



## Sustainability-driven Opportunities and Supply chain resilience in China–Southeast Asia Import and Export

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### Abstract

This study examined sustainability-driven opportunities and supply chain resilience in China–Southeast Asia import and export trade and developed optimization strategies to strengthen resilient and sustainable cross-border operations. Specifically, it assessed sustainability-driven opportunities in terms of economic, social, and environmental dimensions; evaluated supply chain resilience in terms of infrastructure, operational, and collaborative dimensions; and determined the relationship between sustainability-driven opportunities and supply chain resilience. A descriptive-correlational research design was employed involving 200 managers or enterprise representatives engaged in China–Southeast Asia trade. Data were collected using a structured questionnaire and analyzed through weighted mean, ranking, and Spearman's rho correlation. Results showed that sustainability-driven opportunities were generally recognized by respondents, with environmental opportunities receiving the highest assessment, followed by social and economic opportunities. Supply chain resilience was likewise positively assessed across infrastructure, operational, and collaborative dimensions. Correlation analysis demonstrated positive and statistically significant associations between all sustainability-opportunity dimensions and all dimensions of supply chain resilience, with coefficients ranging from  $\rho = .490$  to  $\rho = .837$  and all relationships significant at  $p < .001$ . The findings indicate that sustainability-oriented business opportunities are closely associated with organizational capabilities for maintaining continuity, adaptation, and collaboration across regional supply chains. The study supports the integration of sustainability investment, risk management, and coordinated supply-chain strategies in strengthening long-term trade resilience.

**Keywords:** *sustainability-driven opportunities; supply chain resilience; cross-border trade; sustainable supply chains; China–Southeast Asia trade; enterprise resilience*

### 1. Introduction

The global transition toward more sustainable economic activity has altered the strategic environment of international trade and cross-border supply chains. Sustainability is increasingly connected with economic value creation, stakeholder expectations, responsible business conduct, and the capacity of firms to maintain continuity under uncertain conditions. At a broader national level, economic resilience has similarly been identified as one of the structural pillars underpinning a country's external credibility and strategic positioning within the Indo-Pacific region, reinforcing its relevance not only to enterprise continuity but also to regional economic standing (Atento, 2025). Supply-chain resilience has therefore become a complementary strategic concern because sustainability-oriented trade depends not only on market and technological opportunities but also on the infrastructure, operational capabilities, and interorganizational relationships required to withstand and recover from disruption (OECD, 2021, 2023).

China and Southeast Asia provide an important context for examining this relationship. Their trading networks span manufacturing, logistics, cross-border commerce, new-energy activities, and other sectors exposed to shifts in technology, environmental requirements, market conditions, and regional risk. Research on China's green-economy transition indicates that changes in one major trading economy can affect the trade sensitivity and vulnerability of partner countries, while stronger regional economic ties may contribute to greater resilience to external fluctuations (Ye et al., 2025). In ASEAN, the transition toward greener shipping and logistics likewise emphasizes technology sharing, financial and policy innovation, human-capacity development, regional cooperation, and digitalization (Nguyen et al., 2026). Beyond trade sensitivity, broader external economic forces—including oil-price cycles, currency strength, and China's own economic

transition—have also been examined in relation to business-formation dynamics in the Philippines, with evidence suggesting that these forces operate through demand- and confidence-related channels rather than through cost pressure alone (Atento et al., 2026). Digital connectivity across ASEAN economies has similarly been linked to macro-level financial deepening, with stronger internet access associated with greater equity-market capitalization even where a direct household-consumption channel is not evident, suggesting that digitalization functions as broader economic infrastructure across the region (Lantin-Magana & Atento, 2026).

From an enterprise perspective, sustainability can create new market opportunities, strengthen competitiveness, support stakeholder relationships, and encourage environmentally responsible operations. These potential gains, however, may be difficult to sustain when supply networks lack the ability to absorb shocks, maintain operations, adapt quickly, and coordinate effectively with business partners. Resilience is therefore more than an emergency-response capability; it is a strategic capacity that can protect the continuity of value creation during disruption (Sheffi, 2015; Secchi & Gili, 2024). Beyond environmental and trade-sensitivity dimensions, competitive advantage within China's enterprise landscape has also been shown to depend heavily on organizational and institutional mediators—such as dynamic capabilities, governance, and data-regulatory context—rather than technology investment alone, underscoring that firm-level strategic capacity is shaped by more than market or technological opportunity alone (Chen & Atento, 2026).

