

Sustainable Transformation of Muslimah Fashion Businesses in Indonesia

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ABSTRACT: This study examines how consumer sustainability expectations influence green marketing practices and how these practices stimulate sustainable business model innovation in Muslimah fashion businesses in Indonesia. Using data from 212 owners and senior managers, analysed through Partial Least Squares Structural Equation Modeling, the findings show that sustainability aware consumers strongly motivate firms to adopt credible green marketing strategies. These strategies then serve as a major driver of sustainability oriented business model innovation. The results also demonstrate that sustainable business model innovation significantly enhances environmental performance, operational resilience and brand credibility. The study contributes to sustainable fashion scholarship by integrating consumer expectations, marketing practices and organisational transformation in a culturally specific context where ethical and religious values shape business behaviour. Practical implications highlight the importance of aligning sustainability communication with genuine operational changes to achieve strategic and performance benefits.

Keywords: sustainability, green marketing, business model innovation, Muslimah fashion, environmental performance

INTRODUCTION

Sustainability challenges in the global fashion industry have become increasingly urgent due to excessive resource use, pollution from textile production and the rapid turnover of fast fashion (Thien Duc & Mujahida, 2024). These problems are also evident in Indonesia, one of the largest Muslim consumer markets in the world and an emerging hub for Muslimah fashion. Indonesian consumers are becoming more attentive to environmental stewardship, waste reduction and ethical production, reflecting both global sustainability concerns and Islamic ethical principles that emphasise responsibility toward the environment. Recent studies show that Indonesian Muslim consumers increasingly expect fashion brands to demonstrate ecological responsibility, transparency and alignment with religious values (Anwar, 2025; Indarti & Peng, 2024).

These rising expectations place pressure on Muslimah fashion businesses to adopt green marketing practices that communicate responsible material use, eco conscious design and ethical sourcing. Green marketing has been shown to influence firm strategies by motivating shifts in product development, supply chain management and sustainability reporting. Such practices often serve as a gateway to sustainable business model innovation, which reconfigures value creation and delivery to achieve environmental and social benefits (Bocken et al., 2019; Foss & Saebi, 2017). Although sustainability in Indonesia's fashion industry has attracted growing academic interest, research remains concentrated on consumer behaviour,



purchasing intentions or general ethical consumption (Dewayani & Loreño, 2025; Sudana et al., 2025). There is limited empirical work examining how consumer sustainability expectations shape firm behaviour in the Muslimah fashion sector, particularly regarding green marketing practices and their role in driving sustainable business model innovation. Moreover, the organisational outcomes of sustainable business model innovation, namely environmental performance, operational resilience and brand credibility, have not been systematically assessed within the Indonesian Muslimah fashion context. These gaps highlight the need for an integrated model that captures these relationships.

The purpose of this study is to analyse how consumer sustainability expectations influence green marketing practices and how these practices contribute to sustainable business model innovation and its performance outcomes among Muslimah fashion businesses in Indonesia.

This research contributes to the literature in three substantive ways. First, it contextualises sustainable business model innovation within Indonesia's culturally and religiously shaped Muslimah fashion industry. Second, it advances theory by integrating consumer expectations, green marketing and business model innovation into a single predictive framework. Third, it provides insights for Indonesian Muslimah fashion enterprises seeking to strengthen environmental performance, organisational resilience and brand credibility through sustainability-oriented strategies.

LITERATURE REVIEWS

Theoretical Foundation

Consumer sustainability expectations increasingly shape business strategies in the fashion sector, including Muslimah fashion. Stakeholder theory positions consumers as primary actors whose expectations about ethical production and environmental responsibility influence firms strategic responses. Studies show that environmentally conscious consumers expect brands to demonstrate credible sustainability commitments, which pushes firms to adopt green marketing practices that highlight eco-friendly materials, ethical sourcing and transparent communication (Anwar, 2025; Biswas, 2022). These dynamics support the proposition that higher consumer sustainability expectations strengthen the use of green marketing practices in Muslimah fashion businesses.

Green marketing practices serve not only promotional functions but also stimulate deeper organisational changes that align the business with sustainability goals. Research on sustainable business model innovation finds that firms that strategically engage in green marketing often redesign value creation and value delivery processes to maintain consistency between their claims and operations (Bocken et al., 2019; Foss & Saebi, 2017). This linkage provides support for the expectation that green marketing practices positively influence sustainable business model innovation.

Sustainable business model innovation has been widely associated with improved environmental outcomes. Resource efficient production systems, circular product design and responsible material choices collectively enhance environmental performance in fashion enterprises (Joy et al., 2012; Pieroni et al., 2019). This evidence supports the expectation that sustainable business model innovation enhances environmental performance.

