and digital traceability platforms. Furthermore, through supplier development agendas and long-term strategic alliances, firms

can encourage upstream partners to adopt environmentally and socially responsible practices (Lee, 2008). Within the cost structure, sustainability initiatives often require investment in cleaner technologies, training plans, and infrastructure for waste recapture and reverse logistics. Although these can increase short-term operational costs, they often translate into medium- to long-term gains through resource efficiency, reduced emissions penalties, waste diversion savings, and reputational advantages (Porter & van der Linde, 1995). Additionally, social investment in employee well-being, partnerships with local communities, and transparent reporting systems become essential expenditures that support the broader legitimacy of sustainability-oriented business models.

The recognition that sustainability should be embedded in each component of the business model has led to extensions of the BMC. Among the most influential is the Triple Layered Business Model Canvas (TLBMC), which supplements the traditional economic layer with environmental and social layers (Joyce & Paquin, 2016). The environmental layer maps life-cycle influences of each BMC block, stressing the flow of materials, energy use, greenhouse gas emissions, and waste generation. The social layer highlights stakeholder relationships, including workers, consumers, suppliers, and local communities, assessing how each business choice impacts wellbeing, equity, and social justice (Elkington, 1997; Lüdeke-Freund et al., 2020). Examining both horizontal placement within each layer and vertical formation across layers allows organizations to classify where trade-offs happen, where collaborations can be reinforced, and how sustainability can be successfully combined into a strategic plan.

Reframing the BMC through the Circular Economy and Green Supply Chain Management renovates it from a revenue-centered plotting tool into an all-inclusive mechanism for sustainable strategic innovation. Each component becomes a lever through which firms can nurture environmental integrity, social inclusiveness, and economic resilience. Far from serving as a standing explanation of existing operations, the sustainability-oriented canvas becomes a dynamic guide for accountable transformation, helping firms design

models capable of meeting stakeholder expectations, keeping pace with growing regulations, and creating lasting value in a resource-constrained world.

Table 6. Transformation of BMC Elements under CE and GSCM.

BMC Element	Traditional Interpretation	CE/GSCM Sustainable Reframing
Value Proposition	Emphasis on performance, quality, price, and convenience	Propositions emphasizing durability, reparability, recyclability, lower environmental footprint, ethical sourcing, social impact, and restorative or regenerative value (Kirchherr et al., 2017).
Customer Segments	Based on demographics, purchasing power, and market size	Segments defined by sustainability consciousness, pro-environmental attitudes, willingness to participate in reuse/return schemes, and inclusion of non-market stakeholders (Peattie & Belz, 2010).
Channels	Forward movement of goods through sales channels	Addition of reverse logistics, take-back systems, repair centers, and digital platforms enabling material tracking and transparency across the lifecycle (Carter & Rogers, 2008; Tachizawa & Wong, 2014).
Customer Relationships	Transaction-focused, acquisition and retention-driven	Relationship building through sustainability education, collaborative consumption models, loyalty based on environmental and ethical values, shared ownership or stewardship (Evans et al., 2017).
Revenue Streams	Revenue through product-ownership sales and service fees	Circular revenues through leasing, renting, pay-per-use, product-service systems, and value capture from recovered materials, encouraging longevity and resource efficiency (Michelini et al., 2020).
Key Resources	Capital, intellectual property, physical assets	Renewable and recyclable materials, eco-design expertise, reverse logistics infrastructure, environmental data systems, and stakeholder relationships as strategic assets (Barney, 1991; Lewandowski, 2016).
Key Activities	Core operations such as manufacturing, marketing, and distribution	CE activities such as design for disassembly, reuse, refurbishing, remanufacturing, waste valorization, closed-loop sourcing, and GSCM practices like cleaner production (Srivastava, 2007; Geissdoerfer et al., 2018).
Key Partnerships	Traditional supply chain actors and service providers	Inclusion of recyclers, sustainability certifiers, NGOs, local communities, knowledge institutions, technological collaborators, and regulators for eco-innovation (Boons & Lüdeke-Freund, 2013; Seuring & Müller, 2008).
Cost Structure	Operational and logistical costs; economies of scale	Lifecycle-costing perspective including investments in eco-technology, reverse logistics, supplier sustainability training, emissions mitigation measures, and local community engagement (Porter & van der Linde, 1995).

4 Methodology

This research employs a qualitative approach guided by the interpretivist viewpoint, aiming to explore how MNEs implement CE and GSCM practices within evolving MNE contexts. The selected methodology is informed by previous work in sustainability and international business, making it fit for addressing a research question that is both multifaceted and context-driven.

4.1 Research Philosophy and Rationale

This study was guided by a critical realist worldview, which shaped both the design of the research and the interpretation of the findings. At its core, critical realism is based on the idea that an objective reality exists. However, our understanding of that reality is always shaped by our individual and collective experiences (Bhaskar, 1978). In other words, while there are real systems and structures in place, such as global supply chains or environmental policies, different individuals and organizations may interpret and respond to them in their unique ways.

This philosophical stance was well-suited to the topic of this research. The study focused on how multinational companies incorporate sustainability into their business models while operating across very different national and cultural environments. Critical realism provided a useful lens because it acknowledges both the influence of external conditions and the internal decision-making processes that occur within firms. It created space to explore not just what companies do, but also how they make sense of their actions and why they take them in a particular way (Easton, 2010).

One of the key ways this study applied critical realism was through abductive reasoning. Unlike deduction, which tests existing theories, or induction, which builds theories from scratch, abduction moves between theory and data more dynamically and flexibly. It enables one to start with initial ideas and refine them as new information becomes availa-

ble (Dubois & Gadde, 2002). In this study, theoretical concepts such as institutional pressure, sustainability adaptation, and business model innovation served as starting points, which were refined as real-world insights emerged during interviews and document analysis. This process of going back and forth helped the study avoid forcing the data to fit a predefined framework. Instead, it supported a more open and grounded understanding of the complex ways that sustainability practices unfold in different organizational and national contexts. Abductive reasoning was particularly valuable because it allowed space for unexpected patterns to emerge, especially when comparing firms across different industries and markets (Timmermans & Tavory, 2012).

In addition, this reasoning approach aligns well with the nature of international business research, where the same issue may appear very different depending on the country, regulatory environment, or even the mindset of local managers. Abduction encourages the researcher to remain curious and responsive, constantly questioning whether the theory aligns with the observations and being willing to revise it when necessary (Ketokivi & Mantere, 2010). Overall, the combination of a critical realist foundation and an abductive reasoning process enabled the research to remain grounded in real experiences while engaging with academic theory. It made it possible to explore not just the surface-level actions that firms take in the name of sustainability, but also the deeper mechanisms. It is the thought processes that shape those actions in different parts of the world.