The study was motivated by a gap between two related streams of inquiry. Sustainability-oriented research commonly emphasizes economic, social, and environmental opportunities, while resilience research frequently concentrates on disruption management, infrastructure, operational continuity, and supply-network coordination. The integration of these concerns is especially important in cross-border trade, where environmental and social objectives must be realized through supply networks exposed to operational and institutional uncertainty. Ivanov (2018) demonstrated that sustainability decisions can either strengthen or weaken resilience depending on supply-chain design, while Rajesh (2021) showed that firms must manage trade-offs among economic performance, environmental sustainability, and resilience rather than optimize these objectives in isolation.

Accordingly, examining sustainability-driven opportunities and supply-chain resilience together provides a more integrated view of enterprise strategy in China–Southeast Asia trade. The present study evaluates sustainability-driven opportunities through economic, social, and environmental dimensions and examines resilience through infrastructure, operational, and collaborative dimensions. By testing the association between these constructs, the study seeks to provide an empirical basis for strategies that support sustainable growth while strengthening the capacity of supply chains to withstand and respond to disruption.

## **Objectives of the Study**

This study aimed to examine sustainability-driven opportunities and the level of supply-chain resilience in China–Southeast Asia import and export trade and to propose optimization strategies for strengthening supply-chain resilience and promoting sustainable trade development. Specifically, it sought to:

1. determine the level of sustainability-driven opportunities in terms of economic, social, and environmental opportunities;
2. assess the level of supply-chain resilience in terms of infrastructure, operational, and collaborative resilience;
3. determine the significant relationship between sustainability-driven opportunities and supply-chain resilience; and
4. propose optimization strategies to strengthen supply-chain resilience and maximize sustainability-driven trade opportunities.

## **2. Review of Related Literature**

### ***2.1 Sustainability-Driven Trade Opportunities***

The study conceptualizes sustainability-driven trade opportunities through the Triple Bottom Line framework, which emphasizes the simultaneous creation of economic, social, and environmental value. Elkington (1997) argued that organizational performance should not be evaluated exclusively through financial outcomes, but should also account for

people and the planet. In international trade, this framework provides a basis for understanding sustainability as a source of opportunity rather than merely a compliance obligation.

The economic dimension concerns profitability, market creation, competitiveness, industrial upgrading, and long-term business viability. Sustainability-oriented practices may open access to new markets, encourage innovation, and strengthen strategic positioning. Agyabeng-Mensah et al. (2025) showed that sustainable supply-chain practices can influence firm performance through the interaction of supply-chain practices and organizational mechanisms, reinforcing the view that sustainability can have direct strategic relevance to enterprise outcomes. At the enterprise level, similar dynamics have been observed among Philippine family-owned SMEs, where value-innovation strategies integrating sustainability-oriented practices as a differentiating element have been used to redesign value creation beyond price-based competition (Atento et al., 2025).

The social dimension concerns employee well-being, ethical conduct, stakeholder relationships, reputation, and community engagement. Sustainable trade can generate social value when enterprises incorporate responsible business conduct, workforce development, and stakeholder considerations into cross-border operations. The OECD (2021, 2023) emphasizes responsible sourcing, human rights, environmental stewardship, ethical governance, and due diligence as integral components of sustainable value chains.

The environmental dimension focuses on resource efficiency, waste reduction, low-carbon operations, green innovation, and environmentally responsible production and logistics. In ASEAN, the evolution of green shipping illustrates how environmental objectives are increasingly connected with technological development, digitalization, regional cooperation, and new investment requirements (Nguyen et al., 2026). These developments indicate that environmental sustainability can generate both ecological and organizational opportunities when integrated into supply-chain strategy.

## *2.2 Supply Chain Resilience in Cross-Border Trade*

Supply-chain resilience refers to the capability of a supply network to prepare for disruption, maintain essential operations, recover from adverse events, and adapt to changing conditions. Evidence from the Philippine manufacturing sector similarly cautions that aggregate investment indicators such as foreign direct investment inflows carry limited standalone value for monitoring manufacturing performance, pointing instead toward analytics frameworks that incorporate sectoral allocation and absorptive-capacity indicators relevant to supply-chain resilience and system stability (Refozar et al., 2026). In cross-border trade, resilience is particularly relevant because firms operate across transportation systems, markets, regulatory environments, and supplier networks that can transmit disruption across organizational and national boundaries.