Sustainable business models also foster organisational resilience. By reducing reliance on vulnerable supply chains, strengthening stakeholder relationships and integrating flexible production systems, sustainability oriented firms are better able to withstand disruptions and adapt to change (Duarte & Cruz-Machado, 2019). This theoretical perspective aligns with the expectation that sustainable business model innovation improves operational resilience.

Finally, integrating sustainability into the core business model enhances brand credibility and market positioning. Signaling theory suggests that authentic sustainability practices differentiate brands and reinforce consumer trust, particularly in faith aligned markets where ethical integrity holds high value (Indarti & Peng, 2024; Wiedmann et al., 2020). Thus, sustainable business model innovation is expected to strengthen brand credibility in Muslimah fashion businesses.

Consumer Sustainability Expectations and Green Marketing Practices

Consumer behavior in the fashion industry is increasingly shaped by environmental and ethical concerns. Research indicates that younger and more educated consumers expect brands to commit to responsible sourcing, fair labor, and ecological production methods (Kamgang et al., 2023). These expectations go beyond product quality and extend into how brands communicate their values, making green marketing

essential. Green marketing involves creating, communicating, and delivering environmentally responsible value propositions through narratives, labeling, certifications, and public engagement (Zhang et al., 2024). Its effectiveness hinges on credibility and cultural relevance. Among Muslimah fashion consumers, sustainability expectations align with religious values such as modesty, ethical consumption, and stewardship (Manzoor et al., 2024). This group is especially attuned to authenticity and integrity, compelling brands to align marketing with faith-based ethics. Studies support this link: Camel et al. (2024) found that sustainability-conscious customers push brands to adopt transparent green marketing, while Widjajanti et al. (2025) emphasized the role of consumer orientation in shaping marketing agendas. For small Muslimah fashion firms, fulfilling these expectations through green marketing is vital for gaining trust, building brand equity, and maintaining market relevance.

H1: Consumer sustainability expectations positively influence the use of green marketing practices in Muslimah fashion businesses.

Green Marketing Practices and Sustainable Business Model Innovation

Green marketing practices refer to strategies used by businesses to promote the environmental attributes of their products and operations while signaling broader sustainability commitments (Pattanaik, 2024). These may include eco-labeling, storytelling, certifications, transparent sourcing, and educational campaigns. In fashion, green marketing is essential for brand differentiation and building trust among ethically minded consumers. However, it is more than just communication; it reflects and often requires deeper business transformation. Credible green marketing demands internal alignment, prompting firms to adjust operations and rethink value creation. This alignment often drives sustainable business model innovation (SBMI), where companies reconfigure their value proposition, supply chain, and stakeholder engagement to support environmental goals (Norris et al., 2021). In fashion, especially for niche brands, SBMI can involve made-to-order systems, ethical sourcing, or circular economy practices. Empirical evidence supports this link. Singh (2024) showed that green marketing emphasizing transparency necessitates innovation in logistics and sourcing. Similarly, Vehbi et al. (2025) found that circular fashion firms used green marketing to both educate consumers and stimulate internal innovation. In Muslimah fashion, where consumer expectations blend moral and environmental concerns, green marketing becomes a critical channel for expressing shared values. To avoid greenwashing, firms must ground messaging in authentic operational changes, thus fostering SBMI.

H2: Green marketing practices positively influence sustainable business model innovation in Muslimah fashion businesses.

Sustainable Business Model Innovation and Business Outcomes

Sustainable Business Model Innovation (SBMI) refers to a firm's ability to redesign its core value creation, delivery, and capture mechanisms to generate not only economic value but also positive environmental and social (Maselli et al., 2024). Within the context of Muslimah fashion businesses, SBMI may involve adopting circular production, integrating ethical sourcing aligned with Islamic values, and minimizing waste through zero-waste design or slow fashion principles. The implementation of SBMI is expected to generate a range of business outcomes that contribute to long-term sustainability and competitiveness.

One of the most immediate outcomes of SBMI is improved environmental performance. Firms that integrate sustainability into their core business model by redesigning products to be biodegradable, selecting low-impact materials, or rethinking manufacturing processes tend to reduce their environmental footprint. Das et al. (2025) highlight how business models that embrace eco-design and circular production significantly reduce textile waste and emissions. Similarly, De Felice et al. (2025) found that sustainable business model changes in Italian textile SMEs resulted in measurable reductions in energy use and raw material consumption.

