International Journal of Engineering and Management Sciences Vol. 10. (IJEMS) (2025). No. 3.
DOI: 10.21791/IJEMS.2025.08.

Research Paper

Dual Focus of Supply Chain Resilience and Sustainability: A Size-based Comparison between SMEs and Large Organizational Approaches

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Abstract. The research investigates how organizational size influences the implementation of supply chain resilience and sustainability practices. While resilience and sustainability are increasingly recognized as interrelated priorities, existing literature often overlooks how firm size conditions strategic behaviour, particularly the distinct constraints faced by small and medium-sized enterprises (SMEs). To address this gap, the study employs a two-phase, mixed-methods approach. First, a structured literature review identifying the current state of academic research on the field. Second, a global survey of 252 supply chain professionals captures quantitative data across SMEs and large organizations. Statistical analysis tests three hypotheses regarding core aspects of driving resilience and sustainability outcomes. Findings show that large firms tend to formalize strategies more thoroughly, especially in risk detection and sustainability goal setting. However, SMEs demonstrate comparable resilience through informal, agile approaches and supplier collaboration. Overall, strategic effectiveness does not vary by firm size, but implementation pathways do. This study contributes original empirical evidence to the limited comparative literature on organizational size in supply chain strategy. By introducing size as a moderating variable, the research advances theoretical models and highlights the need for differentiated tools, policies, and partnerships. The findings aim to hold practical value for managers, and support businesses seeking to design scalable, inclusive approaches that enhance resilience and sustainability across the entire supply chain spectrum.

Keywords: Supply Chain Resilience, Sustainability, Organizational Size Comparison, SME

Introduction

Global supply chains are increasingly exposed to disruptions arising from geopolitical instability, unexpected disruptions, and environmental pressures. These challenges have emphasized the need for supply chains to be resilient, capable of adapting and recovering from disruptions, and also to be sustainable, minimizing long-term environmental and social impacts. Although resilience and sustainability are conceptually distinct, and their aims can contradict each other, they are deeply interrelated. Supply chains built on sustainable foundations often display greater resilience due to improved transparency, stakeholder engagement, and systemic integration [1], [2], [3]. Despite growing interest in these priorities, the academic literature shows a gap in examining both resilience and sustainability together especially in the setting of how organizational size can shape supply chain strategy. Most studies adopt a generalized perspective, often failing to differentiate between the capabilities, constraints, and behaviours of small and medium-sized enterprises (SMEs) and large

DOI: 10.21791/IJEMS.2025.08.

organizations [4], [5], [6]. This is a critical gap, as SMEs represent over 90% of global businesses and are responsible for 50–60% of employment in most economies [5], [7]. Their collective influence on supply chain sustainability and resilience is therefore substantial. SMEs on the other hand typically face structural limitations, present in restricted financial, technological, and human resources, that hinder long-term investment in risk management and sustainability programs [6], [8]. In contrast, large organizations have broader access to resources and networks but may experience slower strategic adaptation due to bureaucratic complexity [9]. These structural differences challenge the effectiveness of one-size-fits-all approaches to supply chain strategy and highlight the need for differentiated insights [10].

This study addresses that need by conducting a comparative analysis of how SMEs and large organizations implement supply chain resilience and sustainability practices. It explores whether and how organizational size affects strategic decision-making in these domains. By identifying the distinctive approaches and limitations faced by different firm types, the research aims to expand upon the available academic models, policy frameworks, and managerial tools. The research is guided by the following question: How do small and medium-sized enterprises (SMEs) and large organizations differ in their implementation of supply chain resilience and sustainability practices?

To answer this question, the study follows a two-phase, mixed-methods design. The first phase involves an exploratory and structured review of academic literature using peer-reviewed sources identified on Scopus and Web of science. This review establishes the theoretical foundation of the study, identifies key variables, and outlines the empirical gaps that justify further investigation. The second phase involves a global quantitative survey targeting both SMEs and large firms. Quantitative analysis includes descriptive statistics to compare current practices, inferential statistics to test for significant behavioural differences, regression analysis to identify predictors of strategic implementation, and correlation analysis to examine interdependencies between resilience and sustainability efforts.

The originality of this research lies in its integrated examination of resilience and sustainability, a comparative approach based on organizational size, and its use of primary data. Few existing studies address resilience and sustainability simultaneously, and even fewer evaluate how firm size influences their adoption in real-world contexts. This research advances academic understanding by introducing size as a moderating variable in supply chain strategy, helping to refine existing models and address the lack of empirical evidence regarding SMEs [1], [4]. For practitioners the findings aim to offer actionable insights. By clearly identifying the strategic differences between SMEs and large firms, the study supports the development of differentiated, effective interventions that enhance both resilience and sustainability across the full spectrum of organizations. By closing this knowledge gap, the research contributes to both theoretical advancement and the practical strengthening of global supply chain systems.