4.2 Case Study Approach

To gain a well-rounded understanding, this study employs a multiple-case study format. It examines five multinational firms operating in both developed and developing countries. This method enables the comparison of how sustainability efforts unfold in different environments (Yin, 2018; Eisenhardt, 1989). Each company chosen has taken clear steps to integrate CE and GSCM into its operations. The cases were carefully selected to

provide meaningful, diverse, and information-rich examples. Case studies are particularly useful for examining real-world situations where the context and subject matter are closely intertwined (Stake, 1995).

4.3 Data Collection Techniques

The data used in this thesis consists of qualitative methods, including detailed interviews and a comprehensive dataset focused on sustainability, CE, and GSCM. The primary data were collected through semi-structured interviews with professionals involved in sustainability and supply chain management within the selected MNEs. This interview style is well-suited here because it encourages open conversations while maintaining a focus on key research areas (Kvale & Brinkmann, 2009). Five interviews were completed, each lasting between one and one and a half hours. An interview guide was used, featuring open questions that covered topics such as company strategies, drivers of sustainability, challenges, and how local pressures influence decisions. The following sections will provide a detailed review of the methods used for data collection and analysis in these studies, as shown in Table 7.

Table 7. Research methods and design of the study.

Research approach	Abductive
Research method	Qualitative method
Research design	Explorative case studies
Data collection	Semi-structured interviews
Sample size	5 MNEs from Bangladesh
Data analysis	Thematic content analysis

In addition to conducting interviews, a variety of company documents were collected and studied to provide a more comprehensive framework and funding for the findings. These involved sustainability reports, corporate presentations, internal communications, and public disclosures. Including these documents helped cross-check interview information and offered insights into how companies publicly communicated their sustainability efforts (Bowen, 2009). By mingling interviews and document analysis, the research

was able to triangulate data from multiple sources. This approach improved the trustworthiness of the findings and provided a more comprehensive understanding of how sustainability is addressed, communicated, and executed within multinational firms.

4.4 Participant Selection

Participants and companies were chosen using purposive sampling, which targets individuals with specific expertise, in this case, sustainability. To be included, companies had to meet three conditions: they had to qualify as MNEs, be actively engaged in CE or GSCM efforts, and be open to participating in the study. Additional participants were found through snowball sampling, where initial contacts suggested others with relevant knowledge. In Table 8, additional background details of the interviewees and the secondary data sources used are presented. This table highlights the timeline of interviews, the format used, and the number of transcribed pages from each session.

Table 8. Details of the Interviewees.

Case Firms	Person Interviewed	Interview Time Covered	Format of Interview	Number of Transcribed Pages (1.5 spacing)	Secondary Data Source
Company A	Director – Process & Technology	80 mins	Online (Microsoft Teams)	38	Website, Corporate Presentations, internal documents.
Company B	Cluster Category Manager – Global Procurement Service	68 mins	Online (Microsoft Teams)	36	Website, sustainability reports, and Internal documents.
Company C	Procurement Associate	75 mins	Online (Microsoft Teams)	34	Company website, internal documents, sustainability reports, and Corporate Presentations.
Company D	Procurement Associate	70 mins	Online (Microsoft Teams)	32	Company website, internal documents, and sustainability reports.
Company E	Manager – SCM Operation	85 mins	Online (Microsoft Teams)	37	Company website, internal documents, and sustainability reports.

4.5 How the data was analyzed

After the interviews had been conducted and the supporting documents had been gathered, the next step was to analyze and synthesize all the information. The study was then employed thematic analysis, a method that helps pinpoint key patterns or themes in qualitative data (Braun & Clarke, 2006). Thematic analysis was used because it is a flexible method that provides a clear structure for examining and interpreting the data. The analysis began with reading and re-reading all interview transcripts to ensure the researcher is fully immersed in the material. This step helped to grasp the tone, context, and meaning of what the participants were sharing. Then, the process moved to coding, marking different pieces of text with labels that captured the main ideas being expressed, such as "adaptation to local regulations," "supply chain constraints," or "internal resistance."

Some of these codes were inspired by existing theories, particularly those related to institutional pressures, business model innovation, and sustainability strategy. At the same time, the analysis remained open to unexpected themes that emerged naturally from the data. This mix of theory-driven and data-driven coding enabled a more comprehensive understanding of what was happening within the firms. After the initial coding, similar codes were grouped to form broader themes. These themes reflected the larger story behind the data, for example, how firms adjusted their practices to fit new environmental policies, or how internal departments collaborated (or clashed) when implementing sustainability initiatives.

To ensure consistency and manage the large amount of qualitative information, the software tool NVivo was used to organize the data efficiently, making it easier to retrieve relevant segments when comparing across cases. The analysis followed two main stages. First, a within-case analysis was conducted for each company to build a narrative that describes the specific path each firm took in its sustainability journey, including what worked well and the challenges it faced. These case summaries helped highlight the

unique context and strategies of each firm. Next, a cross-case comparison was conducted to look for similarities and differences between the firms. This step was especially valuable in identifying broader patterns, such as how companies in different industries respond to similar regulations or how corporate culture influences the framing and implementation of sustainability. Throughout the process, the researcher stayed closely engaged with both the data and the theory, constantly moving between them to refine understanding. This iterative style of analysis enabled the development of more profound insights that went beyond surface-level descriptions, helping to answer the central research questions in a meaningful way.

4.6 Ensuring Quality and Reliability

For the study to be reliable and trustworthy, the authors used some established qualitative strategies (Lincoln & Guba, 1985). Credibility was supported through triangulation, using both interviews and documents, and by sharing summaries of findings with participants to confirm accuracy. Dependability was ensured by keeping a detailed record of how data was collected and analyzed, which includes saving versions of interview guides, coding notes, and analytical memos. These records serve as an audit trail that others could review. Confirmability, or the objectivity of the findings, was supported by keeping a reflexive journal, which helped to raise awareness of personal biases. Finally, transferability was enhanced by providing detailed descriptions of the firms and their environments, allowing for a decision on how relevant the findings are to other settings (Tracy, 2010).

4.7 Ethics

All ethical standards were adhered to before collecting the data. Participants were fully informed about the study's purpose, their right to withdraw at any time, and that their involvement was voluntary. Written consent was obtained, and personal details remained confidential by removing any names or company identifiers.