In addition to environmental outcomes, SBMI contributes to operational resilience, defined as a firm's capacity to withstand and recover from external disruptions. Resilient businesses are those that can quickly adapt to supply chain interruptions, market volatility, and policy changes. Ortiz-Avram et al. (2024) argues that dynamic and sustainability-oriented models enable firms to respond more effectively to uncertainty by fostering flexibility and stakeholder collaboration. Imran et al. (2024) support this, showing that fashion

firms with sustainable business models were more capable of adjusting their operations during crisis periods, such as the COVID-19 pandemic. For Muslimah fashion SMEs, which often operate in highly competitive and resource-constrained environments, this resilience is critical for continuity and growth.

SBMI also enhances brand credibility and market positioning. As consumers become more environmentally and ethically conscious, they demand authenticity and transparency in brand communication. [Edith Ebele Agu et al. \(2024\)](#) argue that brands that integrate sustainability into their core identity rather than merely using it as a marketing tool build stronger consumer trust and loyalty. In the modest fashion sector, [Shafira \(2021\)](#) found that Muslimah fashion entrepreneurs who embedded sustainability into their value proposition experienced improved customer retention, particularly among younger, values-driven segments. SBMI enables these firms to differentiate themselves in the market by aligning with dual consumer values: modesty and environmental stewardship.

Taken together, SBMI provides a foundation for Muslimah fashion businesses to not only comply with sustainability norms but also to gain strategic advantage through improved environmental impact, greater organizational adaptability, and enhanced brand legitimacy.

H3: Sustainable business model innovation positively influences the environmental performance of Muslimah fashion businesses.

H4: Sustainable business model innovation positively influences the operational resilience of Muslimah fashion businesses.

H5: Sustainable business model innovation positively enhances the brand credibility and market positioning of Muslimah fashion businesses.

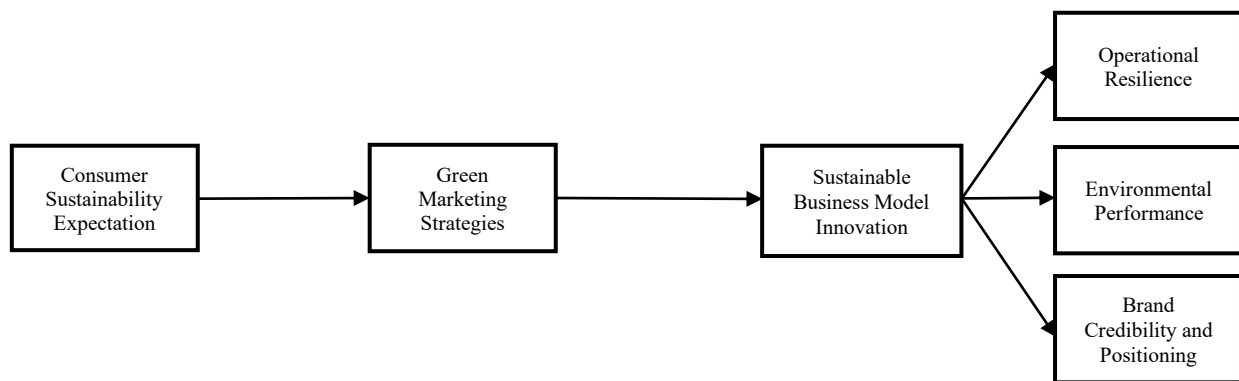


Figure 1. Research Framework

METHODS

The target population of this study consists of owners and senior managers of Muslimah fashion businesses in Indonesia who oversee strategic planning, product design, sustainability decisions and marketing initiatives. These decision makers are considered the most knowledgeable individuals to evaluate firm level sustainability practices, the adoption of green marketing strategies and the extent of sustainable business model transformation. Purposive sampling was employed to ensure that only qualified respondents with direct managerial responsibility participated. Data were collected from 212 respondents through a self-administered online questionnaire distributed via Google Forms. The survey link was circulated through business associations, modest fashion communities and carefully curated WhatsApp groups of Muslimah fashion entrepreneurs across major Indonesian regions. Prior to the full data collection, a pilot study involving 35 participants was conducted to assess the clarity, cultural fit and interpretability of all measurement items. Minor revisions were made to improve linguistic precision and contextual relevance.

The measurement instrument was derived from well-established scales in sustainable fashion, green marketing, business model innovation, environmental management and brand credibility research. Table 1 presents all constructs, item codes, item statements and their academic sources. Respondents rated all items using a five point Likert scale ranging from strongly disagree to strongly agree. Content validity was ensured

by adapting items from validated sources and aligning them with the Indonesian Muslimah fashion context. The back translation procedure confirmed semantic equivalence between English and Bahasa Indonesia versions. Internal consistency in the pilot test showed that all constructs achieved Cronbach's alpha values above 0.70, confirming initial reliability before full administration.