1. Literature review

Supply chain resilience and sustainability have become strategic imperatives in response to increasingly frequent and severe disruptions. While conceptually distinct, both dimensions contribute to supply chain robustness and long-term viability. Their growing interconnection demands an integrated

DOI: 10.21791/IJEMS.2025.08.

understanding, particularly in relation to organizational size, which significantly influences how firms perceive and act on these challenges. Resilience is broadly defined as the ability of a supply chain to anticipate, withstand, and recover from disruptions while maintaining operations. Ivanov and Dolgui (2019) distinguish between proactive capabilities, such as redundancy, visibility, and flexibility, and reactive capabilities like agility and adaptive reconfiguration. These are essential for managing events ranging from geopolitical conflicts to global health crises [11], [12], [13], [14]. Sustainability, by contrast, involves integrating environmental, social, and economic considerations into decision-making processes, aiming to reduce negative impacts and foster long-term value for all stakeholders [1], [2], [15].

Although traditionally addressed separately, resilience and sustainability are increasingly seen as interrelated. Sustainable practices such as local sourcing, collaborative supplier relationships, and resource efficiency can enhance resilience by building transparency and trust [2], [13], [15]. Similarly, resilient supply chains are more likely to uphold sustainability commitments during disruptions, avoiding regressive, short-term responses [16], [17]. However, these synergies are not automatic. Common resilience strategies like inventory buffering may conflict with sustainability goals by increasing resource use [18], while lean systems may improve environmental efficiency but reduce flexibility [19]. Integrating the two requires deliberate strategic alignment. Measuring these capabilities remains challenging. Resilience lacks standardized indicators and is often assessed qualitatively, while sustainability, despite being supported by global frameworks, varies in practice across industries and firm sizes [20]. This variation complicates comparative analysis, particularly when examining organizational behaviour across different firm types. Firm size is a critical moderating factor in how resilience and sustainability are understood and implemented. Larger firms typically adopt formalized strategies supported by dedicated departments, structured processes, and access to capital. In contrast, SMEs often rely on informal, reactive approaches shaped by individual judgment and constrained resources [4]. These structural differences affect both the design and execution of strategic responses.

Large organizations have made significant strides in institutionalizing both resilience and sustainability. Their global reach and resource capacity allow them to deploy comprehensive risk frameworks, digital monitoring tools, and diversified supplier networks [10], [21], [22]. Concurrently, large firms frequently align with ESG standards, adopt sustainability reporting protocols such as the GRI, and exert influence through supplier codes of conduct and auditing systems [21], [23]. However, large firms face internal coordination challenges. Decentralized structures can delay strategic alignment, and sustainability efforts often remain siloed within corporate responsibility teams rather than being embedded into supply chain design [18]. While stakeholders increasingly demand integration of resilience and sustainability, many firms still manage these domains in parallel, leading to fragmented execution [24]. Additionally, although large firms often focus on customer-facing sustainability actions, upstream supplier engagement, especially with SMEs, remains inconsistent and underdeveloped [10]. This limits systemic progress, especially when suppliers lack the capacity to meet rising expectations.

SMEs, despite their economic significance, face substantial limitations in building resilience and sustainability. They represent over 90% of global firms and contribute significantly to employment and innovation, yet operate with limited financial, technological, and human resources [6], [7], [8]. Most SMEs lack formal risk management systems and instead rely on personal networks and managerial

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intuition to navigate disruptions [5], [6]. Practices such as single sourcing and lean inventories, while efficient under stable conditions, expose SMEs to greater risk when shocks occur [9], [14], [25]. Sustainability practices among SMEs remain largely underdeveloped. Although awareness has increased due to customer and regulatory pressure, adoption is sporadic and typically reactive [8]. Structured tools like emissions tracking or third-party certifications are seldom used due to perceived cost and complexity [26]. Many SMEs view sustainability as a compliance issue, not a strategic priority, especially in the absence of support or incentives from larger supply chain actors [1]. Still, recent literature identifies emerging pathways for improvement. SMEs are increasingly engaging in partnerships, industry clusters, and digital platforms that lower the entry barriers to resilience and sustainability [10]. Cloud-based tools and simplified self-assessment systems allow for basic performance monitoring and compliance, while buyer–supplier development programs and co-investment initiatives offer targeted support [1]. However, transformation from reactive to strategic practice remains rare without institutional backing. Financial incentives, regulatory flexibility, and technical assistance from intermediaries such as trade associations and NGOs are essential to closing this gap [27], [28].