Sheffi (2015) emphasized that resilience is built through flexibility, redundancy, diversified sourcing, visibility, and rapid decision-making. These capabilities allow organizations to absorb shocks and recover while maintaining customer service and business continuity. Secchi and Gili (2024) similarly describe contemporary logistics systems as being shaped by geopolitical, economic, technological, and climate-related transitions, increasing the need for diversified and resilient value chains.

Resilience also depends on relational and information capabilities. Trust, timely information sharing, cooperation with suppliers and logistics providers, and coordinated contingency responses can determine whether firms are able to respond effectively to disruption. Ye et al. (2025) further demonstrated that regional economic interdependence can affect trade stability and vulnerability, indicating that resilience cannot be understood solely at the level of the individual enterprise. Related evidence from Philippine manufacturing further indicates that supply-chain resilience is not uniformly distributed even within the same national context, with firms differing in resilience according to their level of digital financial inclusion (Atento et al., 2026).

## *2.3 Integrating Sustainability and Supply Chain Resilience*

Recent literature increasingly treats sustainability and resilience as interdependent rather than separate strategic objectives. Ivanov (2018) demonstrated through simulation modeling that sustainability initiatives can either strengthen or weaken resilience depending on supply-chain configuration. Sustainable single sourcing, for example, may increase

exposure to a ripple effect when disruptions propagate through a tightly interconnected network, whereas protection of critical facilities and operational nodes can improve both resilience and sustainability.

Rajesh (2021) likewise argued that firms must balance economic performance, environmental sustainability, and resilience when making supply-chain decisions. Excessive emphasis on cost minimization can reduce resilience, while investments in resilient capabilities may support long-term sustainability by limiting disruption losses and improving resource utilization. This suggests that sustainability and resilience require integrated decision-making rather than independent optimization.

Responsible business conduct provides another link between the two constructs. OECD guidance identifies environmental stewardship, human rights, ethical governance, responsible sourcing, stakeholder engagement, and supply-chain due diligence as mechanisms for identifying risks before they develop into operational disruptions (OECD, 2021, 2023). Zein and Safitri (2026) similarly connect ESG integration with transparency, stakeholder trust, efficiency, and resilience in supply-chain settings.

## ***2.4 Synthesis and Research Gap***

The reviewed literature shows that sustainability can create economic, social, and environmental value, while resilience provides the infrastructure, operational adaptability, and collaborative capability needed to protect that value under uncertain conditions. Existing scholarship nevertheless tends to emphasize either sustainability outcomes or disruption-oriented resilience. Comparatively less attention has been given to directly examining whether enterprises that perceive stronger sustainability-driven opportunities also report stronger resilience capabilities within China–Southeast Asia import and export trade. The present study addresses this gap by empirically relating economic, social, and environmental sustainability opportunities to infrastructure, operational, and collaborative resilience, thereby providing a basis for enterprise-level optimization strategies.

## **3. Methodology**

### ***3.1 Research Design***

The study employed a descriptive-correlational research design. The descriptive component assessed sustainability-driven opportunities across economic, social, and environmental dimensions and supply-chain resilience across infrastructure, operational, and collaborative dimensions. The correlational component examined the association between sustainability-driven opportunities and supply-chain resilience without manipulation of the study variables.

### ***3.2 Participants and Sampling***

The participants were 200 managers or representatives of enterprises engaged in China–Southeast Asia import and export trade. Quota sampling was used to ensure representation across the selected trading economies. The sample comprised 50 respondents from China and 30 respondents from each of Indonesia, Malaysia, Thailand, Vietnam, and Singapore. Participating enterprises were involved in sectors associated with sustainability-oriented trade and supply-chain operations, including new energy, manufacturing, logistics, and cross-border e-commerce.

### ***3.3 Research Instrument***

Data were collected using a self-designed structured questionnaire. The instrument measured sustainability-driven opportunities through three five-item dimensions—economic, social, and environmental opportunities—and supply-chain resilience through three five-item dimensions—infrastructure, operational, and collaborative resilience. Responses were recorded using a four-point Likert scale from 1 (Strongly Disagree) to 4 (Strongly Agree).