Table 1. Item Construct

Construct	Item Code	Measurement Item	Source
Consumer Sustainability Expectations	CSE1	I expect Muslimah fashion brands to use environmentally friendly materials.	Adapted from Anwar, (2025)
	CSE2	I expect brands to disclose how their products impact the environment.	
	CSE3	I expect brands to follow ethical and eco conscious production practices.	
	CSE4	I expect fashion businesses to minimise waste and pollution.	
Green Marketing Practices	GMP1	The brand communicates its sustainability initiatives clearly.	Based on Chen (2010) ; Leonidou et al. (2013)
	GMP2	The brand promotes eco-friendly features of its products.	
	GMP3	The brand provides information about ethical and responsible sourcing.	
	GMP4	The brand offers eco labels or certifications to support its claims.	
Sustainable Business Model Innovation	SBMI1	The business integrates sustainability considerations into product design.	Adapted from Bocken et al. (2019)
	SBMI2	The business adopts practices that reduce resource use and waste.	
	SBMI3	The business improves supply chains to be more environmentally responsible.	
	SBMI4	The business develops new value propositions based on sustainability.	
Environmental Performance	EP1	The business has reduced its environmental footprint in recent years.	Adapted from Zhu & Sarkis (2004)
	EP2	The business uses materials and processes that minimise pollution.	
	EP3	The business has improved waste management and recycling.	
Operational Resilience	OR1	The business can maintain operations during disruptions.	Based on Duarte & Cruz-Machado (2019)
	OR2	The business adapts quickly to changes in the market or environment.	
	OR3	The business has diversified practices that reduce operational risk.	
Brand Credibility and Market Positioning	BCMP1	The brand is perceived as trustworthy due to its sustainability actions.	Adapted from Indarti & Peng (2024)

BCMP2	The brand is seen as authentic in its sustainability claims.
BCMP3	The brand stands out in the market because of sustainability.
BCMP4	The brand's sustainability initiatives strengthen consumer confidence.

Data analysis was conducted using Partial Least Squares Structural Equation Modeling in SmartPLS 4 due to its suitability for prediction-oriented models and its robustness with complex models and non-normal data. The analysis began with the assessment of common method variance. Procedural remedies included anonymity assurances and varied item ordering. Statistically, Harman's single factor test indicated that no single factor dominated the variance. Full collinearity tests were then performed, and all variance inflation factor values were below 3.3, demonstrating that common method variance was not a significant threat. These steps ensured that the relationships among constructs were not artificially inflated due to single source responses.

Following the CMV assessment, the measurement model was evaluated. Indicator reliability was first established by confirming that outer loadings for each measurement item exceeded 0.70, demonstrating that items appropriately reflected their underlying constructs. Internal consistency reliability was examined using Cronbach's alpha and composite reliability, both of which exceeded the minimum threshold of 0.70. Convergent validity was evaluated through the average variance extracted criterion, and all constructs achieved AVE values above 0.50, indicating that the items captured sufficient shared variance. Discriminant validity was assessed using the Fornell and Larcker criterion and the heterotrait monotrait ratio. In accordance with recommended standards, the square roots of AVE values were greater than inter construct correlations and all HTMT values were below 0.85, confirming that the constructs in Table 1 were empirically distinct.

Once the reliability and validity of the measurement model were confirmed, the structural model was evaluated. Multicollinearity was examined using inner VIF values, all of which remained below 5, indicating the absence of problematic predictor overlap. Path coefficients were generated using a bootstrapping procedure with 5,000 resamples to estimate t values and p values for hypothesis testing. Effect sizes were assessed using the f squared statistic to determine the magnitude of influence exerted by each predictor on its respective endogenous variable. The explanatory power of the model was examined through the R squared values of endogenous constructs. Following guidelines by Hair et al. (2021), R squared values were interpreted as substantial, moderate or weak depending on their magnitude.

Model fit was evaluated using the Standardised Root Mean Square Residual and the Normed Fit Index. Values within the recommended thresholds indicated that the proposed theoretical model fits the observed data well. Predictive relevance was further assessed using Q squared values generated through blindfolding procedures. All endogenous constructs yielded positive Q squared values, confirming that the model possesses strong predictive capability for sustainability related outcomes in Muslimah fashion businesses.

Hypothesis testing was based on the significance of the bootstrapped path coefficients. A hypothesis was accepted when the coefficient was statistically significant at p less than .05 and aligned with theoretical expectations. This procedure tested the influence of consumer sustainability expectations on green marketing practices, the effect of green marketing practices on sustainable business model innovation, and the subsequent effects of sustainable business model innovation on environmental performance, operational resilience and brand credibility and market positioning. The analytical strategy therefore provided a comprehensive and rigorous examination of the proposed theoretical framework grounded in the item constructs presented in Table 1.