In recent years, the strategic divide between SMEs and large firms remains pronounced. Large organizations continue to institutionalize ESG-driven practices, supported by regulatory frameworks such as the EU's CSRD, while SMEs struggle to meet expanding compliance and robust risk management practises [10]. Although the strategic logic connecting resilience and sustainability is increasingly adopted by large firms, SMEs often operate without a unified framework, viewing these efforts as burdens rather than opportunities [4]. Recent recommendations emphasize the need for differentiated policy approaches, including targeted funding, modular compliance tools, and SME-oriented capacity-building programs [5], [8], [27]. Large firms are also encouraged to engage more proactively with suppliers through collaborative procurement, knowledge sharing, and risk-sharing incentives [1], [11]. These measures can help ensure that resilience and sustainability transitions are inclusive, scalable, and effective across supply chains. Overall, the literature reveals three persistent gaps. First, there is limited comparative analysis of how SMEs and large firms approach resilience and sustainability. Second, there is a shortage of broad, quantitative data to support generalizable conclusions. Third, the operational integration of resilience and sustainability remains poorly understood, especially in relation to firm size. This study aims to support the narrowing of these gaps by exploring the extent to which firm size influences the implementation of these strategies, using both structured literature insights and primary survey-based evidence.

2. Methodology

This study adopts a quantitative, questionnaire-based approach to examine how organizational size influences the implementation of supply chain resilience and sustainability strategies. The use of structured, empirical data allows for statistical testing of differences and relationships between SMEs and large organizations, offering generalizable insights into strategic behaviours. This methodology supports objective comparison and enables the analysis of categorical and continuous variables using established statistical tools [29], [30].

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Data collection

Primary data were gathered through a structured questionnaire designed to assess organizational practices, perceptions, and strategic orientations. The questionnaire captured the extent of adoption of resilience and sustainability practices, including risk and quality management systems, supplier collaboration, and strategic alignment. The survey was conducted globally between January and March 2025 and yielded 252 valid responses through purposive sampling, from experienced supply chain professionals across a variety of industries and regions. Organizations were classified as SMEs or large enterprises based on headcount and turnover, in line with international definitions and prior research. The questionnaire included Likert-scale and close-ended questions, with a small number of short-answer fields for clarification. Measured attributes were drawn from prior, validated academic sources to ensure construct validity [14], [16], [18], [31]. Prior to full deployment, the survey was pre-tested with ten supply chain managers. Their feedback helped refine the language and format of questions to improve clarity and relevance across organizational contexts.

Data analysis

Responses were processed and analysed using IBM SPSS. After data cleaning, descriptive statistics were used to summarize respondent demographics, firm characteristics, and adoption rates of strategic practices. Independent-sample t-tests were applied to compare SMEs and large firms across selected variables. Correlation analysis explored relationships between resilience and sustainability constructs. Multiple regression models were used to identify predictors of resilience and sustainability engagement, with firm size and other organizational variables treated as independent or moderating factors [29], [30].

To test how operational mechanisms function differently in firms of varying sizes, three hypotheses were developed based on the literature. Rather than presuming that large organizations are categorically more advanced, these hypotheses examine how size moderates the effectiveness of risk management, supplier collaboration, and quality management practices, three core operational dimensions consistently linked to supply chain resilience and sustainability, based on the literature review [1], [18].

H1: In large organizations, formal risk management practices are more predictive of resilience outcomes than in SMEs.

This hypothesis tests whether the presence of structured risk planning and monitoring systems has a stronger correlation with perceived resilience in larger firms. It reflects the idea that the institutionalized risk capabilities common in large enterprises yield greater resilience benefits than similar practices attempted within SMEs. The relationship is assessed using regression models that include interaction terms to examine moderation by firm size.

H2: Supplier collaboration has a stronger positive effect on sustainability outcomes in SMEs than in large organizations.

Because SMEs often rely on external partners to implement sustainability measures, the extent and depth of collaboration may be a stronger determinant of performance than in large firms, which possess

DOI: 10.21791/IJEMS.2025.08.

greater internal resources. This relationship is tested through subgroup regressions, analysing the impact of supplier collaboration on sustainability metrics within each firm-size category.

H3: Quality management integration correlates more strongly with both resilience and sustainability outcomes in SMEs than in large organizations.

Quality management systems such as ISO standards often serve as a practical framework through which SMEs operationalize both resilience and sustainability. The ISO standards might have a significant impact on structured workings in SMEs while in larger firms, these outcomes may be siloed and only impact limited areas where directly implemented, decreasing visible results. This hypothesis evaluates whether quality management maturity is a stronger predictor of dual strategic outcomes in SMEs, using regression and correlation analysis across firm-size segments.

Each hypothesis is tested at a 95% confidence level. The research followed standard ethical protocols. Participation was voluntary and anonymous. Respondents were informed about the purpose of the study and the confidentiality of their responses. While the sample is not fully representative of all industries or regions, purposive targeting of experienced professionals ensures that findings are grounded in real-world practice.