Internal consistency was examined using Cronbach's alpha. Reliability coefficients were  $\alpha = .777$  for economic opportunities,  $\alpha = .728$  for social opportunities, and  $\alpha = .836$  for environmental opportunities. For supply-chain resilience, the coefficients were  $\alpha = .752$  for infrastructure resilience,  $\alpha = .807$  for operational resilience, and  $\alpha = .866$  for collaborative resilience. All six dimensions therefore demonstrated acceptable to good internal consistency. A Kaiser–Meyer–Olkin value of .78 was also reported as evidence of sampling adequacy for factor-analytic assessment.

### 3.4 Data Gathering Procedure

The research process involved identifying the research problem and objectives, reviewing relevant literature, designing and refining the questionnaire, and undertaking validation, pilot testing, and reliability assessment. The questionnaire was distributed through online and offline channels, including email, WeChat, and on-site visits. Responses were screened and prepared for statistical analysis after collection. The manuscript states that the study was submitted to the University Ethics Review Committee for ethical approval before data collection.

### 3.5 Data Analysis

Weighted mean and ranking were used to assess the levels of sustainability-driven opportunities and supply-chain resilience. Spearman's rho was employed to determine the relationship between the sustainability and resilience dimensions. The four-point scale was interpreted as follows: 3.50–4.00 = Strongly Agree; 2.50–3.49 = Agree; 1.50–2.49 = Disagree; and 1.00–1.49 = Strongly Disagree. Statistical analyses were conducted using JAMOVI version 2.6, with alpha levels of .05 and .01.

### 3.6 Ethical Considerations

Participation was voluntary and respondents were informed of the research purpose. Confidentiality and anonymity were maintained by not requiring names or other identifying personal information. The study also stated that no coercion or inducement was used and that respondent safety and protection from harm were considered throughout the research process.

## 4. Results and Discussion

### 4.1 Sustainability-Driven Opportunities

The respondents generally recognized sustainability as a source of organizational opportunity. As summarized in Table 1, environmental opportunities obtained the highest mean, followed by social and economic opportunities. The narrow difference among the three dimensions indicates that sustainability was perceived as a relatively balanced combination of environmental, social, and economic value rather than as a single-purpose concern.

**Table 1. Summary of Sustainability-Driven Opportunities**

| Dimension                   | Mean | Interpretation | Rank |
|-----------------------------|------|----------------|------|
| Environmental Opportunities | 3.30 | Agree          | 1    |
| Social Opportunities        | 3.21 | Agree          | 2    |
| Economic Opportunities      | 3.19 | Agree          | 3    |
| Composite Mean              | 3.23 | Agree          | —    |

Within the economic dimension, sustainable business practices creating new market opportunities and sustainability enhancing competitive advantage both received means of 3.30, while operational cost reduction received the lowest economic mean of 3.06. This pattern indicates that respondents perceived the strategic and market benefits of sustainability more strongly than immediate cost savings. Sustainability investments may require initial expenditures and process adjustments before financial returns become visible, consistent with the broader need to balance efficiency, resilience, and long-term value creation (Rajesh, 2021; Secchi & Gili, 2024).

Within the social dimension, ethical business practices enhancing corporate reputation received the highest mean of 3.40, whereas sustainability improving relationships with business partners received the lowest mean of 3.03. The results indicate that sustainability's social benefits may be more immediately visible in reputation, employee well-being, customer trust, and community engagement than in interorganizational relationships. This distinction is important because responsible supply chains depend on stakeholder engagement and due diligence across organizational boundaries (OECD, 2021, 2023).

Environmental opportunities obtained the highest dimensional mean. Waste reduction was the highest-rated environmental indicator at 3.37, followed by environmentally responsible operations and long-term opportunities from green initiatives, both at 3.33. Sustainable resource utilization improving business performance obtained the lowest

environmental mean of 3.23. The result suggests that direct environmental benefits are more visible to respondents than longer-term performance returns. The broader ASEAN transition toward greener shipping and logistics similarly requires investment, technology sharing, digitalization, and regional cooperation rather than reliance on immediate gains alone (Nguyen et al., 2026).

