

# Advanced Process Optimization in Logistics and Supply Chain Management

Ngoc-Ai-Thy Nguyen <sup>1,\*</sup>, Chia-Nan Wang <sup>2,\*</sup>  and Thanh-Tuan Dang <sup>3</sup> 

<sup>1</sup> Department of Logistics and Supply Chain Management, Faculty of Business Administration, Industrial University of Ho Chi Minh City, Ho Chi Minh 70000, Vietnam

<sup>2</sup> Department of Industrial Engineering and Management, National Kaohsiung University of Science and Technology, Kaohsiung 80778, Taiwan

<sup>3</sup> Department of Logistics and Supply Chain Management, Hong Bang International University, Ho Chi Minh 72320, Vietnam; tuandt@hiu.vn

\* Correspondence: nguyennngocaihy@iuh.edu.vn (N.-A.-T.N.); cn.wang@nkust.edu.tw (C.-N.W.)

## 1. Introduction

The competitive landscape for businesses is expanding rapidly, keeping pace with the swift development of the global economy. However, this transformation is unfolding in a world marked by volatility and disruption, including the lingering aftershocks of the COVID-19 pandemic and a resurgence of trade tension such as new tariff measures imposed by major economies. Against this backdrop, businesses are eager to further cut logistics costs. Logistics service providers, in response, are moving beyond traditional roles: offering to redesign entire supply chains, optimize operational solutions, and coordinate transportation and supply chain management services more strategically. Meanwhile, there is growing urgency around environmental concerns and sustainable development, particularly through circular economy models [1]. In this regard, fresh layers of complexity are added to supply chain operations, which causes supply chain structures to push businesses to continuously refine their processes and regulations to stay competitive. Amid these challenges, the rise of Industry 4.0 and digital transformation tools such as AI, big data, and smart systems are fundamentally reshaping logistics and supply chain landscapes.

Logistics includes key operational activities such as transportation, warehousing, inventory management, and last-mile delivery, which ensure the efficient movement and storage of goods, services, and related information [2]. These logistics activities play a vital role in meeting customer needs, and help businesses to win markets by ensuring that products arrive at the right place, at the right time, and with the right quality. Supply chain management (SCM), on the other hand, builds on this foundation by adopting a broader, more strategic perspective. SCM coordinates all parties, from suppliers and manufacturers to distributors and end customers, with the goal of optimizing efficiency, creating value, and improving responsiveness. While logistics remains the core component, SCM also includes procurement, production planning, demand forecasting, and relationship management [3]. Rather than viewing logistics and SCM as separate functions, leading companies view them as closely intertwined elements of a broader strategy for operational excellence. Understanding the differences and synergies between the two is critical for optimizing workflows and driving overall performance. In light of this, process optimization has become more important than ever across the supply chain in general, and logistics in particular. Process optimization involves scrutinizing and refining logistics and supply chain operations to achieve greater efficiency, lower costs, better service quality, and greater responsiveness. The implementation of these processes ensures that goods move seamlessly from origin to



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destination while meeting customer needs and strategic business objectives [4]. At a higher level, supply chain optimization focuses on designing global networks and balancing the delicate and dynamic trade-offs between cost and service. In parallel, logistics process optimization addresses tactical concerns such as transportation planning, warehouse layout, and inventory rotation [5,6]. Despite their different scopes, both approaches share the unified goal of increasing agility, eliminating inefficiencies, and equipping organizations with what is needed to thrive in dynamic and uncertain environments.

The benefits of logistics and supply chain optimization are numerous and are supported by various existing studies. At the operational level, optimization helps to reduce costs by lowering fuel consumption, minimizing inventory levels, and improving transportation efficiency [7]. It enhances overall performance by streamlining workflows, reducing waste, and eliminating bottlenecks [8]. Improved process visibility and accuracy also lead to better customer satisfaction through on-time, in-full deliveries and more responsive service. Furthermore, optimization supports sustainability goals by reducing emissions, adopting renewable energy, and encouraging circular practices [9]. Not only that; even in uncertain environments and unprecedented crises, businesses that implement efficient process optimization in their logistics and supply chain activities can enhance their competitiveness, respond better to market fluctuations, and obtain a more resilient system [10].