4.8 Company Overviews for Methodology Section

4.8.1 Company A

Company A is one of the largest manufacturers and distributors of confectionery and chewing gum, operating in over 150 countries and boasting many popular brands worldwide. With a strong commitment to sustainability, the company has initiated efforts across its global operations to reduce greenhouse gas emissions, optimize energy consumption, and minimize plastic use in packaging. Company A has adopted a life cycle approach to product development and works closely with suppliers to enhance environmental and social compliance. Their sustainable sourcing practices, responsible marketing, and employee engagement strategies demonstrate a proactive approach to corporate responsibility. The company was chosen due to its global presence in a high-volume consumer product segment and its demonstrated initiatives in sustainable manufacturing and packaging. Company A's participation provided insights into how medium-sized multinationals integrate sustainability at scale while responding to evolving global expectations.

4.8.2 Company B

Company B is a subsidiary of a well-known Tobacco company, operating in over 130 countries. While primarily focused on tobacco, the company has initiated several programs addressing sustainability, including energy efficiency, waste minimization, and ethical sourcing. Company B emphasizes reducing its environmental footprint and aligning operations with global environmental standards. Company B's inclusion provides insights into how firms in traditionally less sustainable industries can adopt responsible business practices. The company's transition efforts provide a nuanced perspective on regulatory compliance and institutional pressure management in a sensitive product category.

4.8.3 Company C

Company C LPG is a regional energy company engaged in the supply and distribution of liquefied petroleum gas (LPG). It plays a crucial role in energy access and transition, particularly in developing regions. Company C has started focusing on cleaner energy technologies, improved safety practices, and emissions monitoring. This company was selected to bring a developing country perspective on sustainability in the energy distribution sector. It highlights the challenges and adaptations required to align local operations with broader sustainability goals.

4.8.4 Company D

Company D is one of India's most diversified conglomerates with interests in consumer goods, real estate, appliances, and agro-based products. The company is recognized for its "Good & Green" initiative, which aims to achieve zero waste to landfill, reduce energy intensity, and promote sustainable livelihoods. Company D was selected for its proactive approach to integrating social and environmental sustainability. Its domestic and international strategies help illustrate how emerging-market multinationals navigate global sustainability pressures and local developmental responsibilities.

4.8.5 Company E

Company E is one of the most recognizable consumer goods companies in the world. It sells everyday products across food, beauty, and home care in over 190 countries, reaching millions of households each day. Over the past decade, Company E has made sustainability a core part of its business operations. It has set targets to reduce emissions, minimize waste, and transition all packaging to reusable or recyclable materials. Rather than treating sustainability as an add-on, the company designs its products with the whole life cycle in mind. It works closely with suppliers to meet environmental and ethical standards. This organization was selected for the study due to its extensive global reach and significant influence in the mass consumer goods market. Company E's long-

standing record of integrating sustainability into its operations makes it a valuable example for understanding how large multinational companies translate environmental and social commitments into practice while responding to changing expectations worldwide.

Table 9. MNE Details at a Glance.

Company Name	Sector	Turnover (EUR M)	Sustainability Focus	Circular Practices	Green Supply Chain Focus
Company A	Confectionery	~3,000	Packaging reduction, responsible sourcing	Recycling initiatives for wrappers, biodegradable materials	Supplier sustainability assessments, emissions tracking
Company B	Tobacco	~18,000	Carbon neutrality, responsible farming	Tobacco leaf waste reuse, biodegradable filters	Climate-smart agriculture, green logistics
Company C	Energy (LPG)	~400	Clean energy transition	Cylinder recycling, reuse systems	Optimized transport routes to cut emissions
Company D	FMCG	~1,800	Water conservation, zero waste	Refillable packaging pilots, plastic take-back	Local sourcing, renewable energy in the supply chain
Company E	FMCG	~60,000	Net-zero, sustainable sourcing	Recyclable/compostable packaging, product refill stations	Supplier decarbonization, zero-deforestation sourcing

5 Findings

This chapter presents the findings derived from a comparative cross-case analysis of five multinational enterprises (MNEs): Company A, Company B, Company C, Company D and Company E. The analysis focuses on how these companies are adapting their Sustainable Business Models (SBMs) to integrate Circular Economy (CE) and Green Supply Chain Management (GSCM) principles across diverse international markets.

The findings are organized into five key themes that consistently emerged as critical to successful SBM adaptation (see Appendix 1). For each theme, a clear proposition is presented and supported with direct interview evidence from company representatives.

Theme 1: The Dual-Pressure of Global Standardization and Local Adaptation

A significant insight is that MNEs do not view global standardization and local adaptation as mutually exclusive. Instead, they embrace a dual approach, combining globally unified sustainability strategies with region-specific implementation methods. Headquarters typically sets high-level sustainability goals to ensure brand consistency and strategic alignment. At the same time, regional teams adapt the execution of these goals to local realities, including infrastructure, regulations, and cultural expectations.

> ***Proposition 1:*** *MNEs achieve successful SBM adaptation by implementing a hybrid governance structure where sustainability goals are set globally to ensure strategic alignment, but operational tactics are delegated to regional units for contextual customization.*

This proposition is validated across all five case studies. Each MNE maintains a core global sustainability framework that serves as a foundation for regional execution.

> "Sustainability is embedded at all levels of Company E's business: Centrally, through corporate strategy, leadership accountability, global procurement standards, and ESG reporting. Regionally, through the adaptation of tools and frameworks to suit regulatory and market-specific conditions." (Company E)

> "Sustainability is fully integrated into our business strategy at both the global and regional levels... This dual approach, top-down direction combined with bottom-up implementation, ensures that sustainability is not just a corporate slogan but a lived reality across the company." (Company A)

Local adaptation is essential due to significant differences in infrastructure, market maturity, and regulatory environments.

> "While our sustainability strategy is globally aligned, regional execution is tailored to local realities. For example, in Bangladesh and India, we focus more on waste management infrastructure and water conservation, while in developed markets like Indonesia or South Africa, we prioritize emission intensity and packaging innovation." (Company D)

> "In emerging markets like Bangladesh, challenges such as limited recycling infrastructure mean we emphasize supplier education, low-carbon logistics, and basic compliance uplift." (Company C)

The analysis reveals that MNEs achieve sustainable business model (SBM) adaptation through a strategic balance between global coherence and local flexibility. Rather than choosing between centralized control and decentralized autonomy, firms adopt a hybrid governance model in which sustainability objectives are globally defined but locally executed. This approach ensures consistency in brand values and ESG commitments, while also allowing room for nuanced, market-specific operational tactics. The cases show that this dual structure is essential for responsiveness to local infrastructure, regulatory

frameworks, and socio-economic contexts, particularly in emerging markets where standard global solutions may not be feasible.

Theme 2: Infrastructural and Regulatory Readiness as a Primary Determinant of Adaptation

The capability of the local environment, particularly in terms of infrastructure and regulation, emerges as the most critical external factor in determining how CE and GSCM initiatives are implemented. MNEs cannot apply a one-size-fits-all strategy because the sophistication and feasibility of CE and GSCM practices depend heavily on the local context.