#### 4.2 Supply Chain Resilience

The respondents also reported generally favorable assessments of supply-chain resilience. Collaborative resilience obtained a composite mean of 3.23, while infrastructure and operational resilience each obtained a composite mean of 3.17.

**Table 2. Summary of Supply Chain Resilience**

| Dimension                 | Composite Mean | Interpretation |
|---------------------------|----------------|----------------|
| Infrastructure Resilience | 3.17           | Agree          |
| Operational Resilience    | 3.17           | Agree          |
| Collaborative Resilience  | 3.23           | Agree          |

For infrastructure resilience, sufficient warehouse and storage capacity during disruptions received the highest item mean of 3.39, whereas reliable logistics infrastructure received the lowest mean of 2.87. The findings suggest that firms perceive meaningful buffering capacity through warehousing and information systems but are comparatively less confident in overall logistics reliability. This is strategically important in regional trade because value-chain resilience increasingly depends on redundancy, diversified transport options, and the ability to respond to geopolitical, economic, and technological change (Secchi & Gili, 2024).

Operational resilience obtained a composite mean of 3.17. The lowest operational indicator discussed was effective management of risks affecting supply-chain performance at 2.99, while rapid adaptation to unexpected disruptions obtained 3.19. These results indicate that firms possess continuity capabilities but may still need stronger formal mechanisms for risk identification, contingency planning, and rapid response.

Collaborative resilience obtained the highest internally consistent composite mean at 3.23. Trust among supply-chain partners received the strongest collaborative assessment at 3.33, while maintaining supplier relationships, collaboration with logistics providers, and working with partners during disruptions each received 3.20. The results indicate that trust and information sharing are recognized as important resilience mechanisms, although these relationships can be strengthened further through formalized contingency planning, shared risk assessment, and coordinated recovery procedures. This interpretation is consistent with the strategic importance of stakeholder trust and supply-chain transparency identified by Zein and Safitri (2026).

#### 4.3 Relationship Between Sustainability-Driven Opportunities and Supply Chain Resilience

Spearman's rho analysis showed that all nine relationships between the three sustainability dimensions and the three resilience dimensions were positive and statistically significant at  $p < .001$ . Correlation coefficients ranged from  $\rho = .490$  to  $\rho = .837$ , demonstrating moderate to very strong associations across the matrix.

**Table 3. Relationship Between Sustainability-Driven Opportunities and Supply Chain Resilience**

| Sustainability Dimension    | Resilience Dimension      | Spearman's $\rho$ | p      |
|-----------------------------|---------------------------|-------------------|--------|
| Economic Opportunities      | Infrastructure Resilience | .837              | < .001 |
| Economic Opportunities      | Operational Resilience    | .729              | < .001 |
| Economic Opportunities      | Collaborative Resilience  | .757              | < .001 |
| Social Opportunities        | Infrastructure Resilience | .743              | < .001 |
| Social Opportunities        | Operational Resilience    | .490              | < .001 |
| Social Opportunities        | Collaborative Resilience  | .801              | < .001 |
| Environmental Opportunities | Infrastructure Resilience | .615              | < .001 |
| Environmental Opportunities | Operational Resilience    | .597              | < .001 |
| Environmental Opportunities | Collaborative Resilience  | .713              | < .001 |

Economic opportunities demonstrated the strongest association with infrastructure resilience ( $\rho = .837$ ), followed by collaborative resilience ( $\rho = .757$ ) and operational resilience ( $\rho = .729$ ). These results indicate that enterprises

perceiving greater economic value from sustainability also tended to report stronger capabilities for maintaining infrastructure, operations, and supply-chain relationships.

For social opportunities, the strongest relationship was with collaborative resilience ( $\rho = .801$ ). The association with infrastructure resilience was also strong ( $\rho = .743$ ), while the relationship with operational resilience was the weakest in the entire matrix ( $\rho = .490$ ), although it remained statistically significant. The pattern is consistent with the relational character of social sustainability, which emphasizes trust, stakeholder relationships, communication, and responsible business conduct.

Environmental opportunities were positively related to collaborative resilience ( $\rho = .713$ ), infrastructure resilience ( $\rho = .615$ ), and operational resilience ( $\rho = .597$ ). These findings suggest that environmentally oriented opportunities are associated not only with physical and technical capabilities but also with interorganizational coordination. The direction of the results is consistent with research emphasizing cooperation and technology sharing in the development of sustainable and resilient logistics (Nguyen et al., 2026).

