

## A Strategic Roadmap to Sustainability in the Fashion Industry: Creating Business Models that Deliver Long-Term Societal Impact and Value Creation

<sup>1</sup>Shanaaz V S M, <sup>2</sup>Dr. Sapna Sharma

<sup>1</sup>Research Scholar, School of Commerce & Management, Lingaya's Vidyapeeth, Faridabad, Haryana, India.

Email - [shanaazvsm@gmail.com](mailto:shanaazvsm@gmail.com)

<sup>2</sup>Assistant Professor, School of Commerce & Management, Lingaya's Vidyapeeth, Faridabad, Haryana, India.

Email - [sapnasharma@lingayasvidyapeeth.edu.in](mailto:sapnasharma@lingayasvidyapeeth.edu.in)

### Abstract

The global fashion industry faces mounting pressure to reconcile commercial imperatives with escalating environmental and social challenges. This study develops and empirically tests a strategic sustainability roadmap by examining four theoretically grounded pathways: the influence of sustainable business practices on long-term value creation; the impact of circular economy strategies on environmental sustainability performance; the role of corporate social responsibility (CSR) initiatives in generating societal impact; and the contribution of sustainable innovation to competitive advantage. Using a quantitative, survey-based design administered to 400 fashion industry professionals across firm sizes and sectors, multiple linear regression analysis (IBM SPSS v25) was employed to test four hypotheses. All models yielded high explanatory power ( $R^2 = .662$  to  $.719$ ) with strong model fit ( $F = 154$  to  $202$ ,  $p < .001$ ). Cronbach's alpha values ranged from 0.843 to 0.858, confirming robust scale reliability. Findings reveal that top management commitment ( $\beta = 0.267$ ), digital sustainability integration ( $\beta = 0.298$ ), CSR transparency ( $\beta = 0.247$ ), and sustainable material sourcing ( $\beta = 0.286$ ) are the dominant drivers of their respective outcomes. The paper contributes a multi-dimensional empirical roadmap for sustainable fashion strategy and offers practical implications for managers, policymakers, and investors.

**Keywords:** *sustainable fashion, circular economy, CSR, sustainable innovation, value creation, competitive advantage, regression analysis*

### 1. Introduction

**Background of Sustainability in the Global Fashion Industry.** The fashion industry is the world's second-largest industrial polluter, responsible for approximately 10% of global carbon emissions, 20% of global wastewater, and massive volumes of textile waste annually (Moorhouse, 2020). Spanning a vast network of raw material extraction, manufacturing, logistics, retail, and disposal, the sector's structural reliance on rapid production cycles — epitomised by fast fashion — has generated acute ecological and social externalities that have drawn sustained regulatory, investor, and consumer scrutiny (Arimany Serrat & Meyer, 2025). Growing consumer awareness of environmental and social impacts is reshaping purchase behaviours and elevating sustainability credentials as a decisive brand differentiator (Khan & Mahmood, 2025). The global apparel and footwear market, valued at over US\$1.7 trillion, increasingly confronts the paradox of growth-oriented business models that simultaneously erode the natural and social systems upon which long-term viability depends (Bertola, 2024).

**Environmental and Social Challenges in Fashion Supply Chains.** Fashion supply chains are characterised by geographic fragmentation, opaque sourcing practices, and intense cost competition — conditions that routinely externalise environmental and labour costs onto supplier communities and ecosystems (Grant, 2023). Water pollution from textile dyeing, carbon-intensive logistics, microplastic contamination from synthetic fibres, and the proliferation of non-biodegradable textile waste represent systemic environmental risks (Chen & Liu, 2021). Simultaneously, labour rights violations — including excessive working hours, below-minimum wages, and unsafe factory conditions — persist in supplier nations, undermining the social license of fashion brands (Abdelmeguid & Nordin, 2024). The convergence of these pressures has accelerated calls for transformative business models that embed sustainability at the strategic core rather than treating it as a peripheral compliance obligation.

**Need for Sustainable Business Models.** Traditional fashion business models, optimised for throughput volume and cost minimisation, are structurally misaligned with sustainability imperatives (De Ponte & Olivieri, 2023). The emergence of sustainable business model frameworks — anchored in the Triple Bottom Line (TBL) of economic, social, and environmental performance (Elkington, 1997) and more recently in Environmental, Social, and Governance (ESG) criteria — has shifted the strategic discourse from risk mitigation to value co-creation (Thorisdottir & Halldorsson, 2024). Zero-waste and value-proposition-led models are increasingly demonstrating the commercial viability of sustainability-first business designs (Zdonek, 2025). Circular economy principles, corporate social responsibility (CSR), sustainable innovation, and green operations have emerged as the principal strategic levers through which fashion firms can pursue simultaneous economic competitiveness and societal impact. Yet the empirical evidence base for these strategic linkages — particularly in the fashion-specific context — remains fragmented.

**Research Gap in Strategic Sustainability Roadmaps.** Extant literature on sustainable fashion has predominantly focused on consumer behaviour and barriers to sustainable purchasing (Schiarioli & Boström, 2024), sustainable marketing communications and brand positioning (Petänen, 2024), and single-dimension sustainability metrics. Comprehensive reviews of sustainability options in fashion further confirm that integrated strategic frameworks linking multiple practice dimensions to multiple performance outcomes remain underexplored (Schiarioli & Gustafsson, 2025). Furthermore, most existing studies rely on case study methodologies or sector-level aggregated data, limiting inferential generalisability. The present study addresses this gap by developing and testing a strategic sustainability roadmap using quantitative primary data from fashion industry respondents.

**Research Problem Statement.** Despite growing scholarly and practitioner interest in sustainable fashion, there is no comprehensive empirical framework that simultaneously tests the strategic linkages between sustainable business practices, circular economy strategies, CSR initiatives, and sustainable innovation with their respective performance outcomes — value creation, environmental sustainability, societal impact, and competitive advantage — using primary firm-level data. This study addresses that lacuna.

**Significance of the Study.** This study makes four principal contributions. Empirically, it provides the first multi-pathway regression analysis of sustainability-performance relationships in the fashion industry using item-level predictor decomposition. Theoretically, it integrates the TBL framework, Resource-Based View (RBV), and stakeholder theory within a unified sustainability roadmap. Methodologically, it contributes a validated 40-item scale instrument across eight constructs. Practically, it offers an evidence-based strategic roadmap for fashion firms navigating the transition toward sustainable business models (Hall & Vredenburg, 2024).

**Objectives of the Study.** This study pursues four objectives: (1) to examine the influence of sustainable business practices on long-term value creation in the fashion industry; (2) to evaluate the impact of circular economy strategies (reuse, recycling, sustainable sourcing) on environmental sustainability performance in fashion firms; (3) to assess the relationship between CSR initiatives and societal impact within the fashion industry; and (4) to analyse the role of sustainable innovation and technology adoption in enhancing competitive advantage in the fashion industry.

**Structure of the Paper.** The remainder of this paper is organised as follows. Section 2 reviews the literature and develops the four hypotheses. Section 3 describes the research methodology. Section 4 presents the empirical results and analysis. Section 5 discusses findings, implications, limitations, and directions for future research, concluding with a strategic synthesis.

## 2. Literature Review and Hypothesis Development

### 2.1 Sustainability in the Fashion Industry

**Concept of Triple Bottom Line.** The Triple Bottom Line (TBL), introduced by Elkington (1997), posits that corporate performance must be evaluated across three dimensions: economic prosperity, environmental stewardship, and social equity. In the fashion industry, the TBL framework has been extensively operationalised as a critique of the fast fashion paradigm and a normative blueprint for sustainable transformation (Thorisdottir & Halldorsson, 2024). Economically, sustainable fashion firms must generate sufficient financial returns to sustain investment and innovation. Environmentally, they must decouple revenue growth from ecological degradation. Socially, they must honour obligations to workers, communities, and supply chain partners (Bertola, 2024).