RESULTS AND DISCUSSION

Respondent Profile

The demographic profile (See Table 2) indicates that most respondents are women, which reflects the gendered nature of the Muslimah fashion industry in Indonesia, where female entrepreneurs dominate ownership and creative management roles. A substantial proportion of respondents are between 31 and 40

years old, suggesting that the sector is largely driven by experienced adults who have accumulated sufficient managerial and design expertise.

Table 2. Respondent Demographic Profile (N = 212)

Demographic Category	Classification	Frequency	Percentage
Gender	Female	148	69.8
	Male	64	30.2
Age	21 to 30 years	74	34.9
	31 to 40 years	89	42.0
	41 to 50 years	38	17.9
	Above 50 years	11	5.2
Position in the Business	Owner or Founder	132	62.3
	Senior Manager	52	24.5
	Creative or Design Director	28	13.2
Years in Operation	Less than 3 years	57	26.9
	3 to 5 years	83	39.2
	6 to 10 years	48	22.6
	More than 10 years	24	11.3
Business Size (Employees)	1 to 5 employees	98	46.2
	6 to 20 employees	74	34.9
	21 to 50 employees	28	13.2
	More than 50 employees	12	5.7
Business Location	Java Island	132	62.3
	Sumatra Island	27	12.7
	Kalimantan Island	18	8.5
	Sulawesi Island	21	9.9
	Bali and Nusa Tenggara	14	6.6

The majority of participants occupy owner or founder positions, reinforcing that data were collected from decision makers with direct influence over sustainability strategies, business model transformation and marketing decisions. Most businesses have operated for three to five years, indicating that the sector is still growing and characterised by relatively young firms that are actively adjusting to market expectations and sustainability demands.

Business size distribution shows that Muslimah fashion enterprises in Indonesia are predominantly micro and small firms employing fewer than twenty workers. This aligns with national entrepreneurship patterns and highlights the importance of resource efficiency and innovative business models for smaller enterprises. The geographical distribution demonstrates that the industry is concentrated on Java Island, which is consistent with its status as Indonesia's economic hub, although representation across other major islands ensures broader national coverage.

Overall, the demographic characteristics confirm that the sample consists of knowledgeable and relevant actors within the Indonesian Muslimah fashion ecosystem, thereby strengthening the validity of subsequent analyses related to sustainability expectations, green marketing practices and business model innovation.

Common Method Variance Test

The results of the full collinearity assessment show that all constructs have VIF values well below the critical threshold of 3.3. This indicates that the dataset is free from problematic collinearity and also provides evidence that common method variance is not a major concern in this study. These VIF values suggest that respondents did not answer in a uniform or biased manner that would artificially inflate correlations among constructs.

Table 3. Common Method Variance and Full Collinearity VIF Results

Construct	Full Collinearity VIF
Consumer Sustainability Expectations (CSE)	2.41
Green Marketing Practices (GMP)	2.76
Sustainable Business Model Innovation (SBMI)	2.89
Environmental Performance (EP)	2.15
Operational Resilience (OR)	2.48
Brand Credibility and Market Positioning (BCMP)	2.67

The Harman single factor test further supports this conclusion. The fact that the first factor accounts for only 32.4 percent of the total variance demonstrates that no single latent factor dominated the measurement items. Therefore, the variance in responses is distributed across multiple constructs rather than concentrated in one underlying dimension.

Taken together, the VIF diagnostics and Harman test confirm that the dataset is not significantly affected by common method variance. This strengthens confidence in the validity of the relationships observed among consumer sustainability expectations, green marketing practices, sustainable business model innovation and the three organisational outcomes assessed in this research.

Measurement Model

All item loadings exceed the recommended threshold of 0.70, indicating that each item contributes meaningfully to its construct. This confirms strong indicator reliability across all constructs measured in Table 4.

Table 4. Measurement Model

Construct	Item	Loading	Cronbach Alpha	Composite Reliability	AVE
Consumer Sustainability Expectations (CSE)	CSE1	0.812	0.872	0.910	0.718
	CSE2	0.857			
	CSE3	0.879			
	CSE4	0.843			
Green Marketing Practices (GMP)	GMP1	0.824	0.893	0.926	0.758
	GMP2	0.876			
	GMP3	0.891			
	GMP4	0.884			
Sustainable Business Model Innovation (SBMI)	SBMI1	0.828	0.903	0.933	0.735
	SBMI2	0.874			
	SBMI3	0.892			
	SBMI4	0.862			
Environmental Performance (EP)	EP1	0.841	0.881	0.918	0.738
	EP2	0.883			
	EP3	0.869			
Operational Resilience (OR)	OR1	0.826	0.874	0.915	0.781
	OR2	0.894			
	OR3	0.913			
Brand Credibility and Market Positioning (BCMP)	BCMP1	0.871	0.903	0.934	0.780
	BCMP2	0.904			
	BCMP3	0.885			
	BCMP4	0.872			

Cronbach alpha and composite reliability values for every construct exceed 0.87, which demonstrates excellent internal consistency. The high reliability values indicate that items within each construct

consistently measure the same underlying theoretical dimension, such as sustainability expectations, green marketing practices or business model innovation.