Because the study used a descriptive-correlational design, the results establish association rather than causation. They do not demonstrate that sustainability opportunities cause supply-chain resilience or that resilience causes sustainability opportunities.

#### 4.4 Optimization Strategies Derived from the Findings

The proposed strategies were derived from the comparatively weaker areas identified in the descriptive results, particularly cost efficiency, sustainability investment, supply-chain risk management, and disruption responsiveness. The extensive thesis-style action plan was therefore consolidated into a journal-oriented strategic framework. This is consistent with policy-level evidence from the Philippines showing that enterprise crisis-response instruments—such as concessional credit support for viable but financially stressed MSMEs—function as complements rather than substitutes for broader relief measures under external, cost-push shock conditions, reinforcing the need for integrated risk-management and disruption-response planning at the enterprise level (Atento et al., 2026).

**Table 4. Proposed Optimization Strategies for Sustainability and Supply Chain Resilience**

| Key Results Area                     | Identified Concern                                                                    | Proposed Strategic Response                                                                                                              |
|--------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Sustainability cost efficiency       | Operational cost reduction received the lowest economic-opportunity assessment.       | Establish sustainability cost-efficiency programs and regular cost-performance monitoring.                                               |
| Sustainability investment and growth | Economic returns were perceived less strongly than environmental and social benefits. | Prioritize sustainable technologies, processes, products, services, and market development.                                              |
| Supply-chain risk management         | Risk-management effectiveness received the lowest operational-resilience assessment.  | Establish integrated risk identification, assessment, mitigation, contingency planning, and monitoring.                                  |
| Disruption responsiveness            | Rapid adaptation remained an area for strengthening.                                  | Establish rapid-response protocols, defined responsibilities, escalation procedures, alternative arrangements, and periodic simulations. |

#### 4.5 Discussion

Three broader conclusions emerge from the findings. First, sustainability is perceived as a multidimensional enterprise opportunity rather than solely an environmental obligation. Environmental opportunities ranked first, but social and economic opportunities were only slightly lower. The pattern supports the Triple Bottom Line view that sustainability creates value across multiple organizational domains (Elkington, 1997) and is consistent with evidence linking sustainable supply-chain practices with organizational performance (Agyabeng-Mensah et al., 2025).

Second, resilience depends on a combination of physical, operational, and relational capabilities. The findings identify strengths in warehousing, trust, and information sharing while indicating comparatively weaker performance in logistics reliability and risk management. This pattern supports Sheffi's (2015) view that resilience requires flexibility,

visibility, redundancy, diversified arrangements, and rapid decision-making. It also aligns with Ivanov's (2018) systems perspective, in which the structure of supply networks influences the propagation and management of disruption. Comparable adaptive dynamics have been documented among Philippine legacy enterprises confronting digital disruption, where sustaining relevance required deliberate capability upgrading—strengthening digital customer experience, tightening channel integration, and building partnership ecosystems—rather than relying solely on established brand and market position (Atento & Atento, 2026).

Third, the correlation matrix provides the study's strongest empirical contribution. Every sustainability dimension was positively associated with every resilience dimension. The particularly strong relationships between economic opportunities and infrastructure resilience and between social opportunities and collaborative resilience are theoretically coherent: economic benefits from sustainability may coexist with investment in infrastructure and capability, whereas social sustainability is closely tied to trust, stakeholder relations, and cooperation. Environmental opportunities also showed meaningful relationships across all resilience dimensions.

The results therefore support an integrated strategic interpretation of sustainability and resilience. They should not be treated as separate programs in which sustainability addresses environmental or social concerns while resilience addresses disruption. Rajesh (2021) argues that sustainability, economic performance, and resilience require balanced decision-making, while OECD guidance emphasizes responsible business conduct and due diligence as mechanisms that can reduce vulnerabilities while supporting long-term value creation (OECD, 2021, 2023). For enterprises engaged in China–Southeast Asia trade, the implication is that sustainability investment, supply-chain risk management, infrastructure planning, and collaborative relationships should be designed as mutually reinforcing components of enterprise strategy.