Data analytics supports decision-making and provides insights into supply chain performance. Advanced planning systems improve operations, with 76% of logistics companies implementing them by 2023 [11]. Notably, artificial intelligence (AI) and machine learning are transforming logistics by giving predictive insights. These technologies use large volumes of data to estimate demand and optimize inventory levels. AI recognizes patterns in delivery times and transportation routes, allowing businesses to make informed decisions; meanwhile, machine learning algorithms help to improve logistics operations by learning from past data. Over time, these approaches can lead to better customer satisfaction by ensuring that deliveries are on time and minimizing stock-outs [12].

Automation is changing the way logistics operations are carried out, helping businesses to improve efficiency and cut down on human mistakes. Many companies now use automated systems for inventory management, shipment tracking, and transportation planning. These systems make the supply chain more visible, which means that companies can react faster when changes or disruptions happen [13]. Automation also plays a crucial role in reducing labor costs and improving the accuracy of order fulfillment. Notable improvements are reported in operational performance after implementing automation strategies. Among the most effective ways to drive supply chain efficiency is the automation of routine tasks, freeing up employees to concentrate on more strategic activities. Manufacturers often set up systems to automatically reorder raw materials when stock levels fall below a certain point. They also update customers about delivery status without having to do it manually.

Beyond basic automation tasks, companies are now starting to explore more advanced tools like scenario modeling, logistics network modeling, and robotics. According to Ernst & Young's study, 45% of supply chains will be entirely autonomous by 2035, thanks to technology like robots, self-driving trucks for production and distribution, and computerized planning [14]. These autonomous systems are expected to take on a greater role across all stages of the supply chain, enabling predictive and adaptive decision-making.

In this era of technological evolution, businesses are adapting their logistics and supply chain operations through the adoption of digital technologies, process optimization strategies, and sustainability initiatives. Organizations are integrating automation, data analytics, and green practices into their operations. According to global KPMG research carried out up until the end of 2022, 60% of respondents want to invest in digital technology

to improve supply chain processes, particularly data integration and analytics [14]. This is a change for many companies that have previously focused their IT budgets on back-office tasks and customer-facing platforms. In response, some major supply chain management (SCM) technology providers are integrating capabilities such as AI, Internet of Things (IoT) sensors, and predictive analytics into their SCM platforms, with the end goal of providing a seamless experience for manufacturers and their suppliers, warehouses, distribution, and retail partners [15]. These efforts are helping to strengthen supply chain performance, improve operational efficiency, and support environmentally responsible practices. Industries continue to collaborate with technology providers, partners, and stakeholders at the global, regional, and local levels. Hence, this Special Issue provided a unique opportunity to examine how process optimization, technological innovation, and sustainable development are influencing logistics and supply chain systems across sectors, helping to inform further research and practice.

This Special Issue, which features contributions from researchers and practitioners from diverse backgrounds, focuses on the advancement of logistics and supply chain management through process optimization, digital transformation, and sustainable practices. The papers offer different approaches to improving resilience, operational performance, and environmental outcomes. Together, they could help build a more informed foundation for decision-making and encourage future progress in the evolving field of supply chain management.