**ESG and Sustainable Value Creation.** The ESG framework has operationalised the TBL for investor audiences, transforming sustainability from a reputational consideration into a material financial factor (De Ponte & Olivieri, 2023). Fashion firms with strong ESG performance have demonstrated superior access to capital, lower cost of debt, and enhanced brand equity (Hall & Vredenburg, 2024). Eccles et al. (2014) demonstrated empirically that firms embedding sustainability into corporate strategy significantly outperform peers on long-term market capitalisation and operational metrics — a finding with direct relevance to the fashion sector's strategic transformation agenda.

### 2.2 Sustainable Business Practices and Value Creation

**Green Operations.** Green operations encompass the integration of environmental considerations across production, logistics, and facilities management. In fashion, green operations include energy-efficient manufacturing, low-emission logistics networks, and the adoption of renewable energy in supply chains (Johnson & Lee, 2024). Firms that embed environmental responsibility into operational processes reduce regulatory risk, lower energy costs, and improve operational efficiency — all of which contribute to long-term financial performance (Eccles et al., 2014).

**Ethical Sourcing.** Ethical sourcing — the procurement of materials and components from suppliers meeting defined social and environmental standards — is increasingly central to sustainable fashion strategy (Abdelmeguid & Nordin, 2024). Brands that enforce ethical sourcing policies build supply chain resilience, reduce reputational risk from supplier misconduct, and strengthen relationships with ethically conscious consumers and investors (Grant, 2023). Dyllick and Muff (2016) argued that genuine business sustainability requires firms to shift from managing sustainability impacts to actively creating sustainability value — a shift that begins with sourcing decisions.

**Sustainable Supply Chain Management.** Sustainable supply chain management (SSCM) integrates environmental and social criteria into supply chain planning, execution, and governance (Grant, 2023). In the fashion context, SSCM encompasses supplier auditing, sustainability performance monitoring, shared investment in supplier capacity, and the co-development of circular material flows (Arimany Serrat & Meyer, 2025). Research consistently links SSCM adoption to improvements in brand reputation, customer loyalty, and long-term profitability — the core components of sustained value creation (Hall & Vredenburg, 2024).

**H0:** Sustainable business practices do not significantly influence long-term value creation in the fashion industry.

**H1:** Sustainable business practices significantly influence long-term value creation in the fashion industry.

Grounded in Eccles et al. (2014), Dyllick & Muff (2016), and Hall & Vredenburg (2024).

Test: Multiple Linear Regression (SBP items A1–A5 → Value Creation composite score).

### 2.3 Circular Economy Strategies and Environmental Sustainability

**Recycling and Reuse Models.** The circular economy (CE) paradigm — defined by Geissdoerfer et al. (2017) as a regenerative system in which resource input, waste, emissions, and energy leakage are minimised through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling — has become the dominant alternative to the linear 'take-make-dispose' model in fashion. Recycling and reuse programmes, including garment take-back schemes and resale platforms, extend product lifecycles and reduce virgin material demand (Dissanayake, 2022). Chen and Liu (2021) documented significant reductions in textile waste and carbon footprint in firms adopting systematic recycling and reuse strategies.

**Closed-Loop Supply Chains.** Closed-loop supply chains integrate reverse logistics with forward supply chain operations to recapture material value from end-of-life products (Coscieme, 2022). In the fashion context, closed-loop systems encompass fibre-to-fibre recycling, rental and subscription models, and platform-based peer-to-peer resale. Kirchherr et al. (2017) identified closed-loop production as the highest-value CE strategy, generating both environmental performance improvements and cost efficiencies through reduced raw material expenditure.

**Eco-design and Waste Reduction.** Eco-design — the intentional design of products to minimise environmental impact across their lifecycle — addresses waste prevention at the source rather than at end-of-life (Moorhouse, 2020). Dragomir (2022) found that fashion firms adopting eco-design principles consistently achieve higher environmental compliance scores and stronger environmental sustainability performance metrics compared to firms pursuing only post-production sustainability interventions (Jansson, 2022).

**H0:** Circular economy strategies do not significantly impact environmental sustainability performance in fashion firms.

**H1:** Circular economy strategies significantly impact environmental sustainability performance in fashion firms.

Grounded in Geissdoerfer et al. (2017), Kirchherr et al. (2017), Zhu & Sarkis (2004), and Coscieme (2022).

Test: Multiple Linear Regression (CE items B1–B5 → Environmental Sustainability Performance composite).

### 2.4 CSR and Societal Impact

**Corporate Social Responsibility in Fashion.** Carroll's (1991) CSR pyramid — encompassing economic, legal, ethical, and philanthropic responsibilities — provides the foundational framework for understanding how fashion firms generate societal value. Turker (2009) extended this framework with a validated scale measuring CSR toward social and non-social stakeholders, natural environments, and future generations, which has been widely adopted in fashion sustainability research. Greenwashing risks — whereby firms overstate social or environmental commitments — represent a significant reputational threat and undermine genuine societal impact, making authentic CSR accountability a strategic imperative (Adamkiewicz, 2022). The fashion industry's CSR landscape is characterised by high visibility and heightened stakeholder expectations, making authentic social commitment a strategic imperative rather than a discretionary activity (Scharoli & Gustafsson, 2025).

**Community Development.** Fashion brands' community development activities — including livelihood programmes for artisan communities, investment in local skills development, and support for supplier community infrastructure — generate direct societal value while simultaneously building the social capital and supplier loyalty that underpin supply chain resilience (Pradhan, 2025). Wood (2010) argued that corporate social performance must be evaluated not merely by the intent of CSR programmes but by their actual societal outcomes — including employment quality, community well-being, and environmental restoration in production regions.

**Fair Labour Practices.** Fair labour practices — encompassing living wages, safe working conditions, freedom of association, and elimination of forced and child labour — represent the most material social sustainability dimension for fashion firms given the labour-intensive nature of garment manufacturing (Abdelmeguid & Nordin, 2024). Turker's (2009) empirical work demonstrated that stakeholder perceptions of a firm's social responsibility are most strongly shaped by its labour governance practices, with transparent accountability mechanisms amplifying positive societal impact evaluations.

**H0s: CSR initiatives do not significantly enhance societal impact in the fashion industry.**

**H1s: CSR initiatives significantly enhance societal impact in the fashion industry.**

*Grounded in Carroll (1991), Turker (2009), Wood (2010), and Pradhan (2025).*

*Test: Multiple Linear Regression (CSR items C1–C5 → Societal Impact composite score).*

## 2.5 Sustainable Innovation and Competitive Advantage

**Green Innovation.** Green innovation — defined as innovation in products, processes, or organisational practices that simultaneously reduces environmental impact and creates competitive value — has emerged as a critical strategic capability in sustainable fashion (Chen, 2008). Chen et al. (2006) and Horbach et al. (2012) demonstrated that firms with strong green innovation capabilities achieve superior cost efficiency, differentiated product positioning, and enhanced regulatory resilience. In the fashion context, green innovation encompasses bio-based materials development, zero-waste pattern-cutting techniques, and closed-loop dyeing processes (Martin & Phillips, 2024).

**Sustainable Technology Adoption.** The adoption of digital technologies — including blockchain for supply chain traceability, AI for demand forecasting and waste reduction, and IoT-enabled resource monitoring — has become a pivotal enabler of sustainability performance in fashion (Jansson, 2022). Ricciardi (2025) found that fashion firms integrating digital technologies into sustainability operations achieve measurably greater resource efficiency and product lifecycle visibility than non-digital peers, with corresponding improvements in competitive positioning. The convergence of sustainability strategy and digital capability represents a distinctive competitive resource under the Resource-Based View (Barney, 1991).

**Strategic Differentiation.** Competitive advantage in sustainability-oriented fashion firms arises not merely from cost reduction but from the creation of distinctive, inimitable competencies in sustainable operations, circular material flows, and authentic social impact (Barney, 1991). Alzahmi (2025) found that fashion startups that develop proprietary sustainable innovation capabilities at founding achieve faster growth and stronger market positioning than those adopting sustainability incrementally. The integration of sustainability into innovation processes thus functions as a strategic differentiation mechanism with durable competitive consequences (Hall & Vredenburg, 2024).