> ***Proposition 2:*** *The nature and complexity of CE and GSCM practices adopted by an MNE in a specific market are predominantly determined by the host country's existing waste management infrastructure, logistics networks, and the stringency of its environmental regulations.*

In developed markets, strong infrastructure and strict regulations enable MNEs to adopt advanced, tech-driven sustainability practices.

> "In developed markets, we can leverage advanced infrastructure and strict regulations to introduce sophisticated recycling and reuse programs. For example, in the United States, we partner with organizations such as Call2Recycle to manage battery collection." (COMPANY B)

> "In countries with advanced recycling systems (e.g., the Netherlands), Company E can deploy refill stations and complex reuse models." (Company E)

Conversely, in emerging markets, adaptation often begins at a foundational level, focusing on capacity building and practical adjustments to infrastructural constraints.

> "In emerging markets, emphasis is on basic collection infrastructure and informal waste worker inclusion…In Bangladesh, infrastructure gaps mean we can't replicate EU-level reuse models immediately. Instead, we work with informal waste workers, universities... and local recyclers to collect and process waste." (Company E)

> "In regions where recycling infrastructure is limited, we may prioritize reducing plastic usage and introducing recyclable materials that fit the local waste management systems." (Company A)

A key determinant of how CE and GSCM practices are implemented is the local infrastructural and regulatory environment. The findings demonstrate a strong correlation between the maturity of a country's waste management systems and the complexity of sustainability initiatives that MNEs can deploy. Developed markets enable more sophisticated, technology-driven interventions such as refill stations or advanced recycling partnerships. In contrast, emerging markets compel firms to scale back or modify their approaches, often focusing on the development of basic infrastructure and stakeholder engagement. Thus, adaptation is not only strategic but also contingent on external structural readiness.

Theme 3: The Centrality of Cross-Functional Collaboration and Internal Capabilities

A recurring theme across all five cases is the importance of internal capabilities, especially the ability to collaborate across functions and departments. CE and GSCM are not the exclusive domain of sustainability teams; instead, they require coordinated action across R&D, procurement, production, and marketing.

> ***Proposition 3:*** *The effective integration of CE and GSCM principles is enabled by strong internal capabilities, most notably leadership commitment and structured*

cross-functional collaboration, which ensures sustainability is embedded across the value chain rather than confined to siloed functions.

Interviewees emphasized how interdepartmental collaboration drives real progress.

> "Cross-functional collaboration is absolutely essential... Take our goal of reducing plastic use, for example. It starts with the Process & Technology (P&T) team... Then, the Procurement team steps in... The Production team plays a crucial role... Finally, the Marketing team communicates these sustainability efforts." (Company A)

> "It is critical. For example, our plastic reduction initiatives involve: R&D (design of materials), Procurement (sourcing), Operations (implementation), and Marketing (consumer communication)." (Company D)

In many cases, this collaboration is formalized through governance structures and leadership roles dedicated to sustainability.

> "Our sustainability efforts are guided by a robust governance structure. The Chief Sustainability Officer, supported by the Sustainability Steering Committee and the Executive Committee, oversees our environmental initiatives." (Company A)

> "ESG goals are embedded into executive accountability. Sustainability is a core KPI for brand managers, supply chain leads, and procurement teams." (Company E)

The effective integration of CE and GSCM principles is found to be heavily reliant on internal organizational capabilities, particularly the existence of cross-functional collaboration mechanisms. Sustainability goals are not achieved in isolation by specialized departments but require alignment and coordination across R&D, procurement, operations,

and marketing. This embedded, enterprise-wide approach is facilitated by strong leadership, formal governance structures, and the institutionalization of ESG metrics across performance systems. The analysis suggests that internal synergy, fostered by leadership and supported by collaborative culture, is a critical enabler of successful SBM adaptation.

Theme 4: Strategic Partnerships as a Mechanism for Bridging Institutional Voids

In environments where internal capabilities and infrastructure are insufficient, MNEs turn to strategic partnerships to bridge gaps. Collaborating with governments, NGOs, industry associations, and academic institutions allows firms to implement their sustainability initiatives more effectively, even in challenging contexts.

> ***Proposition 4:*** *MNEs rely on strategic partnerships with local governments, NGOs, and industry bodies to navigate institutional voids, gain local legitimacy, and implement CE and GSCM practices in markets where internal capabilities and existing infrastructure are insufficient.*

The interviews illustrate how such partnerships are utilized to address local limitations and support the adaptation of SBM.

> "In Bangladesh, partnerships are central. We work with: other social organizations for hygiene education... government innovation wing for youth upskilling... tech universities to conduct material life cycle analysis... Local recyclers to build post-consumer plastic recovery networks." (Company E)

> "We collaborate with local governments to ensure regulatory compliance and with NGOs to implement community and environmental programs. Industry bodies provide a platform for sharing best practices and aligning on common sustainability goals." (COMPANY B)

The study finds that in contexts where internal capabilities or local infrastructure fall short, MNEs leverage strategic partnerships to bridge institutional voids. Collaborations with NGOs, academic institutions, local governments, and industry platforms allow firms to fill critical gaps in waste recovery, community engagement, and knowledge dissemination. These partnerships are especially vital in emerging markets, where informal economies, weak regulatory enforcement, or inadequate infrastructure hinder direct implementation of global standards. The findings highlight that adaptive capacity in such environments is often co-created through networks of cooperation rather than built solely through internal investments.

Theme 5: Multi-Driver Framework Motivating SBM Adaptation

The adoption of SBMs is not driven by a single factor, but rather by a combination of external pressures and internal strategic objectives. The interviews consistently pointed to three main categories of motivation: regulatory compliance, market and consumer expectations, and economic and strategic incentives.

> **Proposition 5:** The adaptation of SBMs by MNEs is driven by a confluence of factors, including regulatory compliance, evolving consumer expectations, cost-saving opportunities, and the pursuit of long-term competitive advantage and risk mitigation.

The respondents provided clear insights into these multifaceted drivers, such as regulatory pressures, consumer and market demand, and economic and strategic benefits.

> "Regulatory compliance, especially around plastics and packaging." (Company D)

> "Governments worldwide are tightening rules on packaging, waste, and emissions, and circular practices help us stay ahead of compliance." (COMPANY B)

"Consumer demand for sustainable products." (Company D)

"People are increasingly aware of environmental issues and expect products and packaging that are sustainable." (COMPANY B)

"Cost savings from reduced material usage." (Company D)

"Reducing material usage and waste lowers raw material costs and disposal expenses, improving overall operational efficiency and profitability." (Company A)

"Inclusion in CDP, GRI, BRSR, and S&P ESG index enhanced our global standing and stakeholder trust." (Company D)

Finally, the findings underscore that SBM adaptation is not driven by a singular rationale but emerges from a confluence of interrelated drivers, including regulatory, consumer-based, and efficiency-oriented ones. MNEs are responding simultaneously to tightening global and local regulations, increasing consumer expectations for sustainable products, and the economic imperative to reduce material costs and improve resource efficiency. Additionally, reputational incentives and long-term risk mitigation reinforce the strategic value of sustainability integration. This multi-driver framework reflects the evolution of sustainability from a compliance-focused obligation to a strategic imperative rooted in value creation and competitive positioning.