## 2. Highlights of 16 Papers Featured in This Special Issue

These days, the demand for new urban logistics models is constantly increasing due to the increasing complexity of the market, in order to fully meet the tighter delivery schedules, increasing distribution costs, and inefficiencies. As the Physical Internet (PI) helps us to cope with the rise in urban logistical demands by exploring same-level and cross-level paths, one paper in this Special Issue adopts mathematical modeling and simulation methods to optimize urban freight distribution and enhance the efficiency of city logistics systems. In that regard, Li et al. suggested a PI-based urban logistical distribution model to minimize transportation costs. The PI approach is conceptualized as a smart logistics network, modularizing container transit to promote greater efficiency, environmental sustainability, and system resilience. By unifying transportation modes and standardizing logistics flows, the PI approach aims to reduce distribution costs, lower risks, maintain the integrity of the logistical transportation process, and create highly interconnected and flexible urban logistics networks. This model explores the functional aspects of operational problems in city logistics, realized through a hierarchical structure characterized by different cost specifications. The study provides better integration and cooperation between city logistics warehouses and a higher utilization level of logistical infrastructure. The authors found that the PI logistics model has much lower distribution costs than a standard logistics model. The flexibility and economic benefits develop proportionally to the amount of distribution infrastructure and disruptions caused by crises. This may invite further research in those areas, but also calls for concrete policy action to enhance the robustness and optimization of PI-based urban logistics systems, particularly under the challenges of multi-criteria decision-making, NP-hard problem complexity, and operational uncertainties. To perform better, it is necessary to develop more resilient models that can dynamically adapt to disruptions while ensuring efficient and sustainable logistics performance. To this end, strengthening multi-layer decision-making frameworks within the introduced concept will be key, including investments in flexible infrastructure, real-time data integration, and risk-informed urban logistics planning.

Following the discussion on urban distribution optimization, the next contribution shifts attention to inventory system design and selection, a supply chain's link, which plays a critical role in logistics efficiency. Sbai et al. use simulation-based methods to support decision-making in selecting multi-echelon inventory systems within pharmaceutical distribution networks. Given the current complexity of supply chains, multi-level inventory management is becoming increasingly challenging, yet offering opportunities to control interdependencies more effectively. To this end, the authors develop a simulation-based approach to guide decision-makers in selecting and validating multi-level distribution inventory systems. This paper once again emphasizes that traditional analytical models are no longer sufficient to address these challenges and underpins how simulation can assess and quantify the impact of different inventory strategies on supply chain performance. In this context, the paper provides valuable insights through a four-step approach, which includes the characterization of the current supply chain, an inventory system modeling and simulation approach to compare alternatives, and application validation through a real-world case study.

Beyond managing inventory, controlling risks within logistics and manufacturing systems emerges as another essential focus. Qiu and Zhang focus on risk management within manufacturing systems by developing a modified Failure Modes and Effects Analysis (FMEA) approach to predict and manage disturbances in job shop scheduling environments. They found that a missing gap is concerned with how disturbances should be prioritized in a way that directly impacts operational outcomes such as cost, quality, and service, rather than relying solely on conventional failure mode classification. The paper complements previous classifications of disturbances across resource types, as suggested by Sawhney et al. [16], as well as prior studies applying FMEA and FAHP techniques in isolated contexts. The originality of the paper is the integrated approach of a risk vector and a hierarchical classification of disturbances. To put it another way, they combine vector projections, fuzzy AHP with triangle and trapezoidal membership functions, and a differentiation index for clearer prioritization. The research identifies a gap that challenges the effectiveness of traditional FMEA methods in complex, multi-resource job shop environments. Their findings call for further research on how disturbance correlations can be more accurately captured and represented within the proposed framework. While a new mathematical model is proposed for the better visualization, differentiation, and management of critical disturbances, its effectiveness is still limited by the accuracy of the disturbance knowledge base and the generalizability of the model across different manufacturing contexts. To enrich the underlying data and improve the robustness of disturbance classification and risk prediction, they conclude by reflecting on refining the mathematical formulation. Moreover, empirical validation is suggested through case studies in a broader range of factories and production environments.