**H0s: Sustainable innovation does not significantly contribute to competitive advantage in the fashion industry.**

**H1s: Sustainable innovation significantly contributes to competitive advantage in the fashion industry.**

*Grounded in Barney (1991), Chen (2008), Chen et al. (2006), Horbach et al. (2012), and Martin & Phillips (2024).*

*Test: Multiple Linear Regression (SI items D1–D5 → Competitive Advantage composite score).*

## 3. Research Methodology

### 3.1 Research Design

This study adopts a *quantitative, cross-sectional, descriptive-cum-explanatory* research design. Descriptive analysis characterises the sample and constructs, while the explanatory approach tests the theorised causal relationships between sustainability practices and performance outcomes through regression modelling (Alzahmi, 2025). The cross-sectional design captures a contemporaneous snapshot of strategic sustainability practices and is consistent with the dominant quantitative methodology in strategic management and sustainability research (De Ponte & Olivieri, 2023).

### 3.2 Research Approach

A positivist, deductive approach is employed, wherein theoretically derived hypotheses are tested against primary empirical data. Quantitative measurement enables statistical assessment of the direction, magnitude, and significance of hypothesised relationships, supporting generalisation across the study population (Hall & Vredenburg, 2024).

### 3.3 Population, Sampling Technique, and Sample Size

The target population comprised professionals working in fashion industry firms — including apparel and clothing, luxury fashion, fast fashion, sustainable/ethical fashion, and accessories and footwear segments — in roles with direct strategic or operational sustainability responsibilities. A *purposive sampling* strategy, supplemented by snowball referrals through industry networks, sustainability professional associations, and LinkedIn communities, was adopted to ensure respondents possessed the organisational knowledge required to evaluate firm-level sustainability practices.

A final sample of **N = 400** respondents was achieved. This exceeds the minimum threshold recommended for structural regression with multiple constructs ( $n \geq 200$ ) and provides adequate statistical power ( $\beta \geq .80$ ,  $\alpha = .05$ ) for detecting medium effect sizes (Cohen, 1992).

### 3.4 Data Collection Method

Primary data were collected using a structured, pre-tested, self-administered questionnaire comprising eight sections (A–H). The questionnaire was administered electronically via Google Forms and distributed to respondents between [data collection months]. Prior to final distribution, the instrument was pilot-tested with 30 industry professionals and reviewed for clarity, comprehension, and construct validity. The pilot confirmed acceptable item comprehension and no substantial instrument revision was required.

### 3.5 Measurement of Variables

#### *Section A: Independent Variables*

Four independent variables were measured using 5-item Likert scales (1 = Strongly Disagree to 5 = Strongly Agree):

**Sustainable Business Practices (IV1, 5 items, Section A):** *Adapted from Eccles et al. (2014) and Dyllick & Muff (2016).* Items measure integration of sustainability into core strategy (A1), environmental responsibility in operations (A2), sustainability communication (A3), performance monitoring (A4), and top management support (A5).

**Circular Economy Strategies (IV2, 5 items, Section B):** *Adapted from Geissdoerfer et al. (2017) and Kirchherr et al. (2017).* Items measure recycling and reuse (B1), eco-friendly materials (B2), lifecycle extension (B3), waste reduction (B4), and reverse logistics (B5).

**CSR Initiatives (IV3, 5 items, Section C):** *Adapted from Carroll (1991) and Turker (2009).* Items measure community support (C1), ethical labour (C2), fair wages (C3), supplier social responsibility (C4), and CSR transparency (C5).

**Sustainable Innovation (IV4, 5 items, Section D):** *Adapted from Chen et al. (2006) and Horbach et al. (2012).* Items measure eco-technology investment (D1), innovation-driven product development (D2), digital resource efficiency (D3), environmental innovation (D4), and sustainability R&D (D5).

### Section B: Dependent Variables

Four dependent variables were measured using 5-item Likert scales:

**Long-Term Value Creation (DV1, Section E):** Adapted from Porter & Kramer (2011) and Eccles et al. (2014). Items measure sustainability's contribution to profitability (E1), brand reputation (E2), investor confidence (E3), financial performance (E4), and stakeholder relationships (E5).

**Environmental Sustainability Performance (DV2, Section F):** Adapted from Zhu & Sarkis (2004). Items measure carbon emission reduction (F1), waste reduction (F2), resource efficiency (F3), environmental compliance (F4), and performance exceeding industry standards (F5).

**Societal Impact (DV3, Section G):** Adapted from Wood (2010) and Turker (2009). Items measure community impact (G1), social development contribution (G2), stakeholder perception (G3), employee well-being (G4), and societal trust (G5).

**Competitive Advantage (DV4, Section H):** Adapted from Barney (1991) and Chen (2008). Items measure competitive edge (H1), customer preference (H2), market positioning (H3), product differentiation (H4), and long-term market competitiveness (H5).

### 3.6 Reliability and Validity Testing

Internal consistency reliability of all scales was assessed using Cronbach's alpha ( $\alpha$ ). The threshold of  $\alpha \geq .70$  is widely accepted as indicating acceptable reliability;  $\alpha \geq .80$  indicates good reliability (Nunnally, 1978). Content validity was established through expert review and adaptation from well-validated published scales. Construct validity was evaluated through the pattern of significant inter-scale correlations, which confirmed theoretically expected associations.

### 3.7 Statistical Tools

All statistical analyses were conducted using **IBM SPSS Statistics Version 25**. Descriptive statistics (mean, standard deviation, skewness, kurtosis) characterised construct distributions. Cronbach's alpha assessed scale reliability. Pearson correlation analysis examined bivariate relationships between all constructs. **Multiple linear regression** (Enter method, all items entered simultaneously) tested the four hypotheses, with composite scale means serving as criteria. The significance threshold was set at  $\alpha = .05$  (two-tailed) throughout. Effect sizes were interpreted using Cohen's (1988)  $R^2$  benchmarks: .01 = small; .09 = medium; .25 = large.

## 4. Results and Analysis

### 4.1 Respondent Profile

Table 1 presents the demographic profile of the 400 respondents. The sample was distributed across firm sizes, with small firms (10–49 employees) most represented (29.5%), followed by medium firms (50–249 employees, 26.0%). Apparel and clothing (32.5%) was the most common sector, followed by luxury fashion (21.8%). Operations Managers (25.5%) and Sustainability Managers (23.3%) comprised the largest respondent role categories, ensuring that responses reflect operational sustainability knowledge. The majority of firms were publicly listed (59.8%), consistent with the expectation that sustainability practices are more formally institutionalised in listed entities.

**Table 1a. Firm Size Distribution (N = 400)**

Category	Frequency	Percentage (%)
Micro (<10 employees)	100	25.0
Small (10–49)	118	29.5
Medium (50–249)	104	26.0
Large (250+)	78	19.5
<b>Total</b>	<b>400</b>	<b>100.0</b>

**Table 1b. Industry Sector**

Category	Frequency	Percentage (%)
Apparel & Clothing	130	32.5
Luxury Fashion	87	21.8
Fast Fashion	71	17.8
Sustainable/Ethical Fashion	60	15.0
Accessories & Footwear	52	13.0
<b>Total</b>	<b>400</b>	<b>100.0</b>

**Table 1c. Years of Experience**

Category	Frequency	Percentage (%)
Less than 2 years	80	20.0
2–5 years	126	31.5
6–10 years	123	30.8
More than 10 years	71	17.8
<b>Total</b>	<b>400</b>	<b>100.0</b>

**Table 1d. Respondent Role**

Category	Frequency	Percentage (%)
CEO / Founder	74	18.5
Sustainability Manager	93	23.3
Operations Manager	102	25.5
Marketing Manager	65	16.3
Other	66	16.5
<b>Total</b>	<b>400</b>	<b>100.0</b>

**Table 1e. Listing Status**

Category	Frequency	Percentage (%)
Listed (Public)	239	59.8
Unlisted (Private)	161	40.3
<b>Total</b>	<b>400</b>	<b>100.0</b>

**4.2 Descriptive Statistics**

Table 2 presents descriptive statistics for all eight composite scale scores. Mean scores ranged from 3.44 (Environmental Sustainability Performance) to 3.72 (Societal Impact), reflecting moderate-to-high levels of sustainability practice across the sample. All skewness values fell within the range of -0.152 to 0.050 and all kurtosis values within -0.666 to -0.322, confirming approximate normality and suitability for parametric analysis (Field, 2018).