3. Results

The empirical analysis is based on survey responses from 252 supply chain professionals globally, offering an extensive view into a wide range of industries, organizational roles, and geographic regions. A critical distinction in the analysis lies in organizational size: 130 respondents represent large organizations (52%), while 122 represent SMEs (48%), which include micro, small, and medium-sized enterprises. Demographically, respondents are primarily male (77%), with females comprising 23% of the sample. Most answerers are mid-career professionals aged between 25 and 44, constituting 60% of the total. Organizational roles are dominated by middle management (39%) and operational experts (38%), indicating a respondent base with direct insight into supply chain practices. In terms of experience, 31% have over 15 years of professional background, while 23% report 4–6 years, capturing a range of professional maturity. Industry representation is diverse, with production (29%), followed by transportation and logistics accounting for 25%, and several smaller sectors such as retail, energy supply chains, and construction. Geographically, the majority of organizations are based in Europe (68%), followed by North America (21%). Organizations are largely regional (45%) or global (41%), with local entities comprising the remainder.

The participants had to answer a wide range of questions on a six-point Likert scale. Large organizations generally report higher self-assessments on resilience capabilities. For early risk detection, large firms score 3.94, slightly above SMEs at 3.81. Proactive disruption mitigation is consistent across both groups at 4.11. However, disruption-handling procedures are more clearly defined in large organizations (4.33) compared to SMEs (4.16). Supplier reliability evaluations and demand forecasting are rated higher among large firms, with means of 4.76 and 4.16 respectively, compared to SMEs at 4.64 and 3.74. Agility and adaptability during disruptions are perceived similarly by both groups (mean 4.32). Integration and improvement of supply chain metrics yield moderate satisfaction levels, slightly favouring large organizations (3.87) over SMEs (3.81). These findings suggest that while SMEs are comparable in

DOI: 10.21791/IJEMS.2025.08.

adaptability and proactive capabilities, larger organizations exhibit advantages in structured processes and forecasting.

Regarding sustainability, large organizations report significantly greater clarity in sustainability goals (mean 4.09) compared to SMEs (3.75). Displayed in Table 1, conflicts between resilience and sustainability are perceived more frequently in large firms (3.70 vs. 3.35), suggesting greater complexity in balancing these objectives. SMEs report slightly higher operational impact from sustainability initiatives (3.31 vs. 3.25), implying that sustainability may more acutely challenge smaller firms' day-to-day operations. Both groups report resilience often takes precedence over sustainability during crises, with large firms scoring 3.69 and SMEs 3.62. Operational efficiency benefits from sustainability efforts are similarly perceived, with SMEs at 3.58 and large firms at 3.63. SMEs rate cost increases from sustainability efforts slightly higher (3.54) than large firms (3.46), indicating a potentially higher strain on SMEs moving towards sustainability initiatives. These findings confirm that large organizations tend to formalize sustainability more effectively but face greater trade-offs during disruptions. SMEs integrate sustainability less formally but report potentially grater trade-offs, especially in cost increases.

	Large. orgs	**SMEs**
Environmental sustainability goals conflict with resilience building	**3,70**	3,35
Environmental Sustainability complicates the everyday operations	3,25	**3,35**
Urgent decisions for resilience overrule long-term sustainability goals	**3,69**	3,62

Table 1. Collision of environmental sustainability and resilience building (own editing, own source, n = 252)