Effective risk management is closely linked to supplier decision-making processes, particularly when sustainability considerations are integrated. Two papers examine supplier selection and sustainable procurement strategies, applying alternative ranking processes, gray theory, spherical fuzzy sets, and compromise solutions. One contribution centers on enhancing procurement decision-making and promoting sustainable supplier management practices, particularly in the chemical industry. Green and sustainable supplier selection (SSS) is a critical task in the chemical industry, particularly in developing countries like Vietnam where both sustainability and operational criteria must be balanced. In doing so, Wang et al. propose a hybrid multi-criteria decision-making (MCDM) model that integrates the Triple Bottom Line (TBL)—economic, environmental, and social aspects—into the supplier selection process. In a real case study of the chemical sector, the study applied Spherical Fuzzy AHP (SF-AHP) and the Combined Compromise Solution (CoCoSo) to

weigh the criteria under uncertainty and find the best suppliers. By doing so, the authors successfully demonstrated an effective approach in selecting suppliers that align with sustainable practices while validating robust results by means of sensitivity analysis. In terms of methodological innovation, Zakeri et al. proposed a novel ranking model that emphasizes the systemic stability of supplier alternatives. A novel approach of the Alternative Ranking Process by Alternatives' Stability Scores (ARPASS and ARPASS\*) is introduced, which considers each alternative as an integrated system requiring internal stability. The authors contend that existing MCDM techniques frequently overemphasize individual criteria while ignoring the holistic character of alternatives. ARPASS overcomes this gap by ranking providers based on stability ratings calculated from standard deviation and Shannon's entropy. The Grey Equilibrium Product (GEP) approach is also offered for converting gray linguistic variables into crisp values using expert opinions. Also in the study, the ARPASS approaches are sensitivity analyzed to outperform TOPSIS, VIKOR, and SAW in terms of transparency and systemic stability. For future studies, the authors recommend expanding ARPASS to uncertain situations with fuzzy logic, incorporating robust statistics like the average absolute deviation, and further investigating the GEP's potential. Increasing ARPASS's applicability and analytical depth in difficult supplier selection scenarios may call for further research comparing the GEP to existing gray system approaches such as Moore's approach [17], Ishibuchi and Tanaka's model [18], the Grey Possibility Degree [19], Hu and Wang's approach [20], the kernel and degree of grayness of gray number models, and the proposed approach by Xie and Liu [21].

Extending the discussion on procurement, broader approaches to sustainable supply chain management in two papers of this Special Issue are also critically explored by utilizing mathematical modeling and preference programming techniques. Panjavongroj et al. propose a fuzzy additive preference programming (FAPP) method to prioritize supply chain sustainability management systems (SMSs) to address the ambiguity and uncertainty common in decision-making. The model not only ranks SMSs effectively, but also detects abnormal pairs of judgments that may lead to inconsistency. A hierarchical set of criteria was established including company, supplier, and social and environmental aspects for evaluating standards-based, business-management-based, innovation-based, and process-optimization-based SMEs. For future directions, the authors recommend that researchers reduce the solution time and further apply the method to detailed operations within each SMS. While Panjavongroj et al. offer a strategic framework for selecting sustainability management systems, Roy et al. complement this by focusing on how specific inventory and financial strategies such as preservation technology and advance payment schemes can be operationalized to enhance sustainability at the execution level. Preservation technology helps to prolong product life and mitigate deterioration, while advance payment arrangements reduce default risks and prevent order cancellations. In this regard, the study develops an inventory model that integrates preservation technology and advance payment schemes to manage deteriorating items under constant demand. The proposed model, supported by classical optimization and numerical analysis, reveals that the combination of preservation and advance payment results in significantly improved outcomes—up to 71.93% higher than in models lacking these strategies. The study provides valuable insights for retailers and suppliers in uncertain, competitive markets, especially industries managing perishable products or operating under limited cash flow. The paper also concludes by reflecting on possible extensions of the proposed model, including trade credit policies, environmental considerations, and stochastic deterioration. It also identifies gaps that question the adequacy of the current models in addressing multi-item inventory dynamics under uncertainty, paving the way for richer applications in sustainable retail operations.