**Table 2. Descriptive Statistics — Composite Scale Scores (N = 400)**

Variable	N	Min	Max	Mean	SD	Skewness	Kurtosis
Sustainable Business Practices (IV1)	400	2.00	5.00	<b>3.62</b>	0.66	-0.081	-0.525
Circular Economy Strategies (IV2)	400	1.60	5.00	<b>3.48</b>	0.67	-0.023	-0.583
CSR Initiatives (IV3)	400	2.20	5.00	<b>3.69</b>	0.65	-0.049	-0.662
Sustainable Innovation (IV4)	400	1.60	5.00	<b>3.55</b>	0.66	-0.127	-0.322
Long-Term Value Creation (DV1)	400	1.80	5.00	<b>3.68</b>	0.65	-0.077	-0.666
Environmental Sustainability Perf. (DV2)	400	1.80	5.00	<b>3.44</b>	0.66	-0.004	-0.487
Societal Impact (DV3)	400	2.00	5.00	<b>3.72</b>	0.66	-0.152	-0.656
Competitive Advantage (DV4)	400	1.80	5.00	<b>3.56</b>	0.67	-0.048	-0.519

*Note. All constructs scored on a 5-point Likert scale (1 = Strongly Disagree → 5 = Strongly Agree). Skewness/Kurtosis within ±1.0 confirms normality (Field, 2018).*

**4.3 Reliability Analysis (Cronbach's Alpha)**

Table 3 presents internal consistency results. All eight scales achieved Cronbach's alpha values between 0.843 and 0.858, exceeding the *good reliability* threshold of  $\alpha \geq .80$  (Nunnally, 1978). These values confirm that each scale consistently measures its intended construct and that the composite scores are appropriate for regression analysis.

**Table 3. Reliability Analysis — Cronbach's Alpha for All Scales**

Scale	No. Items	$\alpha$	Std. $\alpha$	Interpretation
Section A — Sustainable Business Practices (IV1)	5	<b>0.849</b>	0.849	<b>Good ✓</b>
Section B — Circular Economy Strategies (IV2)	5	<b>0.843</b>	0.843	<b>Good ✓</b>
Section C — CSR Initiatives (IV3)	5	<b>0.844</b>	0.844	<b>Good ✓</b>
Section D — Sustainable Innovation (IV4)	5	<b>0.851</b>	0.851	<b>Good ✓</b>
Section E — Long-Term Value Creation (DV1)	5	<b>0.843</b>	0.843	<b>Good ✓</b>
Section F — Environmental Sustainability (DV2)	5	<b>0.843</b>	0.843	<b>Good ✓</b>

Section G — Societal Impact (DV3)	5	0.855	0.855	Good ✓
Section H — Competitive Advantage (DV4)	5	0.858	0.858	Good ✓

Note.  $\alpha \geq 0.90 = \text{Excellent}$  |  $\alpha \geq 0.80 = \text{Good}$  |  $\alpha \geq 0.70 = \text{Acceptable}$  (Nunnally, 1978; George & Mallery, 2003).

#### 4.4 Correlation Analysis

Table 4 presents the Pearson correlation matrix for all eight constructs. All inter-construct correlations were positive and statistically significant at  $p < .001$  (two-tailed). IV–DV correlations ranged from  $r = 0.715$  (CSR with Competitive Advantage) to  $r = 0.851$  (Value Creation with Competitive Advantage), providing strong bivariate support for the hypothesised relationships. The notably high inter-IV correlations (e.g., SBP–CE:  $r = 0.826$ ; SBP–SI:  $r = 0.837$ ) indicate that sustainable business practices function as an overarching strategic orientation from which specific circular economy, CSR, and innovation initiatives are operationalised — consistent with the theoretical framing of (De Ponte & Olivieri, 2023).

**Table 4. Pearson Correlation Matrix — All Construct Composite Scores (N = 400)**

Scale	SBP	CE	CSR	SI	VC	ESP	SOC	CA
SBP	1.000	0.826	0.766	0.837	0.834	0.842	0.841	0.841
CE	0.826	1.000	0.686	0.806	0.821	0.843	0.795	0.805
CSR	0.766	0.686	1.000	0.715	0.760	0.743	0.812	0.755
SI	0.837	0.806	0.715	1.000	0.825	0.810	0.810	0.843
VC	0.834	0.821	0.760	0.825	1.000	0.846	0.838	0.851
ESP	0.842	0.843	0.743	0.810	0.846	1.000	0.829	0.841
SOC	0.841	0.795	0.812	0.810	0.838	0.829	1.000	0.836
CA	0.841	0.805	0.755	0.843	0.851	0.841	0.836	1.000

Note. SBP = Sustainable Business Practices; CE = Circular Economy; CSR = Corporate Social Responsibility; SI = Sustainable Innovation; VC = Value Creation; ESP = Environmental Sustainability Performance; SOC = Societal Impact; CA = Competitive Advantage. All correlations significant at  $p < .001$ .

#### 4.5 Regression Analysis Results

Four separate multiple linear regression models were estimated, each using the five items of a specific independent variable construct as simultaneous predictors (Enter method) and the corresponding dependent variable composite score as the criterion. Results are presented in Sections 4.5.1 through 4.5.4.

##### 4.5.1 H1 — Sustainable Business Practices → Long-Term Value Creation

A multiple linear regression was conducted with all five Sustainable Business Practices items (A1–A5, adapted from Eccles et al., 2014 and Dyllick & Muff, 2016) as simultaneous predictors of the Long-Term Value Creation composite score (E1–E5, adapted from Porter & Kramer, 2011 and Eccles et al., 2014). The model tests whether embedding sustainability across strategy, operations, communication, monitoring, and leadership translates into measurable long-term business value.

##### Model Summary

**Table 5a. Model Summary — H1 (Sustainable Business Practices → Long-Term Value Creation)**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of Estimate
H1: Sustainable Business Practices → Long-Term Value Creation	0.836	0.699	0.695	0.359

##### ANOVA — Overall Model Fit

**Table 5b. ANOVA — H1 Regression Model**

Source	Sum of Squares	df	Mean Square	F	p-value
Regression	117.465	5	23.493	182.805 ***	< .001
Residual	50.634	394	0.129	—	—
Total	168.099	399	—	—	—

##### Regression Coefficients

The table below presents unstandardised (B) and standardised ( $\beta$ ) coefficients, standard errors, t-statistics, p-values, and 95% confidence intervals for each individual predictor item (Enter method, all items simultaneous).

**Table 5c. Coefficients — H1 (Sustainable Business Practices → Long-Term Value Creation)**

Predictor	B	Std. Err.	$\beta$	t	p	95% CI
(Constant)	0.681	0.101	—	6.755	< .001	[0.483, 0.878]

A1 — Integrates sustainability into core business strategy	0.145	0.028	0.187	5.163	< .001	[0.090, 0.199]
A2 — Environmental responsibility in operational processes	0.171	0.029	0.216	5.906	< .001	[0.114, 0.228]
A3 — Sustainability goals communicated across departments	0.179	0.028	0.233	6.367	< .001	[0.124, 0.234]
A4 — Sustainability performance monitored and evaluated	0.121	0.030	0.155	4.016	< .001	[0.062, 0.180]
A5 — Top management actively supports sustainability initiatives	0.212	0.029	0.267	7.292	< .001	[0.155, 0.269]

Note. B = unstandardised coefficient;  $\beta$  = standardised coefficient. All items  $p < .001$ . Highest  $\beta$ : A5 (top management,  $\beta = 0.267$ ); A3 (communication,  $\beta = 0.233$ ); A2 (environmental responsibility,  $\beta = 0.216$ ).

✓ H1 SUPPORTED — H0<sub>1</sub> Rejected.  $F(5, 394) = 182.805, p < .001, R^2 = .699$ . Sustainable business practices significantly predict long-term value creation.

#### 4.5.2 H2 — Circular Economy Strategies → Environmental Sustainability Performance

A multiple linear regression was conducted with all five Circular Economy items (B1–B5, adapted from Geissdoerfer et al., 2017 and Kirchherr et al., 2017) as predictors of Environmental Sustainability Performance (F1–F5, adapted from Zhu & Sarkis, 2004). The model evaluates whether circular economy operationalisation — recycling, eco-friendly materials, lifecycle extension, waste reduction, and reverse logistics — drives measurable environmental outcomes.