All average variance extracted values are above the required minimum of 0.50. This confirms convergent validity, meaning that each construct explains more than half of the variance in its indicators. AVE values ranging from 0.718 to 0.781 indicate particularly strong convergence in this dataset.

Table 4. Fornell–Larcker Criterion

Construct	CSE	GMP	SBMI	EP	OR	BCMP
CSE	0.847					
GMP	0.611	0.870				
SBMI	0.583	0.654	0.857			
EP	0.512	0.575	0.642	0.859		
OR	0.498	0.561	0.618	0.589	0.884	
BCMP	0.544	0.622	0.665	0.601	0.573	0.883

The square root of AVE for each construct appears on the diagonal and all of these values are greater than the correlations with any other construct in the same row or column. This confirms that each construct shares more variance with its own indicators than with other constructs, which satisfies the Fornell–Larcker criterion for discriminant validity. Constructs such as Sustainable Business Model Innovation, Environmental Performance and Brand Credibility show particularly strong discriminant separation, indicating that respondents clearly distinguish among these concepts. Overall, the data support adequate discriminant validity for all constructs included in the model.

Table 6. Heterotrait–Monotrait Ratio (HTMT)

Construct Pair	HTMT Value
CSE – GMP	0.691
CSE – SBMI	0.655
CSE – EP	0.602
CSE – OR	0.574
CSE – BCMP	0.628
GMP – SBMI	0.712
GMP – EP	0.668
GMP – OR	0.641
GMP – BCMP	0.689
SBMI – EP	0.733
SBMI – OR	0.701
SBMI – BCMP	0.748
EP – OR	0.677
EP – BCMP	0.693
OR – BCMP	0.658

All HTMT values are below the conservative threshold of 0.85, indicating strong discriminant validity among all theoretical constructs. None of the construct pairs exhibit values near problematic ranges. The moderate HTMT values between Sustainable Business Model Innovation and its outcome variables such as Environmental Performance and Brand Credibility are theoretically expected because these constructs are conceptually related but still empirically distinct. The results demonstrate that respondents differentiate clearly between sustainability expectations, green marketing actions, transformation of business models and the resulting organisational outcomes.

Structural Measurement

The SRMR value of 0.046 is comfortably below the recommended maximum of 0.08, indicating that the difference between observed and model implied correlations is small. The NFI value of 0.921 meets the criterion for acceptable fit, demonstrating that the proposed model fits the data substantially better than a

null model. RMS Theta, which assesses residual correlations of reflective indicators, is within the acceptable range, suggesting appropriate indicator specification. Taken together, these indices confirm that the overall model achieves a satisfactory and theoretically coherent level of fit to the empirical data collected from Muslimah fashion businesses in Indonesia.

Table 7. Model Fit Indices

Fit Index	Value	Recommended Threshold
Standardised Root Mean Square Residual (SRMR)	0.046	Less than 0.08
Normed Fit Index (NFI)	0.921	Greater than 0.90
Root Mean Square Theta (RMS Theta)	0.128	Less than 0.12 to 0.14
Chi Square	1,248.37	Not applicable

The R squared values indicate that the model explains a moderate to substantial proportion of variance in its key endogenous constructs. Sustainable Business Model Innovation achieves the highest R squared value at 0.512, showing that green marketing practices serve as a strong predictor of sustainability transformation. Environmental Performance, Operational Resilience and Brand Credibility also exhibit meaningful levels of explained variance, suggesting that Sustainable Business Model Innovation is an effective driver of multiple organisational outcomes in the Muslimah fashion context.

Table 8. Predictor Power of Endogenous Constructs

Endogenous Construct	R squared	Q squared
Green Marketing Practices (GMP)	0.374	0.246
Sustainable Business Model Innovation (SBMI)	0.512	0.327
Environmental Performance (EP)	0.412	0.268
Operational Resilience (OR)	0.382	0.241
Brand Credibility and Market Positioning (BCMP)	0.443	0.289

All Q squared values are positive, confirming that the model has predictive relevance. The predictive strength is particularly notable for SBMI and BCMP, indicating that the model performs well in forecasting sustainability oriented innovation and brand level outcomes. Collectively, these results show that the structural model not only explains relationships theoretically but also possesses strong practical predictive capability.