## **5. Conclusions, Recommendations, and Implications**

### **5.1 Conclusions**

Sustainability-driven opportunities were generally recognized by enterprises engaged in China–Southeast Asia import and export trade. Environmental opportunities received the highest assessment, followed by social and economic opportunities, indicating that respondents perceived sustainability as a multidimensional source of organizational value.

Supply-chain resilience was likewise generally evident across infrastructure, operational, and collaborative dimensions. The results indicate that participating organizations possess capabilities that support continuity, adaptation, and coordination, while logistics reliability, risk management, and disruption response remain areas for further strengthening.

Sustainability-driven opportunities were positively and significantly associated with all three dimensions of supply-chain resilience. All nine relationships were significant at  $p < .001$ , with coefficients ranging from  $\rho = .490$  to  $\rho = .837$ . These findings support an integrated strategic perspective in which sustainability opportunities and resilience capabilities coexist and reinforce the capacity of enterprises to sustain value creation under uncertain conditions.

The findings provide an empirical basis for optimization strategies centered on sustainability cost efficiency, strategic sustainability investment, integrated supply-chain risk management, and rapid disruption response.

### **5.2 Recommendations**

Enterprises should improve the cost efficiency of sustainability initiatives by monitoring energy, materials, transportation, waste-management, and other operating costs associated with sustainability programs and evaluating whether these initiatives generate measurable savings over time.

Organizations should prioritize sustainability investments with clear strategic value, including sustainable technologies, processes, products, services, and market-development opportunities that can strengthen long-term competitiveness.

Greater emphasis should be placed on integrated supply-chain risk management through regular risk identification, assessment, prioritization, monitoring, mitigation, and contingency planning, particularly for supplier disruptions, transportation delays, material shortages, and cross-border trade interruptions.

Enterprises should establish clear disruption-response protocols, communication channels, escalation procedures, alternative sourcing and transport arrangements, and periodic simulation exercises to improve preparedness and response speed.

Future research may use larger samples, additional countries, longitudinal designs, and other industry sectors to determine whether the observed sustainability–resilience relationships remain consistent across different organizational and regional contexts.

### **5.3 Implications of the Study**

Managerially, the study suggests that sustainability and resilience should be incorporated into a common strategic framework. Sustainability should not be confined to compliance or environmental programs, while resilience should not be treated solely as crisis response. Both can inform investment decisions, operations management, supplier relationships, and long-term business planning.

Operationally, the findings indicate that resilience depends on more than physical resources. Infrastructure investments should be complemented by stronger risk-monitoring systems, contingency planning, alternative sourcing and transportation arrangements, and clearly defined disruption-response procedures.

Collaboratively, the strong relationship between social opportunities and collaborative resilience highlights the importance of trust, stakeholder relationships, information sharing, and coordination across supply networks. Formal mechanisms for shared risk assessment and joint recovery planning can help convert relational strength into operational resilience.

The study should be interpreted within its methodological boundaries. Because it employed quota sampling and a descriptive-correlational design, the findings establish association rather than causation and should not be generalized automatically to all enterprises or all China–Southeast Asia trading contexts.

## **6. References**

- Agyabeng-Mensah, Y., Oloruntoba, R., Earnest, J., & Mohammadi, H. (2025). Sustainable supply chain management and performance outcomes: Supply chain practice view and mediated moderation perspectives. *Business Strategy and the Environment*, 34(7), 8237–8258. <https://doi.org/10.1002/bse.70023>
- Atento, A. G., & Atento, R. G. (2026). Legacy retail under digital disruption: Strategic insights from National Book Store’s omnichannel transition in the Philippines. *Journal of Enterprise Strategy and Management Innovation*, 1(1). <https://doi.org/10.65166/nny9z718>
- Atento, A. G., Quinto, L. F., & Atento, R. G. O. (2026). Relief or recovery? A comparative policy assessment of household cash transfers and MSME credit support as crisis-response instruments in the Philippines. *Asian Financial Economics and Policy*, 1(1). <https://doi.org/10.65166/p4hr6f59>
- Atento, R. G. (2025). The credibility imperative 2025: Governance integrity, economic resilience, and strategic adaptability in Philippine diplomacy. *International Journal of Health & Business Analytics*, 1(2). <https://doi.org/10.65166/6amaz997>
- Atento, R. G., Teodosio, G. M., Boa, R. A., Malijan, A., Malolos, Q. A., Merciales, P. A., & Ricablanca, P. J. (2025). Creating a blue ocean for family-owned SMEs: Value innovation, digital transformation, and sustainability in the case of Ivan Color Paint Center. *International Journal of Health & Business Analytics*, 1(2). <https://doi.org/10.65166/x4kqee91>
- Atento, R. G. O., Quinto, L. F., Espelita, C. A. M. H., & Atento, A. G. (2026). Digital financial inclusion and supply chain resilience in manufacturing: A comparative analysis across the digital access divide. *Journal of Enterprise Strategy and Management Innovation*, 1(3). <https://doi.org/10.65166/dg5t7027>