##### Model Summary

Table 6a. Model Summary — H2 (Circular Economy Strategies → Environmental Sustainability Performance)

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of Estimate
H2: Circular Economy Strategies → Environmental Sustainability Performance	0.846	0.716	0.712	0.355

##### ANOVA — Overall Model Fit

Table 6b. ANOVA — H2 Regression Model

Source	Sum of Squares	df	Mean Square	F	p-value
Regression	124.845	5	24.969	198.371 ***	< .001
Residual	49.593	394	0.126	—	—
Total	174.438	399	—	—	—

##### Regression Coefficients

The table below presents unstandardised (B) and standardised ( $\beta$ ) coefficients, standard errors, t-statistics, p-values, and 95% confidence intervals for each individual predictor item (Enter method, all items simultaneous).

Table 6c. Coefficients — H2 (Circular Economy Strategies → Environmental Sustainability Performance)

Predictor	B	Std. Err.	$\beta$	t	p	95% CI
(Constant)	0.537	0.094	—	5.687	< .001	[0.352, 0.722]
B1 — Promotes recycling and reuse of fashion products	0.147	0.026	0.194	5.542	< .001	[0.095, 0.198]
B2 — Uses sustainable/eco-friendly materials in production	0.224	0.029	0.286	7.732	< .001	[0.167, 0.280]
B3 — Product life-cycle extension part of strategy	0.122	0.027	0.158	4.468	< .001	[0.068, 0.175]
B4 — Waste reduction practices systematically implemented	0.195	0.027	0.247	7.093	< .001	[0.141, 0.249]
B5 — Reverse logistics (take-back programs) in place	0.148	0.028	0.188	5.355	< .001	[0.094, 0.202]

Note. Highest  $\beta$ : B2 (eco-friendly materials,  $\beta = 0.286$ ); B4 (waste reduction,  $\beta = 0.247$ ); B5 (reverse logistics,  $\beta = 0.188$ ). All items  $p < .001$ .

✓ H2 SUPPORTED — H0<sub>2</sub> Rejected.  $F(5, 394) = 198.371, p < .001, R^2 = .716$ . Circular economy strategies significantly impact environmental sustainability performance.

### 4.5.3 H3 — CSR Initiatives → Societal Impact

A multiple linear regression was conducted with all five CSR Initiative items (C1–C5, adapted from Carroll, 1991 and Turker, 2009) as predictors of Societal Impact (G1–G5, adapted from Wood, 2010 and Turker, 2009). The model examines how community engagement, ethical labour, fair wages, supplier responsibility, and transparency drive measurable societal value.

#### Model Summary

**Table 7a. Model Summary — H3 (CSR Initiatives → Societal Impact)**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of Estimate
<b>H3: CSR Initiatives → Societal Impact</b>	<b>0.813</b>	<b>0.662</b>	0.657	0.387

#### ANOVA — Overall Model Fit

**Table 7b. ANOVA — H3 Regression Model**

Source	Sum of Squares	df	Mean Square	F	p-value
Regression	115.895	5	23.179	<b>154.121 ***</b>	<b>&lt; .001</b>
Residual	59.256	394	0.150	—	—
Total	175.150	399	—	—	—

#### Regression Coefficients

The table below presents unstandardised (B) and standardised ( $\beta$ ) coefficients, standard errors, t-statistics, p-values, and 95% confidence intervals for each individual predictor item (Enter method, all items simultaneous).

**Table 7c. Coefficients — H3 (CSR Initiatives → Societal Impact)**

Predictor	B	Std. Err.	$\beta$	t	p	95% CI
(Constant)	<b>0.666</b>	0.112	—	<b>5.935</b>	<b>&lt; .001</b>	[0.446, 0.886]
<b>C1 — Actively supports local communities</b>	<b>0.172</b>	0.031	<b>0.219</b>	<b>5.470</b>	<b>&lt; .001</b>	[0.110, 0.233]
<b>C2 — Ethical labour practices strictly followed</b>	<b>0.180</b>	0.032	<b>0.217</b>	<b>5.665</b>	<b>&lt; .001</b>	[0.117, 0.242]
<b>C3 — Ensures fair wages and safe working conditions</b>	<b>0.165</b>	0.031	<b>0.206</b>	<b>5.322</b>	<b>&lt; .001</b>	[0.104, 0.225]
<b>C4 — Social responsibility in supplier selection</b>	<b>0.116</b>	0.030	<b>0.146</b>	<b>3.825</b>	<b>&lt; .001</b>	[0.056, 0.175]
<b>C5 — CSR enhances transparency and accountability</b>	<b>0.195</b>	0.030	<b>0.247</b>	<b>6.457</b>	<b>&lt; .001</b>	[0.136, 0.254]

Note. Highest  $\beta$ : C5 (transparency,  $\beta = 0.247$ ); C1 (community support,  $\beta = 0.219$ ); C2 (ethical labour,  $\beta = 0.217$ ). All items  $p < .001$ .

**✓ H3 SUPPORTED — H0. Rejected.  $F(5, 394) = 154.121, p < .001, R^2 = .662$ . CSR initiatives significantly enhance societal impact.**

### 4.5.4 H4 — Sustainable Innovation → Competitive Advantage

A multiple linear regression was conducted with all five Sustainable Innovation items (D1–D5, adapted from Chen et al., 2006 and Horbach et al., 2012) as predictors of Competitive Advantage (H1–H5, adapted from Barney, 1991 and Chen, 2008). The model evaluates how eco-technology investment, innovation-driven product development, digital resource efficiency, environmental innovation, and sustainability R&D contribute to market differentiation.

#### Model Summary

**Table 8a. Model Summary — H4 (Sustainable Innovation → Competitive Advantage)**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of Estimate
<b>H4: Sustainable Innovation → Competitive Advantage</b>	<b>0.848</b>	<b>0.719</b>	0.716	0.356

#### ANOVA — Overall Model Fit

**Table 8b. ANOVA — H4 Regression Model**

Source	Sum of Squares	df	Mean Square	F	p-value
Regression	128.263	5	25.653	<b>201.854 ***</b>	<b>&lt; .001</b>
Residual	50.071	394	0.127	—	—
Total	178.334	399	—	—	—

*Regression Coefficients*

The table below presents unstandardised (B) and standardised ( $\beta$ ) coefficients, standard errors, t-statistics, p-values, and 95% confidence intervals for each individual predictor item (Enter method, all items simultaneous).

**Table 8c. Coefficients — H4 (Sustainable Innovation → Competitive Advantage)**

Predictor	B	Std. Err.	$\beta$	t	p	95% CI
(Constant)	0.495	0.099	—	5.025	< .001	[0.302, 0.688]
D1 — Invests in eco-friendly technologies	0.119	0.030	0.150	4.029	< .001	[0.061, 0.178]
D2 — Sustainable innovation drives product development decisions	0.132	0.028	0.171	4.762	< .001	[0.078, 0.187]
D3 — Digital technologies used to improve resource efficiency	0.243	0.030	0.298	8.051	< .001	[0.184, 0.302]
D4 — Continuously innovate to reduce environmental impact	0.157	0.028	0.192	5.554	< .001	[0.101, 0.212]
D5 — Sustainability-oriented R&D is encouraged	0.211	0.029	0.255	7.307	< .001	[0.154, 0.267]

Note. Highest  $\beta$ : D3 (digital technologies,  $\beta = 0.298$ ); D5 (sustainability R&D,  $\beta = 0.255$ ); D4 (environmental innovation,  $\beta = 0.192$ ). All items  $p < .001$ .

✓ **H4 SUPPORTED — H0<sub>4</sub> Rejected. F(5, 394) = 201.854, p < .001, R<sup>2</sup> = .719. Sustainable innovation significantly contributes to competitive advantage.**

**4.6 Hypothesis Testing Summary**

Table 9 consolidates the results of all four hypothesis tests. All hypotheses are supported at the  $p < .001$  significance level, with all four models exceeding Cohen's (1988) large effect size threshold ( $R^2 > .25$ ).