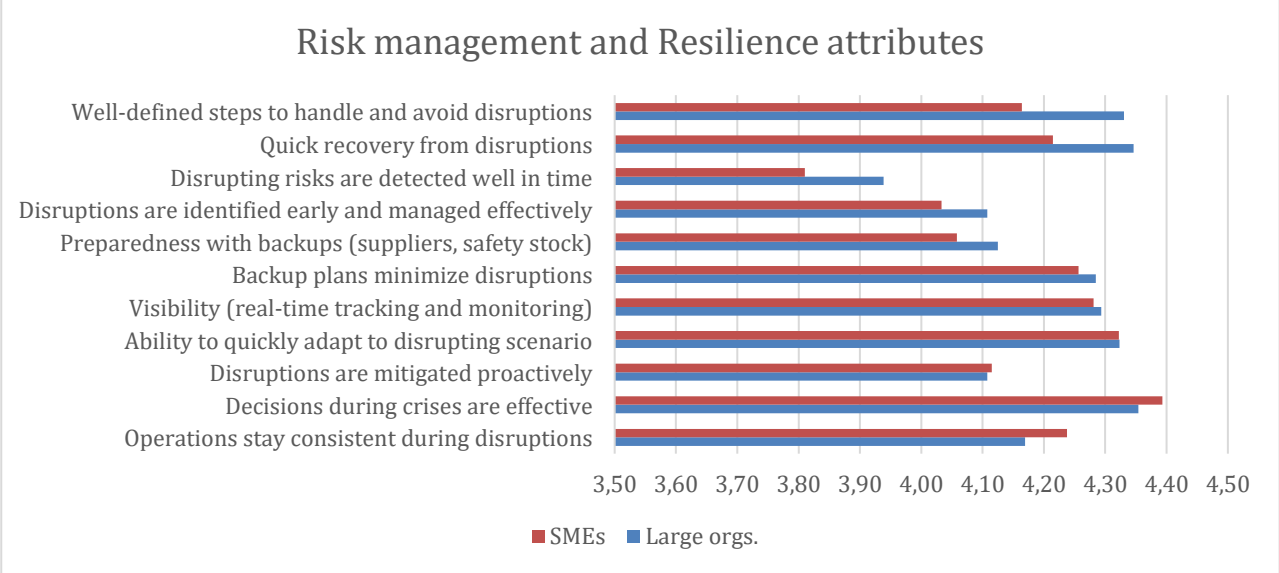

Figure 1. Risk management and Resilience attributes (own editing, own source, n = 252)

To test Hypothesis 1, a composite metric for risk management capabilities was constructed from four indicators (in all cases quantitative attributes measured through Likert scales): early risk detection, proactive mitigation, defined disruption procedures, and disruption handling effectiveness. Resilience was measured through five indicators: adaptability, redundancy, backup plan effectiveness, adaptability, and operational consistency. The attributes are also presented in Figure 1, comparing the results of large organizations and SMEs. Regression analysis included an interaction term between risk

DOI: 10.21791/IJEMS.2025.08.

management and organizational size to test moderation effects. The model explained 66.7% of variance in resilience (Adjusted $R^2 = 0.663$, $p < 0.001$). Risk management had a strong positive effect on resilience (coefficient = 0.8295, $p < 0.001$). Organizational size had no significant effect on resilience (coefficient = 0.2265, $p = 0.450$), and the interaction term was also not significant (coefficient = -0.0782, $p = 0.272$). These results indicate that risk management strongly predicts resilience outcomes, but its effectiveness does not differ by organization size. Thus, Hypothesis 1 is not supported. Risk management practices significantly enhance resilience in both SMEs and large organizations without size-dependent variation.

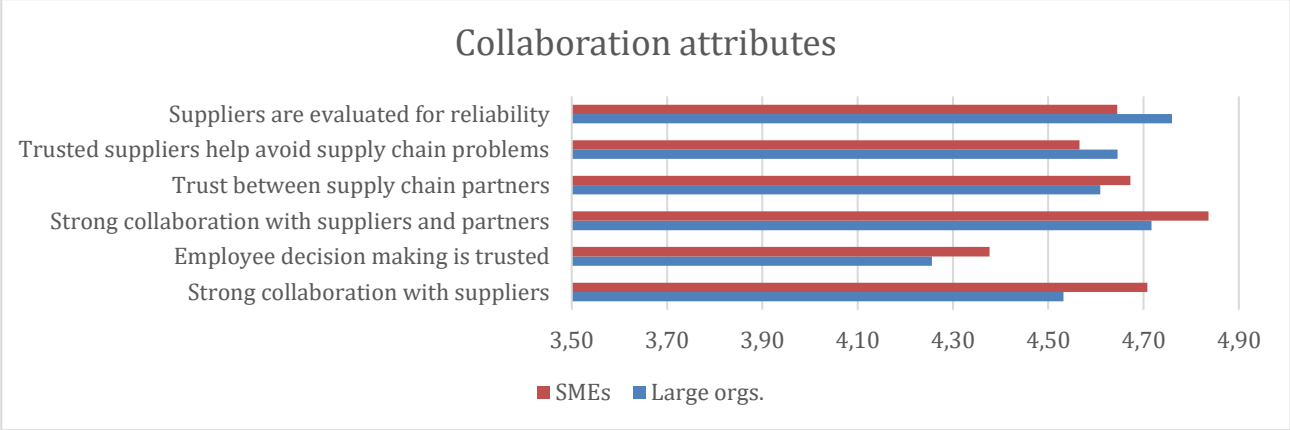

Figure 2. Collaboration attributes (own editing, own source, n = 252)