Overall, the analysis of these five multinational companies reveals that SBM adaptation is a multifaceted and context-sensitive process. It involves balancing global strategic alignment with local customization, leveraging both internal capabilities and external partnerships, and responding to a complex array of motivations and needs. These findings highlight that sustainable business model adaptation is not just a technical or regulatory exercise; it is a dynamic strategic process shaped by diverse factors.

6 Discussions

6.1 Sustainable Business Model Canvas: Adaptation Based on Analyzed Themes

The cross-case analysis of five multinational enterprises (MNEs) reveals that integrating Circular Economy (CE) and Green Supply Chain Management (GSCM) principles necessitates a fundamental adaptation of the traditional business model. The themes identified - Global vs. Local, Infrastructural Readiness, Cross-Functional Collaboration, Strategic Partnerships, and a Multi-Driver Framework- directly inform how each component of the Business Model Canvas must be re-envisioned for sustainability. The following section details these adaptations, proposing a model where sustainability is not an add-on but the core logic of value creation, delivery, and capture (Bocken et al., 2014). An integrated visual model, based on the standard BMC framework, is presented below to illustrate these interconnections (see Figure 4).

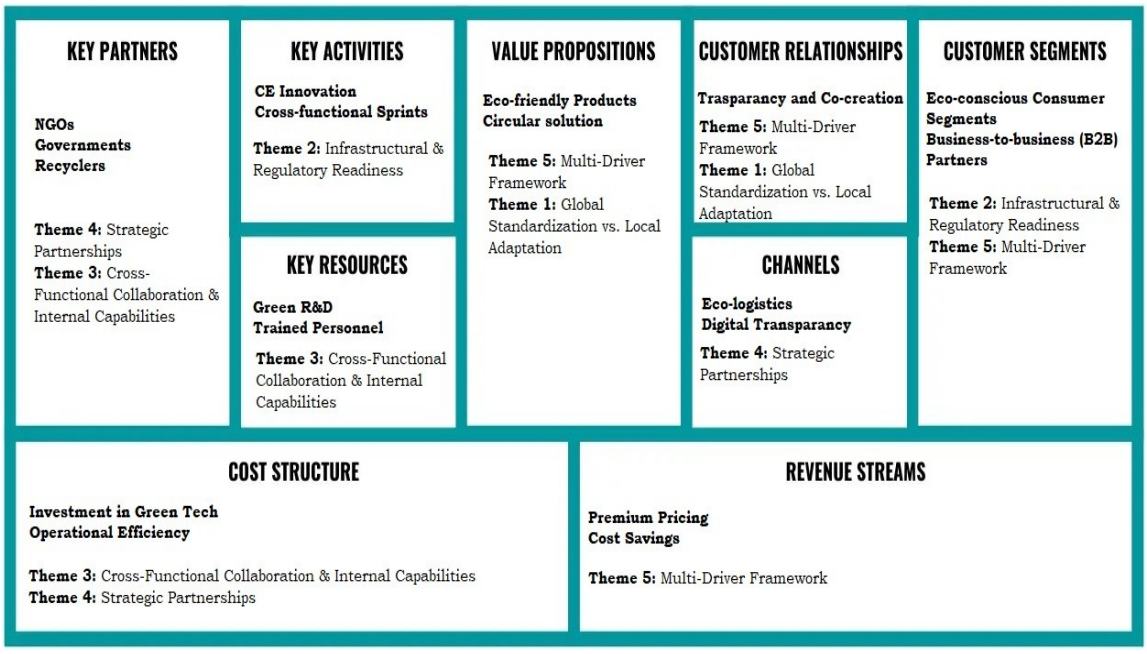

Figure 4. Sustainable Business Model Canvas. (Adopted from Osterwalder et al., 2010).

Key Partners: The analysis underscores that MNEs cannot operate in isolation when pursuing sustainability. The complexity of global supply chains and institutional voids, particularly in emerging markets, necessitates a strategic shift in partnership networks (Silvestre, 2015). As evidenced by the cases, successful MNEs actively cultivate relationships with governments for regulatory alignment, NGOs for community engagement and grassroots implementation, and even competitors through industry bodies to set common standards (Theme 4: Strategic Partnerships). For instance, Company E's collaboration with BRAC and local recyclers, such as Garbageman, in Bangladesh exemplifies how partnerships bridge critical infrastructure gaps (Company E Case). These alliances are not peripheral but are central to executing key activities, making them a foundational element of the adapted business model (Theme 3: Cross-Functional Collaboration & Internal Capabilities).

Key Activities: The primary activities of the firm are fundamentally reoriented towards environmental stewardship and resource optimization. The cases demonstrate that key activities extend beyond traditional manufacturing and marketing to encompass sustainable product design (e.g., Company A's paperboard bottles), implementing circular systems such as take-back schemes, and continuous supplier engagement and auditing (Kant Hvass & Pedersen, 2019) (Theme 2: Infrastructural & Regulatory Readiness). These activities are inherently cross-functional, requiring close collaboration between R&D, procurement, marketing, and logistics teams to be effective (Theme 3). As highlighted by Company D, plastic reduction initiatives involve synchronized efforts from design through to consumer communication, making cross-functional collaboration a key activity in itself.

Value Propositions: The core offering to customers is redefined to center on sustainability. The value proposition shifts from merely providing a product or service to delivering environmental and social value alongside functional benefits (Kristensen & Remmen, 2019). This can manifest as products with reduced environmental impact (e.g., Company C's clean energy), circular solutions like refillable packaging (Company E,

Company A), or transparently sourced goods (Theme 5: Multi-Driver Framework). Critically, this value proposition must be adapted to local contexts (Theme 1: Global Standardization vs. Local Adaptation). For example, while the global value is "sustainable packaging," in Europe, it may be a sophisticated reuse model. In contrast, in Bangladesh, it may be a recyclable sachet with a supported collection system.

Customer Relationships: Trust and transparency become the cornerstones of customer engagement (Kang & Hustvedt, 2014). The adapted model prioritizes long-term relationships built on shared values of environmental responsibility. This is achieved through proactive communication about sustainability efforts, educational marketing, and potentially co-creating solutions with customers (Theme 5). COMPANY B's approach of ensuring sustainability is a "lived reality" that reflects the need for authenticity to build this trust. Furthermore, the nature of these relationships may vary by market, requiring a nuanced understanding of local customer expectations and communication channels (Theme 1).