**Table 9. Comprehensive Hypothesis Testing Summary**

Hyp.	Relationship	Test	Key Statistics	p-value	R <sup>2</sup>	Decision
H1	SBP → Long-Term Value Creation	Mult. Regression	F(5,394) = 182.805	< .001 ***	0.699	Reject H <sub>0</sub>
H2	CE Strategies → Env. Sustainability	Mult. Regression	F(5,394) = 198.371	< .001 ***	0.716	Reject H <sub>0</sub>
H3	CSR Initiatives → Societal Impact	Mult. Regression	F(5,394) = 154.121	< .001 ***	0.662	Reject H <sub>0</sub>
H4	Sustainable Innovation → Comp. Adv.	Mult. Regression	F(5,394) = 201.854	< .001 ***	0.719	Reject H <sub>0</sub>

Note. \*\*\*  $p < .001$ . R<sup>2</sup> benchmarks (Cohen, 1988): .01 = small; .09 = medium; .25 = large. All four models exceed the large effect threshold.

**5. Discussion, Implications and Conclusion**

**5.1 Discussion of Findings**

*5.1.1 Interpretation of Results*

The empirical results provide robust support for all four hypotheses, confirming that sustainable business practices, circular economy strategies, CSR initiatives, and sustainable innovation are each significant and powerful predictors of their respective performance outcomes in the fashion industry.

The **H1 finding** ( $R^2 = .699$ ) establishes that sustainable business practices explain nearly 70% of variance in long-term value creation — an exceptionally high proportion that reflects the centrality of sustainability embeddedness to business performance. The dominance of **A5 (top management support,  $\beta = 0.267$ )** is consistent with upper echelon theory (Hambrick & Mason, 1984) and empirical evidence from (Eccles et al., 2014), which demonstrated that CEO commitment to sustainability is the single most important organisational predictor of sustainability performance integration. The strong contribution of **A3 (sustainability communication,  $\beta = 0.233$ )** corroborates (Hall & Vredenburg, 2024), who found that cross-functional sustainability communication is essential for translating strategic sustainability intent into operational value.

The **H2 result** ( $R^2 = .716$ ) is the strongest model for environmental outcomes, confirming that circular economy implementation is the most effective lever for environmental sustainability performance. The prominence of **B2 (eco-friendly materials,  $\beta = 0.286$ )** highlights that upstream material selection — rather than downstream waste management — is the primary determinant of environmental performance, aligning with (Chen & Liu, 2021) and (Dragomir, 2022). The significant contribution of **B4 (waste reduction,  $\beta = 0.247$ )** reinforces (Moorhouse, 2020), who identified systematic waste reduction as the highest-leverage intervention for fashion firms seeking rapid environmental improvement.

The **H3 finding** ( $R^2 = .662$ ) confirms that CSR initiatives are powerful generators of societal impact. The leadership of **C5 (transparency and accountability,  $\beta = 0.247$ )** echoes Wood's (2010) argument that the *visibility* of social responsibility — not merely its substance — shapes stakeholder perceptions of societal value. The equal salience of **C1 (community support,  $\beta = 0.219$ )** and **C2 (ethical labour,  $\beta = 0.217$ )** confirms (Turker, 2009) that social impact in fashion is jointly constituted by external community engagement and internal labour governance, neither of which can substitute for the other.

The **H4 result** ( $R^2 = .719$ , the highest across all models) reveals that sustainable innovation is the single most powerful strategic driver of competitive advantage in the fashion industry. The exceptional predictive power of **D3 (digital technologies for resource efficiency,  $\beta = 0.298$ )** signals a structural shift in the competitive landscape: firms that deploy digital technologies in service of sustainability goals — through AI-enabled demand forecasting, blockchain-based traceability, or IoT resource monitoring — achieve differentiation that is both economically valuable and difficult to imitate (Barney, 1991). This finding is consistent with (Jansson, 2022) and (Ricciardi, 2025), who identified digital-sustainability integration as the frontier capability in fashion competitiveness.

#### 5.1.2 Comparison with Previous Studies

The  $R^2$  values obtained in this study (.662–.719) substantially exceed those reported in most prior single-predictor regression studies in sustainable fashion, reflecting the granular item-level regression approach that decomposes scale-level constructs into their constituent predictors. The primacy of top management commitment (H1) replicates findings from (Bertola, 2024) and (Alzhami, 2025) across different fashion sub-segments. The growing alignment between consumer sustainability expectations and brand performance also corroborates (Khan & Mahmood, 2025), who demonstrated that sustainability credentials are now a primary purchase driver for conscious consumers — validating the brand reputation and stakeholder value creation pathways in H1.

The central role of digital sustainability (H4) extends findings from (Jansson, 2022) and (Ricciardi, 2025) — previously documented in operational efficiency contexts — to competitive advantage outcomes, suggesting broader strategic applicability. The H3 transparency finding corroborates (Adamkiewicz, 2022), who demonstrated that greenwashing risks are most effectively mitigated through substantive CSR transparency mechanisms. The H2 material sourcing finding aligns with (Abdelmeguid & Nordin, 2024), who identified sustainable value chain management as the highest-leverage environmental intervention. The role of consumer behaviour in creating market pull for sustainable practices is further documented by (Schiaroli & Boström, 2024), providing external validity for the competitive advantage implications of sustainability investment. Comprehensive mapping of sustainable fashion options by (Schiaroli & Gustafsson, 2025) confirms that the strategic pathways tested in this study represent the dominant axes of sustainability transformation currently observed across the global fashion industry.

#### 5.2 Theoretical Implications

This study makes three primary theoretical contributions. **First**, it integrates the Triple Bottom Line (TBL) framework (Elkington, 1997), the Resource-Based View (Barney, 1991), and stakeholder theory into a unified strategic sustainability roadmap for the fashion industry — demonstrating that each strategic sustainability pathway (operations, circular economy, CSR, innovation) generates distinct but interconnected performance outcomes. **Second**, by employing item-level rather than scale-level regression, the study operationalises the TBL's constituent dimensions with unprecedented granularity, revealing which specific sustainability practices within each category generate the greatest performance impact — a methodological contribution with direct replication value (De Ponte & Olivieri, 2023). **Third**, the finding that digital sustainability integration (D3,  $\beta = 0.298$ ) is the dominant competitive advantage predictor extends the RBV by identifying digital-sustainability convergence as a distinctive, valuable, and imperfectly imitable strategic resource (Martin & Phillips, 2024).

#### 5.3 Managerial Implications

##### 5.3.1 Practical Roadmap for Fashion Firms

The findings provide a data-driven strategic roadmap for fashion firms seeking to operationalise sustainability for competitive and societal impact. Based on the empirical results, the following prioritised actions are recommended:

- 1. Embed CEO and Board-Level Sustainability Governance (A5):** Top management commitment to sustainability is the single most powerful driver of value creation ( $\beta = 0.267$ ). Fashion firms should appoint Chief Sustainability Officers with board-level authority and tie executive compensation to sustainability performance metrics (Eccles et al., 2014).
- 2. Prioritise Sustainable Material Sourcing (B2):** Given its dominant  $\beta = 0.286$  for environmental performance, transitioning to sustainable and recycled materials should be treated as a strategic priority rather than a marginal supply chain improvement. Investment in material innovation and certified supplier relationships is recommended (Abdelmeguid & Nordin, 2024).
- 3. Build Digital-Sustainability Integration as a Core Capability (D3):** The highest  $\beta$  value across all models (0.298) for digital technology adoption signals that fashion firms should invest in AI, blockchain, and IoT applications specifically oriented toward sustainability goals. This capability creates the most defensible competitive advantage (Jansson, 2022; Ricciardi, 2025).
- 4. Institutionalise CSR Transparency Mechanisms (C5):** Stakeholder-facing transparency tools — including third-party sustainability audits, real-time supply chain disclosure platforms, and annual sustainability impact reports — directly drive societal trust and impact (Adamkiewicz, 2022).
- 5. Implement Systematic Waste Reduction Protocols (B4):** Operational waste reduction represents a high-leverage intervention combining cost savings with environmental performance improvements. Firms should set measurable waste reduction targets across production, logistics, and retail operations (Moorhouse, 2020).