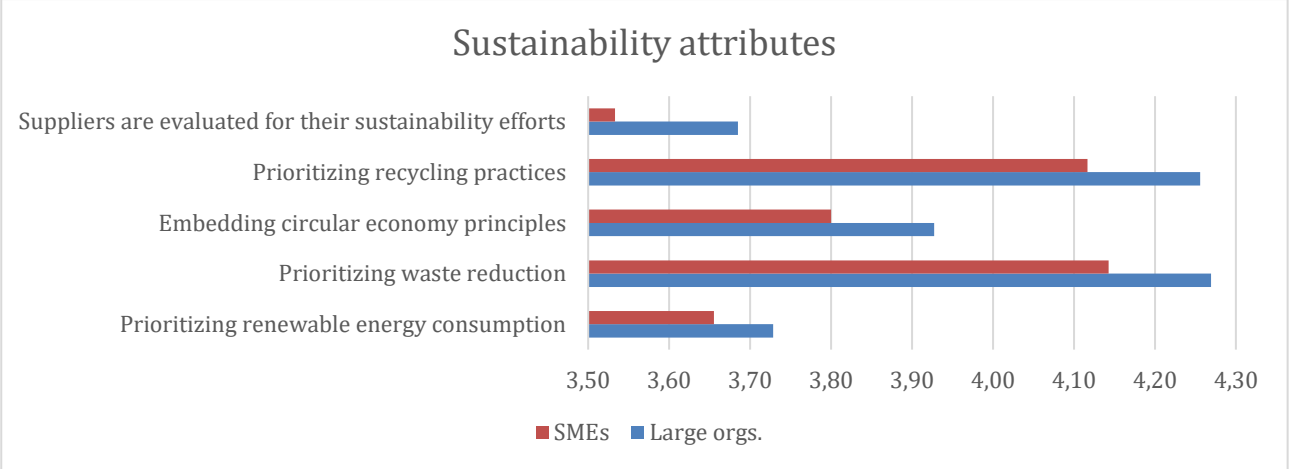

Figure 3. Sustainability attributes (own editing, own source, n = 252)

Hypothesis 2 examined whether supplier collaboration more strongly predicts sustainability outcomes in SMEs. Supplier collaboration was derived from five indicators covering evaluation for reliability and sustainability, trust, and depth of collaboration. Sustainability outcomes were based on seven indicators including sustainability goal clarity, operational efficiency, renewable energy use, circular economy principles, waste reduction, carbon footprint, and recycling practices. The attributes are also presented in Figure 2 and 3. For SMEs, supplier collaboration significantly predicted sustainability outcomes (coefficient = 0.8630, $p < 0.001$, $R^2 = 0.456$). For large organizations, the effect remained strong (coefficient = 0.7554, $p < 0.001$, $R^2 = 0.431$). The slightly higher predictive strength in SMEs supports

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Hypothesis 2. While both groups benefit from supplier collaboration, SMEs derive greater relative advantages, likely due to their reliance on external partners to overcome internal resource limitations.

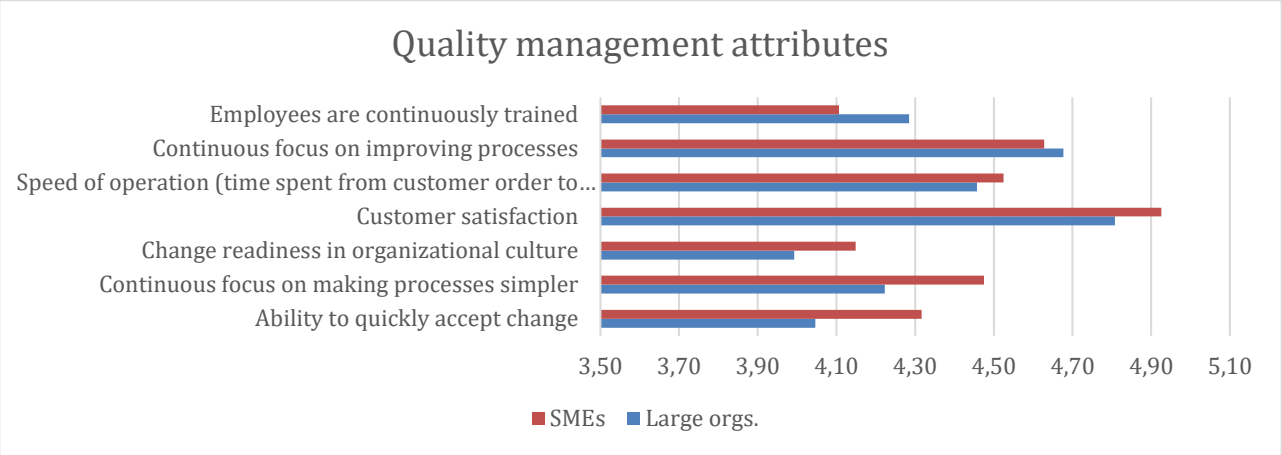

Figure 4. Quality management attributes (own editing, own source, n = 252)

Hypothesis 3 assessed the impact of quality management integration on resilience and sustainability. Quality management was measured through four items: customer satisfaction, process improvement, simplification, and adaptability. The measured quality management attributes are presented in Figure 4. Outcomes were assessed separately: resilience via adaptability ratings, and sustainability via clarity of sustainability goals. For SMEs, quality management significantly predicted resilience (coefficient = 0.8009, $p < 0.001$, $R^2 = 0.423$) and sustainability outcomes (coefficient = 0.7041, $p < 0.001$, $R^2 = 0.284$). In large organizations, the corresponding values for resilience were coefficient = 0.7508, $p < 0.001$, $R^2 = 0.486$, and for sustainability, coefficient = 0.6481, $p < 0.001$, $R^2 = 0.286$. These results confirm that integrated quality management is a significant predictor of resilience and sustainability across both SMEs and large organizations. However, large organizations demonstrated slightly stronger predictive values, particularly for resilience. This refutes the hypothesis that SMEs benefit more from quality management. Instead, quality-oriented practices are shown to be universally effective, with both organizational types achieving substantial gains.