Customer Segments: MNEs must explicitly identify and target eco-conscious consumer segments and business-to-business (B2B) partners who prioritize sustainability in their procurement (Cohen & Muñoz, 2017). The analysis reveals that these segments are growing globally, but their motivations differ, ranging from regulatory pressure in B2B contexts to ethical consumption in B2C (Theme 5). Furthermore, the ability to serve these segments effectively is directly influenced by the local infrastructure. For example, marketing a refillable product is only viable if the local market has the necessary support systems (Theme 2). Therefore, segment identification is closely tied to local operational readiness.

Channels: The pathways to reach customers are optimized for sustainability. This involves selecting low-emission logistics (e.g., Company A's shift to sea freight), utilizing digital platforms to reduce paper use and enable transparency, and ensuring packaging and distribution channels align with circular economy goals (Theme 3). Channels also become a tool for communication and education, as seen with Company E's use of

mobile apps for hygiene education. Effective channel management often relies on strategic partnerships with logistics providers and retailers who are also committed to green practices (Company E, 2021) (Theme 4).

Key Resources: The resource base required for a sustainable business model is distinct. Tangible resources include renewable energy infrastructure, sustainable raw materials, and green technologies (Jacobson & Delucchi, 2011). Intangible resources are equally critical: specialized sustainability knowledge, leadership commitment, and digitally enabled supply chain traceability systems are paramount (Theme 3). The cases show that MNEs like Company D invest heavily in these resources, from digital traceability tools to employee training programs. The availability and development of these resources are often a response to external infrastructural and regulatory drivers (Theme 2).

Cost Structure: The cost model evolves to account for sustainability investments. There is a strategic acceptance of higher upfront costs for sustainable technologies, R&D, and supplier development (Ragatz et al., 2002), which are balanced against long-term operational efficiencies from waste reduction, energy savings, and improved resource productivity (Theme 5). As noted by Company A, cost efficiency is a key driver for circular models. The cost structure is also sensitive to local conditions; investing in recycling infrastructure in an emerging market represents a different cost profile than partnering with an advanced waste management firm in a developed market (Theme 2).

Revenue Streams: Sustainability opens up diverse revenue opportunities. These include premium pricing for certified eco-friendly products, new revenue streams from services like product-as-a-service or waste management, and long-term profitability through enhanced brand loyalty and access to green financing (Sun & Yoon, 2022) (Theme 5). The cases demonstrate that sustainable brands often grow faster (Company E) and achieve cost savings that directly impact the bottom line (Company C). The multi-driver framework shows that revenue is increasingly linked to sustainable performance, making it an integral part of the business model's economic viability.

6.2 Limitations

As every study has its limitations, this one is no exception. First, this study focuses on MNEs operating within Bangladesh, which may limit the generalizability of findings to firms in highly regulated or developed markets. Institutional pressures such as regulatory enforcement, cultural norms, and infrastructure vary widely across regions, and the adaptation strategies observed may not fully apply to MNEs in countries with different institutional landscapes.

Secondly, although the case studies span diverse sectors (e.g., FMCG, energy, tobacco), the sample size of five firms restricts the breadth of industry-specific insights. Certain sectors, such as high-tech manufacturing or financial services, are not represented, which may affect the comprehensiveness of conclusions regarding how CE and GSCM principles are integrated across different business models.

Third, the research emphasizes internal capabilities and strategic decision-making, potentially overlooking external stakeholder dynamics such as consumer behavior, NGO influence, or community engagement. These external factors can significantly shape the success and legitimacy of sustainability initiatives, especially in markets where public perception and activism are strong.

Fourth, the study captures a snapshot of MNE adaptation strategies during a specific timeframe, which may not reflect evolving practices or long-term sustainability outcomes. As corporate sustainability efforts are dynamic and influenced by shifting global priorities, regulatory changes, and technological advancements, the findings may lose relevance over time without longitudinal follow-up.

Finally, while the use of interviews and thematic analysis offers a rich, context-specific understanding, the nonappearance of quantitative endorsement confines the capability

to enumerate the statistical implications or scalability of observed outlines. This dependence on qualitative data may present informational bias and limit the validity of general assumptions across wider populations of MNEs.

6.3 Future Research Possibilities

While this thesis has provided new insights into how multinational enterprises adapt their business models by integrating Circular Economy (CE) and Green Supply Chain Management (GSCM) principles, it has also opened avenues for further exploration. The qualitative case study approach has captured rich, context-specific perspectives, but broader and more diverse research could strengthen the generalizability of the findings.
Future studies could benefit from applying quantitative methods to test the relationships identified in this thesis across larger samples and multiple industries. Such an approach would provide more robust evidence of how external pressures and internal capabilities interact in shaping sustainable business models. Comparative studies across regions with differing regulatory and cultural environments would also be valuable, as they could deepen understanding of how institutional conditions influence the speed, depth, and form of business model adaptation.

Another promising direction lies in examining the role of emerging technologies. While this thesis has highlighted the importance of digital tools, future research could investigate in greater detail how technologies such as artificial intelligence, blockchain, and data analytics enable transparency, efficiency, and collaboration in CE and GSCM practices. Exploring these technologies may reveal new ways to accelerate sustainability transitions. Additionally, longitudinal research would allow scholars to observe how sustainable business models evolve. Since CE and GSCM practices are often implemented incrementally, long-term studies could capture the dynamic processes of change, adaptation, and institutional learning within multinational enterprises.

Finally, future research could explore the perspectives of stakeholders beyond firms themselves. Investigating the roles of consumers, regulators, suppliers, and non-governmental organizations would offer a more holistic view of the ecosystems in which sustainable business models operate. Together, these directions can build on the contributions of this thesis and extend understanding of how multinational enterprises transform their business models toward sustainability in an increasingly complex global environment.

7 Conclusions

This research journey began with a central question: How do global companies reshape their core strategies to incorporate principles of the circular economy and green supply chains across the world's diverse markets? By examining the real-world experiences of five multinational corporations, this thesis has revealed the intricate and dynamic nature of this transformation. The evidence suggests that building a sustainable business model is not about applying a universal blueprint. Instead, it is a nuanced and ongoing strategic dance, requiring companies to be both globally aligned and locally attuned.