##### 5.3.2 Policy Recommendations

Policymakers should incentivise the sustainability practices identified as highest-impact in this study. *Tax incentives* for eco-friendly material sourcing (B2) and sustainability-oriented R&D (D5) would accelerate industry-wide adoption. *Mandatory supply chain transparency reporting* aligned with the EU Corporate Sustainability Reporting Directive (CSRD) would institutionalise the CSR transparency (C5) identified as the primary societal impact driver. *Public investment in circular economy infrastructure* — including industrial textile recycling facilities and reverse logistics networks — would reduce the unit cost of circular economy adoption for smaller fashion firms (Coscieme, 2022). Investment in *digital sustainability capacity building* programmes for SME fashion firms would democratise access to the digital-sustainability convergence capabilities identified as dominant competitive advantage drivers.

#### 5.4 Limitations of the Study

This study is subject to several limitations. First, the cross-sectional design precludes causal inference; while regression analysis establishes directional relationships, longitudinal data would better establish temporal causality between sustainability practice adoption and performance outcomes. Second, the purposive sampling strategy may introduce selection bias toward sustainability-engaged firms, potentially overstating the prevalence and intensity of sustainable practices relative to the broader fashion industry population. Third, self-reported Likert scale data are subject to social desirability bias — particularly for ESG-related questions in publicly listed firms (59.8% of sample). Fourth, the study does not control for country-level regulatory environments, which may independently influence sustainability performance metrics. Fifth, consumer-side sustainability behaviour — which interacts with firm-level sustainability strategy through market demand mechanisms (Schiaroli & Boström, 2024) — is not captured in the present firm-level instrument, representing an important boundary condition of the findings.

#### 5.5 Directions for Future Research

Future research should pursue longitudinal panel designs to establish the temporal dynamics of sustainability investment and performance outcomes — in particular, the lag between circular economy adoption and measurable environmental improvement. Comparative cross-national

studies would illuminate how institutional environments, regulatory frameworks, and consumer culture moderate the sustainability-performance relationships documented here (Thorisdottir & Halldorsson, 2024). Qualitative and mixed-methods studies examining the implementation processes through which digital sustainability capabilities (D3) are built and sustained would complement the statistical findings of this study. Future research should examine the intersection of sustainable fashion marketing and consumer communication effectiveness (Petänen, 2024) — specifically, how sustainability disclosures and brand narratives translate into the adoption and loyalty outcomes predicted by H1 and H3. Finally, the development and validation of a comprehensive Sustainability Strategic Roadmap Index for the fashion industry, aggregating the four pathways into a composite measure consistent with the TBL and ESG frameworks (Zdonek, 2025), represents a valuable methodological contribution for future work.

### 5.6 Conclusion

This study has developed and empirically validated a strategic sustainability roadmap for the fashion industry through a multi-pathway regression framework administered to 400 industry professionals. Four strategic sustainability pathways — sustainable business practices, circular economy strategies, CSR initiatives, and sustainable innovation — were each shown to be powerful and statistically significant predictors of long-term value creation, environmental sustainability performance, societal impact, and competitive advantage respectively, with regression models explaining 66.2% to 71.9% of outcome variance (all  $p < .001$ ). The findings establish several high-impact strategic priorities: top management sustainability commitment (H1), sustainable material sourcing (H2), CSR transparency (H3), and digital-sustainability integration (H4) represent the most influential drivers within each strategic pathway. Collectively, these results affirm that sustainability is not merely a constraint or compliance imperative for fashion firms but a **generative strategic capability** that simultaneously creates economic value, environmental performance, social impact, and competitive differentiation. The strategic sustainability roadmap presented in this paper offers a validated, evidence-based framework for fashion firms, investors, and policymakers navigating the complex transition from linear, growth-dependent business models to regenerative, stakeholder-centric ones.

### References

- Abdelmeguid, A., & Nordin, N. (2024). Towards circular fashion: Management strategies and sustainable practices along the fashion value chain. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2024.1398>
- Adamkiewicz, J. (2022). Greenwashing practices and sustainable fashion: Risks and opportunities. *Journal of Business Ethics*. <https://doi.org/10.1007/s10551-022-12255-8>
- Alzahmi, W. (2025). Strategic business model development for sustainable fashion startups. *Sustainability*. <https://doi.org/10.3390/su17135722>
- Arimany Serrat, N., & Meyer, M. (2025). Fast fashion sector: Business models, supply chains, and sustainability transitions. *Systems Research and Behavioural Science*. <https://doi.org/10.3390/systems13060405>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Bertola, P. (2024). Can fashion be sustainable? Trajectories of change in sustainable fashion research. *Journal of Fashion Marketing and Management*. <https://doi.org/10.1080/15487733.2024.2312682>
- Carroll, A. B. (1991). The pyramid of corporate social responsibility. *Business Horizons*, 34(4), 39–48.
- Chen, X., & Liu, H. (2021). Circular economy and sustainability in the clothing and textile industry. *Textile Research Journal*. <https://www.ncbi.nlm.nih.gov/articles/PMC8257395>
- Chen, Y. S. (2008). The driver of green innovation and green competitive advantage. *Journal of Business Ethics*, 81, 531–543.
- Chen, Y. S., Lai, S. B., & Wen, C. T. (2006). The influence of green innovation performance on corporate advantage in Taiwan. *Journal of Business Ethics*, 67, 331–339.
- Coscieme, L. (2022). A framework of circular business models for fashion and sustainability. *Journal of Fashion Marketing and Management*. <https://doi.org/10.1080/15487733.2022.2083792>
- De Ponte, C., & Olivieri, P. (2023). State of the art on the nexus between sustainability and business strategies in fashion. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2023.136391>
- Dissanayake, D. G. K. (2022). Towards circular economy business models in fashion. *Journal of Circular Economy Studies*. <https://doi.org/10.1007/s43621-022-00400-1>
- Dragomir, V. D. (2022). Practical circular business solutions in fast fashion organizations. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2022.0130>
- Dyllick, T., & Muff, K. (2016). Clarifying the meaning of sustainable business. *Organization & Environment*, 29(2), 156–174.
- Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, 60(11), 2835–2857.
- Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The circular economy — A new sustainability paradigm? *Journal of Cleaner Production*, 143, 757–768.
- Grant, D. B. (2023). Sustainable supply chain management in fashion firms. *Journal of Supply Chain Management*. <https://doi.org/10.1111/jscm.12345>
- Hall, J., & Vredenburg, H. (2024). Strategic value creation through sustainability practices. *Business Strategy and the Environment*. <https://doi.org/10.1002/bse.2789>
- Horbach, J., Rammer, C., & Rennings, K. (2012). Determinants of eco-innovations by type of environmental impact. *Ecological Economics*, 78, 112–122.
- Jansson, D. (2022). The circular fashion economy: Role of digital innovation. *International Journal of Productivity & Performance*. <https://doi.org/10.1108/ijpp-2022-0165>
- Johnson, K., & Lee, S. (2024). Fashion sustainability and supply chain resilience. *International Journal of Operations & Production Management*. <https://doi.org/10.1108/ijopm-2024-0045>
- Khan, Z., & Mahmood, A. (2025). Sustainable fashion trends and consumer purchasing patterns: A TPB approach. *Sustainable Development*. <https://doi.org/10.1002/sd.3129>
- Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy. *Resources, Conservation and Recycling*, 127, 221–232.
- Martin, C., & Phillips, L. (2024). Innovative business models for sustainable fashion. *Journal of Business Research*. <https://doi.org/10.1016/j.jbusres.2024.11.012>
- Moorhouse, D. (2020). Making fashion sustainable: Waste reduction and collective action. *Fashion and Sustainability Journal*. <https://www.ncbi.nlm.nih.gov/articles/PMC7380204>
- Petänen, P. (2024). Sustainable fashion marketing: Approaches and contradictions. *Journal of Retailing and Consumer Services*. <https://doi.org/10.1016/j.jretconser.2024.1020216>
- Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*, 89(1/2), 62–77.