The primary research highlights consistent patterns in resilience and sustainability practices across organizational sizes. While large firms show structural advantages in formalization and forecasting, SMEs demonstrate high adaptability and derive significant value from external collaborations and lean sustainability practices. Importantly, structured risk management, supplier collaboration, and quality management are confirmed as critical enablers of resilience and sustainability, with their effectiveness not significantly confined by organizational size. These findings underscore the universal relevance of process integration and strategic collaboration.

4. Discussion

The discussion integrates the findings of the primary research with academic literature to evaluate the core hypotheses and derive actionable insights, particularly for small and medium-sized enterprises (SMEs). The research question, how SMEs and large organizations differ in their implementation of supply chain resilience and sustainability practices, is addressed through a comprehensive analysis of

DOI: 10.21791/IJEMS.2025.08.

structural, strategic, and behavioural patterns observed in both organizational types. Academic literature consistently highlights resilience and sustainability as critical, interlinked objectives in modern supply chains. Their intersection offers mutual reinforcement, as sustainable practices like supplier collaboration and resource efficiency promote transparency and flexibility, which can in turn enhance resilience [1]. However, this synergy is not guaranteed and varies by organizational context. The primary data align with these theoretical foundations. Large organizations outperform SMEs in structured resilience practices, particularly in risk detection, disruption response planning, and demand forecasting. These advantages reflect their greater access to standardized processes and technological infrastructure [18]. However, SMEs demonstrate comparable capability in agility and proactive disruption management, suggesting that their size may offer flexibility advantages even in the absence of formal frameworks. This supports prior assertions that SMEs are not inherently less resilient but rather rely on different mechanisms to achieve similar outcomes [8].

In sustainability, large organizations again demonstrate clearer goals and stronger structural integration. Their alignment with ESG frameworks and capacity for formal reporting mechanisms reflects a mature sustainability orientation [2], [15]. In contrast, SMEs report more immediate operational and standardization benefits from sustainability efforts, despite lower formalization. This finding validates earlier literature which emphasizes the value of small-scale, focused initiatives for SMEs [7], [8]. Notably, both SMEs and large firms report frequent conflicts between sustainability and resilience goals, particularly during disruptions. Larger firms perceive these conflicts more acutely, likely due to the broader scope of their operations and stakeholder expectations. SMEs also experience tension, mainly due to resource constraints. Both types of organizations admit to prioritizing resilience over sustainability in times of crisis. This recurring pattern underscores the continuously absent long-term strategic mechanisms that can balance these goals under pressure.

The hypothesis testing provides further clarity. Hypothesis 1 predicted that formal risk management practices would more strongly predict resilience in large organizations. This was not supported. Risk management was a strong predictor of resilience across all organizations (coefficient = 0.8295, $p < 0.001$), but organizational size did not significantly moderate this effect. The result demonstrates that formalized risk management enhances resilience in both large organizations and SMEs equally. This has two practical implications: first, SMEs can benefit from structured risk planning regardless of size-related limitations; second, simply accessible tools, such as templates, checklists, and digital alerts, still have a significant impact on managing risks and disruptions and should be prioritized in SME support programs.

Hypothesis 2, which proposed that supplier collaboration more strongly predicts sustainability outcomes in SMEs, is supported. Supplier collaboration was a significant predictor in both groups, but the effect was stronger among SMEs (coefficient = 0.8630, $R^2 = 0.456$) compared to large firms (coefficient = 0.7554, $R^2 = 0.431$). This underscores the role of external partnerships in enabling SMEs to implement sustainability practices. Given their limited internal resources, SMEs benefit heavily from trust-based, collaborative relationships with suppliers. These findings align with established research that identifies collaboration as a critical enabler for SMEs in overcoming structural disadvantages [5], [6], [7]. This result suggests that policies fostering supply chain collaboration should be a central component of SME development strategies. Large firms can support this through supplier engagement

DOI: 10.21791/IJEMS.2025.08.

programs, while governments and industry associations can create matchmaking platforms and co-investment opportunities.