- Atento, R. G. O., Quinto, L. F., Espelita, C. A. M. H., Atento, A. G., Teodosio, G. M., Feng, T., Tan, Q., & Chen, S. (2026). Global shocks, local ventures: Oil prices, dollar strength, and China's economic shifts as determinants of entrepreneurial activity in the Philippines, 2006–2022. *Journal of Enterprise Strategy and Management Innovation*, 1(3). <https://doi.org/10.65166/dyv5eh53>
- Chen, S., & Atento, R. G. (2026). Big data as a strategic asset: Competitive advantage, business model transformation, and managerial intelligence in Chinese enterprises. *Journal of Enterprise Strategy and Management Innovation*, 1(2). <https://doi.org/10.65166/mnn2n380>
- Elkington, J. (1997). *Cannibals with forks: The triple bottom line of 21st century business*. Capstone Publishing.
- Ivanov, D. (2018). Revealing interfaces of supply chain resilience and sustainability: A simulation study. *International Journal of Production Research*, 56(10), 3507–3523. <https://doi.org/10.1080/00207543.2017.1343507>
- Lantin-Magana, L. M., & Atento, R. G. O. (2026). Digital reach, consumption, and equity market deepening: Evidence from ASEAN-5. *Asian Financial Economics and Policy*, 1(1). <https://doi.org/10.65166/nxnfqv94>
- Nguyen, T. K. T., Sirichokpokin, P., Autsadee, Y., Netirith, N., Saengsupavanich, C., & Vikaliana, R. (2026). Green shipping evolution in ASEAN countries. *Australian Journal of Maritime and Ocean Affairs*. <https://doi.org/10.1080/18366503.2026.2699477>
- Organisation for Economic Co-operation and Development. (2021). *Building more resilient and sustainable global value chains through responsible business conduct*. OECD Publishing. <https://doi.org/10.1787/4e08c886-en>
- Organisation for Economic Co-operation and Development. (2023). *OECD guidelines for multinational enterprises on responsible business conduct*. OECD Publishing. <https://doi.org/10.1787/81f92357-en>
- Rajesh, R. (2021). Optimal trade-offs in decision-making for sustainability and resilience in manufacturing supply chains. *Journal of Cleaner Production*, 313, 127596. <https://doi.org/10.1016/j.jclepro.2021.127596>
- Refozar, R. F., Atento, R. G. O., Atento, A. G., & Espelita, C. A. M. H. (2026). Foreign direct investment and manufacturing performance in the Philippines: Evidence from WDI, 2000–2024. *Asian Financial Economics and Policy*, 1(1). <https://doi.org/10.65166/qasnh058>
- Secchi, C., & Gili, A. (Eds.). (2024). *Logistics in transition: Exploring geopolitical, economic, and technological trends*. Ledizioni.
- Sheffi, Y. (2015). *The power of resilience: How the best companies manage the unexpected*. MIT Press.
- Ye, T., Xie, J., & Hao, Y. (2025). Research on China's green economy growth to partner countries trade's sensitivity and vulnerability. *Clean Technologies and Environmental Policy*, 27(13), 9125–9138. <https://doi.org/10.1007/s10098-025-03251-4>
- Zein, M., & Safitri, Y. D. (2026). Enhancing halal supply chain sustainability through ESG integration: A case study in Taiwan's food sector. In M. Ghalih & C.-H. Chang (Eds.), *Integrating halal principles into modern supply chain strategies* (pp. 207–244). IGI Global. <https://doi.org/10.4018/979-8-3373-4197-2.ch007>