The research into the first research question, i.e., inquiring how MNEs change their models, suggests that effective integration is a matter of root change, rather than cosmetic reform. Companies are fundamentally reassessing how they generate value, going beyond eco-efficiency, to redesign products for durability and recyclability, redefine packaging, and build systems to maintain materials in use. One of the most important findings that cut across all cases is the necessary tension between maintaining a standardized global brand and strategy on the one hand and allowing necessary local adaptation on the other. The "one size fits all" approach never applies; what will succeed in a market with a developed recycling infrastructure cannot be replicated in a market where the infrastructure is just emerging. The adaptation is, therefore, deliberate and situational calibration of the entire business model.

The second query questioned the forces driving these changes. According to the research, there is a very high synergy between the external world pushing and the internal strengths pulling ahead. Externally, companies are responding to a mix of new legislation, shifting consumer values, and competitive forces. Internally, however, it is a company's unique capabilities that drive its success. Good internal champions, a cross-departmental culture of cooperation between departments such as procurement and R&D, and the ability to establish strong partnerships with suppliers are significant internal drivers. That is, if pressure to be sustainable is ubiquitous, the ability to effectively do so is highly dependent on a company's internal toolbox.

This study fills essential knowledge gaps by demonstrating that green supply chains, circular economy, and business model innovation are complementary components of a single strategic puzzle, rather than distinct ideas. This book offers a profound, behind-the-scenes insight into how theory comes to life in complex, multinational settings. The developed Sustainable Business Model Canvas is a workable by-product, giving managers something concrete with which to embed sustainability at the very center of business thinking, not as an add-on program.

Evidently, however, this study has its limitations. The detailed, qualitative feedback from five companies constitutes a rich description but cannot be statistically comprehensive. Concentrating on MNEs with a presence in one region also presumes the outcomes, so follow-up studies could extend the possibility to other parts of the world or utilize large-scale surveys to cross-validate the contours established here.

In sum, this thesis argues that for multinational corporations, the marriage of green and circular values is a compelling strategic imperative of the times. The road is complex, challenging a delicate balance between vision and location, between external demand and internal capacity. The companies that will succeed in the future are those that view sustainability as a business cost, rather than the very foundation of their long-term stability, creativity, and interaction with the world they serve. Their success hinges on mastering the skill of adaptive and focused business model innovation.

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Appendices

Appendix 1. Semi-structured interview questions

SECTION 1: Company Background and Sustainability Context

1. Could you briefly describe your role and responsibilities within the company, as well as the industry or sector your company operates in?
2. Could you briefly describe your company's sustainability goals or environmental strategy?
3. Which regions or markets does your company operate in? Are there differences in sustainability approaches across regions?
4. How is sustainability embedded in your company's business strategy - centrally, regionally, or both?

SECTION 2: Circular Economy (CE) Practices

5. What types of circular economy practices (e.g., recycling, reuse, product-as-a-service) has your company adopted?
6. How are these practices adapted when entering different international markets?
7. What are the key drivers behind adopting circular models in your operations?

SECTION 3: Green Supply Chain Management (GSCM)

8. What environmental practices are integrated into your supply chain processes (e.g., green procurement, low-emission logistics)?
9. How do supply chain sustainability practices differ between developed and emerging markets?
10. What challenges do you face in making your supply chain more environmentally friendly across global regions?

SECTION 4: Business Model Adaptation

11. Has your company restructured any parts of its business model to meet sustainability objectives? If yes, which parts (value proposition, delivery, revenue model)?

12. Are there examples where local market conditions significantly influenced the sustainability design of your business model?
13. How do you balance global sustainability standards with local customization?

SECTION 5: Internal Capabilities (RBV Lens)

14. What internal capabilities or resources (e.g., innovation teams, leadership support, technology) enable your company to integrate CE and GSCM?
15. How important is cross-functional collaboration in implementing sustainability initiatives?
16. Has your organization invested in developing specific knowledge or training to support sustainable transitions?

SECTION 6: External Pressures & Institutional Environment (Institutional Theory Lens)

17. What regulatory, cultural, or market pressures influence your sustainability practices in different countries?
18. How does your organization respond to conflicting regulations or expectations in home vs. host countries?
19. Do partnerships with local governments, NGOs, or industry bodies influence how sustainability is implemented?

SECTION 7: Impact and Evaluation

20. How do you evaluate the success of sustainability initiatives, especially those involving CE or GSCM?
21. What benefits have you observed - economic, environmental, reputational - from adapting your business models toward sustainability?

Appendix 2. Mapping Key Sustainability Themes to Business Model Canvas (BMC) Components

Context & Theme	BMC Component	Company A	Company B	Company C	Company D	Company E
Theme 1: Global Standardization vs. Local Adaptation	Key Partners, Key Activities, Value Propositions	- "We establish strong, unified global goals... However, we adjust our key performance indicators (KPIs) to reflect the realities of each market."- "For example, the CO2 emission reduction targets for countries like Bangladesh and Sri Lanka are different, based on local conditions."- "This flexible approach allows us to maintain high sustainability standards globally, while also being realistic and effective in each specific market."	- "This dual approach—top-down direction combined with bottom-up implementation—ensures that sustainability is a lived reality."- "Our global objectives apply everywhere. However, the execution often varies depending on infrastructure, regulations, and social expectations."- "Centrally, we have a Sustainable Business Framework... At the regional and local levels, teams are empowered to interpret and implement these commitments."	- "We maintain a balanced approach by using SHV Energy's global sustainability framework as our foundation while adapting implementation to local conditions."- "The core principles remain consistent worldwide... However, there are practical differences in implementation depending on local regulations, infrastructure, and market maturity."- "This balance ensures that while our sustainability goals are global, our actions are locally relevant and effective."	- "While our sustainability strategy is globally aligned, regional execution is tailored to local realities."- "We set uniform ESG goals globally, such as net zero targets and water positivity. However, we customize KPIs, execution timelines, and initiatives at the country level."- "In Bangladesh, for instance, we adapted plastic collection mechanisms through community-based efforts."	- "Sustainability is embedded at all levels... Centrally, through corporate strategy... Regionally, through the adaptation of tools and frameworks."- "We apply global benchmarks for supplier audits, but in Bangladesh, we often adjust timelines or methods to match local capability."- "It's about being globally ambitious, locally grounded."- "Our role is to bridge global ambition with local execution."
Theme 2: Infrastructural & Regulatory Readiness	Key Resources, Channels, Customer Segments	- "In regions where recycling infrastructure is limited, we prioritize reducing	- "In Europe, for example, regulations on packaging and carbon reporting are highly advanced. Our efforts	- "In emerging markets like Bangladesh, we adapt these strategies to local realities by pri-	- "In emerging markets like Bangladesh, challenges such as limited recycling infrastructure mean we emphasize	- "In countries with advanced recycling systems (e.g., Netherlands), Unilever