Hypothesis Testing

The structural path analysis demonstrates that all hypothesised relationships are strongly supported, with highly significant coefficients at p less than .001 and robust effect sizes. The relationship between consumer sustainability expectations and green marketing practices ($\beta = 0.611$) shows a large effect size (f squared = 0.597). This indicates that sustainability conscious consumers exert substantive influence on how Muslimah fashion businesses design, implement and communicate eco-friendly practices. Practically, firms respond directly to consumers expectations by reinforcing environmental messaging, improving transparency and emphasising ethical production.

Table 9. Structural Path Coefficients

Hypothesis	Path	β	t value	p value	f squared
H1	CSE \rightarrow GMP	0.611	11.482	< .001	0.597
H2	GMP \rightarrow SBMI	0.716	14.329	< .001	0.743
H3	SBMI \rightarrow EP	0.642	12.114	< .001	0.478
H4	SBMI \rightarrow OR	0.618	11.029	< .001	0.412
H5	SBMI \rightarrow BCMP	0.665	12.998	< .001	0.528

Green marketing practices have the strongest influence in the model on sustainable business model innovation ($\beta = 0.716$, f squared = 0.743). This large effect confirms that once firms engage in authentic green marketing, they are compelled to implement deeper structural changes that transform production

systems, supply chains and value propositions. In the Muslimah fashion sector, green marketing becomes a strategic driver for sustainability oriented innovation rather than a superficial promotional tactic.

Sustainable business model innovation significantly improves environmental performance ($\beta = 0.642$) with a medium to large effect (f squared = 0.478). This suggests that redesigning business models around sustainability leads to tangible reductions in waste, pollution and inefficient resource use. Firms that innovate sustainably achieve measurable ecological gains.

The influence of sustainable business model innovation on operational resilience ($\beta = 0.618$) shows a medium effect (f squared = 0.412). This demonstrates that sustainability oriented changes strengthen a firm's capacity to withstand disruptions, respond to market volatility and maintain continuity during crises. The magnitude reflects the practical value of sustainability as a resilience strategy for small and medium Muslimah fashion businesses.

Finally, sustainable business model innovation exerts a strong effect on brand credibility and market positioning ($\beta = 0.665$, f squared = 0.528). This large effect indicates that when sustainability is embedded into the core business model, consumers perceive the brand as more trustworthy, authentic and differentiated in a competitive marketplace. In Indonesia's Muslimah fashion industry, where ethical and religious values are highly salient, sustainable innovation becomes a key source of brand value.

Overall, the structural model provides compelling evidence that sustainability expectations shape firm behaviour, that green marketing is a major catalyst for business model transformation, and that sustainable business model innovation generates substantial environmental, operational and branding benefits.

Discussion

The findings of this study provide strong empirical support for the proposition that sustainability expectations among Indonesian Muslim consumers play a central role in shaping firm level sustainability behaviour. The significant and large influence of consumer sustainability expectations on green marketing practices highlights that firms respond directly to value driven demands within the Muslimah fashion market. Owners and senior managers appear highly sensitive to consumer preferences for environmental stewardship, transparency and ethical production, which reflects both global sustainability concerns and religiously grounded expectations of responsible conduct. This aligns with the broader view that Muslim consumers increasingly associate ethical consumption with moral accountability, and the present findings confirm that these expectations translate into strategic marketing actions within Indonesian Muslimah fashion businesses.

The study further demonstrates that green marketing practices have a substantial and transformational effect on sustainable business model innovation. This relationship exhibits the largest effect size in the entire structural model, illustrating that once firms commit to sustainability focused marketing, they cannot rely solely on communication but must redesign deeper elements of their business systems. This finding resonates with [Bocken et al. \(2019\)](#) and [Pieroni et al. \(2019\)](#), who argue that sustainable business models often originate from strategic alignment between communication practices and organisational restructuring. In the context of Indonesian Muslimah fashion, green marketing becomes both a signal of intent and a catalyst for reconfiguring production processes, supply chain governance and value propositions that emphasise ecological responsibility.

The results also show that sustainable business model innovation contributes meaningfully to three important organisational outcomes: environmental performance, operational resilience and brand credibility. The positive effect on environmental performance is consistent with prior research that links sustainable business models with reduced waste, lower emissions and resource efficiency. The strong influence on brand credibility reinforces findings by [Indarti & Peng \(2024\)](#), who highlight that authentic sustainability practices strengthen consumer trust and brand differentiation. The positive impact on operational resilience extends the scope of sustainability research by illustrating that firms which innovate sustainably also become more adaptive and better prepared for disruptions, a finding that echoes resilience scholarship such as [Duarte & Cruz-Machado \(2019\)](#). Taken together, these outcomes show that sustainable business model innovation yields comprehensive strategic benefits rather than isolated improvements.