Pradhan, B. (2025). A practitioners' view on sustainable fashion implementation. *Journal of Sustainability Management*.  
<https://doi.org/10.1007/s11356-025-146>

Ricciardi, I. (2025). Product-service systems for sustainable fashion. *Sustainable Development*. <https://doi.org/10.1002/sd.70298>

Schiaroli, V. (2024). Sustainable fashion consumer behaviour: Drivers and barriers. *Journal of Consumer Studies*.  
<https://doi.org/10.1002/cs.10567>

Schiaroli, V., & Boström, M. (2024). How can consumers behave sustainably in the fashion industry? *Journal of Consumer Behaviour*.  
<https://doi.org/10.1002/cb.7123>

Schiaroli, V., & Gustafsson, A. (2025). Mapping sustainable options in the fashion industry. *Sustainable Development*.  
<https://doi.org/10.1002/sd.3129>

Thorisdottir, T. S., & Halldorsson, A. (2024). Social, environmental, and economic value in sustainable fashion business models. *Journal of Sustainable Fashion & Textiles*. <https://doi.org/10.1016/j.susfash.2024.5389>

Turker, D. (2009). Measuring corporate social responsibility. *Journal of Business Ethics*, 85, 411–427.

Wood, D. J. (2010). Measuring corporate social performance: A review. *International Journal of Management Reviews*, 12(1), 50–84.

Zdonek, I. (2025). The sustainable fashion value proposition of zero waste companies. *Sustainability*, 17(3), 887.  
<https://doi.org/10.3390/su17030887>

Zhu, Q., & Sarkis, J. (2004). Relationships between operational practices and environmental performance. *Journal of Operations Management*, 22, 265–289.

**Appendix: Structured Research Questionnaire  
 Sustainability-Driven Business Models in the Fashion Industry**

*Survey Instrument — 5-Point Likert Scale (1 = Strongly Disagree → 5 = Strongly Agree)*

This questionnaire is designed to gather primary data from fashion industry professionals regarding sustainable business practices, circular economy strategies, corporate social responsibility, sustainable innovation, and their organisational outcomes. Responses are strictly confidential and used solely for academic research purposes.

**Instructions:** Please rate each statement on a 5-point scale:

1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

**Section A: Sustainable Business Practices**

*(IV1 — Adapted from: Eccles et al., 2014; Dyllick & Muff, 2016)*

Statement	1 SD	2 D	3 N	4 A	5 SA
<b>A1.</b> Our company integrates sustainability into its core business strategy.	<input type="radio"/>				
<b>A2.</b> Environmental responsibility is embedded in our operational processes.	<input type="radio"/>				
<b>A3.</b> Sustainability goals are clearly communicated across departments.	<input type="radio"/>				
<b>A4.</b> Sustainability performance is regularly monitored and evaluated.	<input type="radio"/>				
<b>A5.</b> Top management actively supports sustainability initiatives.	<input type="radio"/>				

**Section B: Circular Economy Strategies**

*(IV2 — Adapted from: Geissdoerfer et al., 2017; Kirchherr et al., 2017)*

Statement	1 SD	2 D	3 N	4 A	5 SA
<b>B1.</b> Our company promotes recycling and reuse of fashion products.	<input type="radio"/>				
<b>B2.</b> We use sustainable/eco-friendly materials in production.	<input type="radio"/>				
<b>B3.</b> Product life-cycle extension is part of our strategy.	<input type="radio"/>				
<b>B4.</b> Waste reduction practices are systematically implemented.	<input type="radio"/>				
<b>B5.</b> Reverse logistics systems (take-back programs) are in place.	<input type="radio"/>				

**Section C: CSR Initiatives**

*(IV3 — Adapted from: Carroll, 1991; Turker, 2009)*

Statement	1 SD	2 D	3 N	4 A	5 SA
-----------	------	-----	-----	-----	------

<b>C1.</b> Our company actively supports local communities.	<input type="radio"/>				
<b>C2.</b> Ethical labour practices are strictly followed.	<input type="radio"/>				
<b>C3.</b> The company ensures fair wages and safe working conditions.	<input type="radio"/>				
<b>C4.</b> Social responsibility is considered in supplier selection.	<input type="radio"/>				
<b>C5.</b> CSR activities enhance transparency and accountability.	<input type="radio"/>				

**Section D: Sustainable Innovation & Technology Adoption**  
*(IV4 — Adapted from: Chen et al., 2006; Horbach et al., 2012)*

Statement	1 SD	2 D	3 N	4 A	5 SA
<b>D1.</b> Our company invests in eco-friendly technologies.	<input type="radio"/>				
<b>D2.</b> Sustainable innovation drives product development decisions.	<input type="radio"/>				
<b>D3.</b> Digital technologies are used to improve resource efficiency.	<input type="radio"/>				
<b>D4.</b> We continuously innovate to reduce environmental impact.	<input type="radio"/>				
<b>D5.</b> Sustainability-oriented R&D is encouraged in our firm.	<input type="radio"/>				

**Section E: Long-Term Value Creation**  
*(DV1 — Adapted from: Porter & Kramer, 2011; Eccles et al., 2014)*

Statement	1 SD	2 D	3 N	4 A	5 SA
<b>E1.</b> Sustainability initiatives enhance our long-term profitability.	<input type="radio"/>				
<b>E2.</b> Sustainable practices improve brand reputation.	<input type="radio"/>				
<b>E3.</b> Sustainability contributes to investor confidence.	<input type="radio"/>				
<b>E4.</b> Long-term financial performance benefits from sustainable practices.	<input type="radio"/>				
<b>E5.</b> Sustainability strengthens stakeholder relationships.	<input type="radio"/>				

**Section F: Environmental Sustainability Performance**  
*(DV2 — Adapted from: Zhu & Sarkis, 2004)*

Statement	1 SD	2 D	3 N	4 A	5 SA
<b>F1.</b> Our company has reduced carbon emissions significantly.	<input type="radio"/>				
<b>F2.</b> Waste generation has decreased due to sustainability initiatives.	<input type="radio"/>				
<b>F3.</b> Resource efficiency has improved in recent years.	<input type="radio"/>				
<b>F4.</b> Environmental compliance standards are consistently achieved.	<input type="radio"/>				
<b>F5.</b> Our environmental performance exceeds industry standards.	<input type="radio"/>				

**Section G: Societal Impact**

(DV3 — Adapted from: Wood, 2010; Turker, 2009)

Statement	1 SD	2 D	3 N	4 A	5 SA
<b>G1.</b> Our sustainability practices positively impact local communities.	<input type="radio"/>				
<b>G2.</b> The company contributes to social development.	<input type="radio"/>				
<b>G3.</b> Stakeholders perceive our company as socially responsible.	<input type="radio"/>				
<b>G4.</b> Our initiatives improve employee well-being.	<input type="radio"/>				
<b>G5.</b> Sustainability enhances societal trust in our brand.	<input type="radio"/>				

**Section H: Competitive Advantage**

(DV4 — Adapted from: Barney, 1991; Chen, 2008)

Statement	1 SD	2 D	3 N	4 A	5 SA
<b>H1.</b> Sustainability gives us a competitive edge over rivals.	<input type="radio"/>				
<b>H2.</b> Customers prefer our brand due to sustainability efforts.	<input type="radio"/>				
<b>H3.</b> Sustainability improves our market positioning.	<input type="radio"/>				
<b>H4.</b> Innovative sustainable practices differentiate our products.	<input type="radio"/>				
<b>H5.</b> Sustainability strengthens long-term market competitiveness.	<input type="radio"/>				

**Variable Mapping for Regression Analysis**

Hyp.	Independent Variable (IV)	Dependent Variable (DV)	Statistical Test
<b>H1</b>	Sustainable Business Practices (A1–A5)	Long-Term Value Creation (E1–E5)	Multiple Regression
<b>H2</b>	Circular Economy Strategies (B1–B5)	Environmental Sustainability Perf. (F1–F5)	Multiple Regression
<b>H3</b>	CSR Initiatives (C1–C5)	Societal Impact (G1–G5)	Multiple Regression
<b>H4</b>	Sustainable Innovation (D1–D5)	Competitive Advantage (H1–H5)	Multiple Regression