		plastic usage and introducing recyclable materials that fit the local waste management systems."- "In competitive markets where consumers actively seek eco-friendly products, sustainability becomes a key differentiator."- "Regulatory differences: Every country has its own set of environmental laws and standards. This makes it tricky to apply the same sustainability practices everywhere."	there focus on compliance, innovation... In contrast, in parts of Africa or Asia, the focus is broader."- "A good example is waste management. In developed markets, we build on existing recycling infrastructure... In emerging markets, where infrastructure is weaker, we often create partnerships to establish new recycling programs."- "Regulatory pressure is significant. Governments worldwide are tightening rules on packaging, waste, and emissions."	oritizing basic infrastructure improvements, capacity building, and public awareness campaigns."- "Challenges include: Infrastructure Gaps: Limited access to green logistics and recycling facilities in some markets."- "In Bangladesh, limited recycling infrastructure and varying levels of environmental awareness required us to focus more on cylinder reuse and vendor training."	supplier education."- "We localize CE practices based on waste infrastructure, regulatory frameworks, and consumer awareness."- "Challenges include: Fragmented regulations and infrastructure."	can deploy refill stations... In emerging markets, emphasis is on basic collection infrastructure and informal waste worker inclusion."- "In Bangladesh, infrastructure gaps mean we can't replicate EU-level reuse models immediately. Instead, we work with informal waste workers."- "The biggest challenge is infrastructure. For example, limited recycling capacity or lack of EV-compatible logistics."
Theme 3: Cross-Functional Collaboration & Internal Capabilities	Key Activities, Key Resources	- "Cross-functional collaboration is absolutely essential... it starts with the P&T team, then Procurement, then Production, then Marketing."- "We have established specialized teams focused on innovation and sustain-	- "Cross-functional teams are another key capability. These teams bring together procurement, R&D, sustainability experts, compliance specialists, and technology teams."- "Leadership also plays a crucial role. Our leadership	- "Cross-functional collaboration is essential... departments such as procurement, operations, logistics, safety, and finance work closely together."- "Leadership Commitment: Strong backing from both local and SHV Energy's	- "It is critical. Our plastic reduction initiatives involve: R&D, Procurement, Operations, and Marketing."- "Key enablers include: A dedicated ESG function reporting to the board... Digital tools for supply chain traceability."- "Cross-functional sus-	- "Cross-functional collaboration is essential... Procurement & R&D co-develop materials; Marketing & Sustainability align product positioning; Supply Chain & Finance assess cost-benefit."- "Sustaina-

		ability."- "Our sustainability efforts are guided by a robust governance structure. The Chief Sustainability Officer... oversees our environmental initiatives."- "We invest in ongoing training programs and workshops for employees across all levels to raise awareness of sustainable practices."	framework emphasizes accountability, trust, and sustainability."- "We have an Innovation Management System that structures how we identify, develop, and scale sustainable solutions."- "We also provide targeted training for employees whose roles have direct environmental impact."	global leadership ensures sustainability remains a strategic priority."- "Technology Integration: We use digital tools for procurement, inventory management, and logistics optimization."- "We conduct regular training sessions, workshops, and awareness programs focused on Safe handling and reuse of LPG cylinders and Energy efficiency."	tainability councils involving procurement, operations, and R&D."- "GCPL conducts regular training on topics like Responsible chemical handling and Supplier sustainability."	bility-centric leadership: ESG goals are embedded into executive accountability."- "We have Dedicated innovation hubs... Digital supply chain tools... Supplier engagement programs."- "Unilever invests significantly in internal capability-building, including Sustainability e-learning modules for all levels."
Theme 4: Strategic Partnerships	Key Partners	- "We actively collaborate with local governments, NGOs, and industry bodies... For example, in the UK, we joined the UK Plastics Pact."- "In the Philippines, we partnered with PCX Markets to exceed plastic reduction targets through community-based waste management programs."- "We are members of global partnerships such as	- "We collaborate with local governments to ensure regulatory compliance and with NGOs to implement community and environmental programs."- "Industry bodies provide a platform for sharing best practices and aligning on common sustainability goals."- "For example, in waste management, we partner with specialist companies and compliance schemes	- "With local governments, we collaborate to align our operations with national policies... With NGOs, we engage in community outreach... With industry bodies, we participate in joint efforts to raise industry standards."- "Partnerships are vital to how we implement sustainability... For example, we work closely with Bangladesh's Department of Environment	- "We partner with: Waste management NGOs for plastic recovery, Local governments for CSR-driven programs, and industry forums."- "Partnerships allow us to scale impact and embed sustainability in the national development context."	- "In Bangladesh, partnerships are central. We work with: BRAC, a2i, BUET, and local recyclers like Garbageman."- "Unilever believes in collaborative sustainability. Globally and locally, partnerships are essential to overcome systemic barriers."- "Partnerships with Ellen MacArthur Foundation, WBCSD, UN Global

		the Roundtable on Sustainable Palm Oil (RSPO)."	to manage batteries, packaging, and electronic waste."	and energy regulatory authorities."		Compact help align Unilever with international benchmarks."
Theme 5: Multi-Driver Framework for SBM Adaptation	Value Propositions, Cost Structure, Revenue Streams	- "Drivers include: Cost Efficiency... Regulatory Compliance... Consumer Expectations... Risk Mitigation... Innovation & Competitive Advantage."- "Consumer Expectations: Today's consumers demand sustainable products... By implementing circular economy principles, we strengthen our brand reputation, build customer loyalty."- "Risk Mitigation: Circular practices help reduce dependency on virgin materials, mitigating risks related to supply chain volatility, resource scarcity, and price fluctuations."	- "Drivers: Resource efficiency: circularity helps us use materials more effectively, reduce waste, and lower dependency on finite resources." - "Consumer demand: people are increasingly aware of environmental issues and expect sustainable products." - "Innovation is another driver. Designing products for recyclability stimulates creativity and opens up opportunities for new business models." - "These drivers collectively make circular economy not just an environmental necessity but also a strategic business imperative."	- "Drivers: Environmental Responsibility... Cost Efficiency: Reusing cylinders and materials lowers operational costs." - "Regulatory Compliance: Meeting both local and global sustainability standards." - "Customer Expectations: Growing demand for environmentally responsible business practices." - "Corporate Values: Aligning with SHV Energy's long-term commitment to sustainability."	- "Key drivers include: Regulatory compliance... Consumer demand... Cost savings from reduced material usage. ESG investor pressure... future-proof operations."- "Benefits: Economic: Reduced material and energy costs. Environmental: 41% waste diversion... Reputational: Inclusion in CDP, GRI."	- "Driven by: Regulatory compliance... Consumer expectations... Cost and resource efficiency... Brand reputation and competitiveness... Climate impact mitigation."- "In Bangladesh, cost-efficiency and