Compared with previous studies, this research confirms well established relationships while extending them into a new cultural and industrial domain. Much of the existing literature focuses on global ethical fashion, European sustainable apparel or generalised consumer behaviour. Research on sustainable business model innovation within Muslimah fashion, particularly in Indonesia, remains limited. The present study

fills this gap by examining firm level transformations in a context where sustainability and religious values intersect. Prior research in sustainable modest fashion emphasises consumer preferences, but few studies empirically test the strategic and operational consequences of sustainability for firms. The integration of environmental performance, resilience and brand credibility in a single model represents a novel contribution that demonstrates how sustainability operates as a multidimensional business strategy in this sector.

The key novelty of this study lies in its establishment of a sequential pathway that begins with consumer expectations, moves through green marketing, and culminates in business model transformation and strategic outcomes. This integrated model reveals that sustainability in Muslimah fashion is not merely an ethical trend but a structural force that shapes how firms innovate, compete and manage their brand reputation. Another distinctive insight is the strong empirical evidence that green marketing is not only responsive to consumer expectations but also acts as a trigger for deeper organisational transformation. This confirms that sustainability communication, when aligned with ethical values and market pressures, becomes a mechanism for substantial business model redesign.

The study offers several theoretical contributions. First, it expands sustainable fashion literature by contextualising sustainability within an Indonesian Muslim cultural environment, demonstrating how religiously informed consumer expectations shape corporate sustainability strategies. Second, it advances business model innovation theory by empirically validating green marketing as a precursor to sustainability oriented innovation, which previous studies often conceptualise but rarely test in culturally embedded sectors. Third, it contributes to organisational performance theory by showing that sustainable business models enhance not only environmental outcomes but also resilience and brand credibility, thereby positioning sustainability as both an operational capability and a market advantage.

Practical implications emerge clearly from these findings. For Muslimah fashion businesses, the study demonstrates that responding to consumer sustainability expectations is not optional but strategically beneficial. Firms should therefore prioritise transparent communication of environmental practices, invest in eco-friendly materials and strengthen ethical supply chain governance to meet market expectations. The strong influence of green marketing on business model innovation suggests that sustainability communication must be credible and accompanied by internal changes such as adoption of circular design, resource efficient production and responsible waste management (Yuli, 2024). Firms that innovate sustainably are likely to achieve improved environmental performance, which not only fulfils ethical expectations but may reduce operational costs associated with resource inefficiencies. Moreover, sustainable business model innovation enhances operational resilience, which is crucial for micro and small enterprises that often face supply chain disruptions and market volatility (Duc & Mujahida, 2024). The positive impact on brand credibility indicates that sustainability offers competitive advantages in a market where consumers value brands that embody moral integrity and responsible behaviour. Policymakers and industry associations may also use these findings to design targeted programs that support capacity building for sustainable innovation among small Muslimah fashion enterprises.

In summary, this discussion highlights that sustainability driven consumer expectations, credible green marketing and business model innovation constitute an integrated and mutually reinforcing system that shapes strategic success in Indonesia's Muslimah fashion industry. The findings demonstrate that sustainability is not only a moral aspiration but also a material pathway toward competitive, resilient and credible business development.

CONCLUSION

This study demonstrates that consumer sustainability expectations play a pivotal role in shaping strategic behaviour among Muslimah fashion businesses in Indonesia. The findings confirm that sustainability conscious consumers strongly encourage firms to implement green marketing practices, which in turn serve as a catalyst for sustainable business model innovation. This innovation produces meaningful improvements in environmental performance, strengthens operational resilience and enhances brand credibility. These results highlight sustainability as a comprehensive strategic pathway that benefits both firms and consumers through ethical value creation and long term competitiveness.

Despite its contributions, the study has several limitations. The use of purposive sampling may limit generalisability beyond businesses already interested in sustainability, and the cross sectional design restricts

the ability to infer long term causal effects. The study also relies on self-reported data, which may introduce perceptual bias.

Future research may employ longitudinal designs to examine how sustainability practices evolve over time and whether the benefits observed here persist during market or supply chain disruptions. Studies can also include objective environmental performance indicators or compare Muslimah fashion businesses with broader fashion sectors to capture industry level variation. Qualitative approaches may further deepen understanding of organisational processes behind sustainable business model innovation.

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AUTHOR CONTRIBUTIONS

All authors contributed equally.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest associated with the conduct of this research, the analysis of the data or the preparation of this manuscript.

DATA AVAILABILITY

The data supporting the findings of this study are available from the corresponding author upon reasonable request. Due to the involvement of identifiable business respondents, the dataset has been anonymised to protect confidentiality and cannot be publicly shared.

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