Hypothesis 3, which suggested that quality management practices correlate more strongly with resilience and sustainability in SMEs, is not supported. Quality management significantly predicted both resilience and sustainability in all organizations, with slightly higher explanatory power in large firms for resilience (R^2 = 0.486 vs. 0.423 in SMEs) and nearly identical results for sustainability. These findings indicate that process-oriented practices, such as continuous improvement and adaptability, are universally effective, rather than uniquely beneficial to SMEs. This reinforces the argument that simplified quality systems, such as modular standards and self-assessment frameworks, can support SMEs without requiring full ISO certification. Together, the hypothesis evaluations confirm that while firm size affects implementation context, it does not significantly alter the effectiveness of key strategic practices. Structured risk management, quality integration, and supplier collaboration improve resilience and sustainability outcomes across organizational sizes. However, capacity to implement these strategies varies, necessitating differentiated approaches to support. The tendency of firms to prioritize resilience over sustainability during disruptions highlights a shared vulnerability. To counter this, organizations should develop strategic frameworks that explicitly integrate sustainability into crisis management. Scenario planning and cross-functional continuity protocols can help ensure that sustainability is preserved, even under pressure.

For SMEs, the study provides clear direction. Simplified tools, access to partnerships, and tailored capacity-building programs are essential. Financial incentives, such as subsidies for audits or digital tools, and regulatory frameworks that recognize the constraints of smaller firms, are necessary to facilitate adoption. Proportional reporting requirements and scalable ESG guidelines can enable meaningful participation without overwhelming administrative costs. Practically, SMEs gain the most from structured collaboration with larger supply chain actors. Buyer-sponsored programs, sectoral learning platforms, and digital knowledge hubs can help transfer best practices. Large organizations, in turn, should embed sustainability and resilience objectives into procurement contracts and manage them collaboratively. This enhances supplier capability and strengthens overall supply chain robustness. To move beyond compliance, interventions should focus on strategic capability-building. Developing leadership awareness through workshops, peer exchanges, and mentoring initiatives is key. Particularly in sectors where SMEs play a foundational role, such as construction, logistics, and manufacturing, such initiatives can catalyse sector-wide transformation. Digitalization offers further opportunity. Affordable cloud solutions, supply chain visibility tools, and process automation are increasingly within reach. Incorporating digital tools into business training can help embed long-term strategic value. Financing mechanisms must also adapt. Many SMEs cite capital access as a critical barrier to strategic investment. Risk-based lending models that reward participation in sustainability and resilience programs could incentivize uptake. Public-private co-financing schemes, revolving funds, and blended finance structures offer promising pathways to bridge resource gaps.

Academically, this research aims to contribute to the field by empirically testing how firm size moderates the relationship between operational practices and strategic outcomes. It challenges assumptions that large organizations are inherently more capable, showing instead that SMEs can achieve comparable results through tailored strategies.

DOI: 10.21791/IJEMS.2025.08.

5. Conclusion

This study set out to examine how organizational size influences the implementation of supply chain resilience and sustainability practices. In light of growing disruption risks and environmental pressures, the ability of firms to both adapt to change and minimize long-term impacts is increasingly vital. This research addressed the research problem through a structured literature review to establish theoretical expectations, followed by a global quantitative survey of 252 supply chain professionals. Using descriptive, inferential, and regression analysis, the study tested three hypotheses. The results revealed that while large organizations typically implement more formalized resilience and sustainability strategies, SMEs achieve comparable outcomes through informal, flexible, and collaborative approaches. Specifically, structured risk management practices significantly predicted resilience in both SMEs and large firms, with no difference in effect by organizational size. Supplier collaboration had a stronger positive effect on sustainability outcomes for SMEs, validating the strategic role of external partnerships in compensating for internal resource limitations. Contrary to expectations, quality management practices were equally or slightly more predictive of resilience and sustainability outcomes in large organizations, suggesting their universal relevance across firm sizes. These findings directly answer the research question: while SMEs and large organizations differ in how they implement resilience and sustainability strategies, the practices themselves are broadly effective across both groups. What differs is the pathway to adoption, shaped by resources, organizational structure, and strategic orientation. This emphasizes the need for differentiated tools and policies that reflect operational realities.

Several research limitations should be acknowledged. The sample, while diverse, is not globally representative across all sectors and regions. The reliance on self-reported data may introduce bias. Additionally, the study focuses on perceived, rather than measured, resilience and sustainability outcomes. Future research should incorporate longitudinal or objective performance data, explore sector-specific patterns, and further investigate the mechanisms through which resilience and sustainability interact.

The importance of this research lies in its contribution to both academic theory and practical application. By integrating firm size as a central variable, the study refines current models and aims to offer more accurate guidance. Based on the examined sample, the research highlights that SMEs, despite structural constraints, are not strategically disadvantaged but require tailored support to leverage high-impact practices. For the field, the research adds empirical weight to the call for scalable, flexible frameworks that allow all firms to advance resilience and sustainability in tandem. It challenges the binary view of large versus small firms and introduces a more nuanced understanding of strategic behaviour under constraint. Future studies should expand comparative datasets, incorporate real-time performance indicators, and explore the role of digital technologies and policy environments in shaping adoption. Research should also assess how trade-offs between sustainability and resilience are navigated over time, and how organizations embed these strategies into operational routines.

Conflicts of Interest

The authors declare no conflicts of interest.

DOI: 10.21791/IJEMS.2025.08.

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