In addition to long-term sustainability, supply chain resilience during emergencies, particularly in healthcare settings, demands targeted strategies. By employing collaborative optimization and multi-criteria decision-making methods, these following contributions explore emergency material distribution and healthcare supply chains during critical events. Wang adopts a multi-criteria lens to address the challenge of emergency material distribution under uncertain disaster conditions. Through the formulation of a multi-period distribution optimization model, the paper integrates four decision criteria—efficiency, equity, economy, and effectiveness—and evaluates how their prioritization affects large-scale relief operations. The results, based on a case study of COVID-19 medical material allocation in China, show that balancing these criteria leads to greater satisfaction rates and lower system losses. In detail, equity and effectiveness are essential during early response phases, while the economy becomes more relevant in sustained operations. Moreover, the importance of dynamic and adaptive decision schemes underscored in case information is incomplete or inaccurate. The study concludes by reflecting on the importance of integrating big data technologies to obtain real-time information on supply, demand, and transportation capacity, offering directions for future research and system improvement. This is echoed by Wang et al., who shift attention to regional coordination in emergency medical supplies. In response to the cross-border nature of infectious disease outbreaks, the authors develop a multi-objective model that supports the collaborative allocation of emergency medical materials across multiple regions. An improved adaptive genetic algorithm (IAGA) is introduced to solve the model efficiently. The results, drawn from the Yangtze River Delta's COVID-19 response, show that collaborative allocation enhances satisfaction at demand points, especially during initial peak periods. The model considers regional difference coefficients—such as urgency, vulnerability, and demand timeliness—thus improving its practical applicability. The study acknowledges the limitations of relying solely on road transportation. In this regard, this invites future studies on alternative transport modes for more responsive and fair emergency logistics networks. Building on supply chain safety, Haji et al. turn to the pharmaceutical sector, examining the insulin supply chain for people with type 1 diabetes. Inspired by Vanhee et al.'s prior demonstration of analytical methods to detect legitimate counterfeit insulin, the authors reveal a lack of strategic frameworks to assist decision-making in pharmaceutical supply safety [22]. An integrated framework of SCOR metrics, AHP, and TOPSIS is proposed, and two scenarios in the insulin supply chain are compared: one baseline and one with blockchain-based traceability. The latter is found to greatly enhance safety, with a performance score of about 71%. It concludes that traceability systems are vital for preventing counterfeits and improving patient safety, particularly in key drug markets. Furthermore, the suggested model provides a decision-support tool that may be used in other sensitive supply chains, such as vaccines or antibiotics, where supply integrity is as important.

In light of the ongoing disruptions caused by the COVID-19 pandemic, the study of Jin et al. in this Special Issue addresses the critical challenge of maintaining logistics system performance under uncertainty. The authors propose a systematic approach that combines Failure Mode and Effects Analysis (FMEA) and an Analytic Hierarchy Process (AHP) in a fuzzy environment, in which the complexity of real-world logistics disruptions is handled. In evaluating various failure/risk modes, expert judgments are inherently vague when it comes to optimizing logistics performance by means of identifying, prioritizing, and mitigating the risks associated with logistics activities. Thus, the study integrates fuzzy logic into traditional FMEA to enhance the objectivity of risk prioritization. With a case study being tested, this paper offers practical implications for logistics system optimization. The proposed model acts as a good reference for informed decision-making and risk mitigation in uncertain conditions, which can be extended to other sectors where logistics

resilience is crucial during crisis periods. In addition, Wang et al. turns to performance evaluation for the textile and garment industry, a sector that is deeply impacted by global supply chain volatility. In this regard, the authors propose a comprehensive performance evaluation model considering both qualitative and quantitative indicators: operational, financial, market, and innovation capacities. By means of expert input and industry data, an integrated MCDM approach is utilized to prioritize and assess the performance indicators, reflecting the realities faced by textile and garment businesses. For other industries, the approach can also be adopted to provide a baseline for managers who are proactively engaging in identifying critical performance gaps and prioritizing improvement efforts. The model not only reflects enterprise capabilities, but also adapts to dynamic shifts in global trade patterns and customer demand to regain competitiveness.

The onset of the COVID-19 pandemic has greatly changed global practices of enterprise digital transformation, not only as a means of operational survival, but also as a long-term strategy for innovation and competitive renewal [23]. In light of this, the adoption of digital tools across multiple sectors has been accelerated, as a resilient solution to disruptions of physical supply chains, restricted mobility, and shifts in consumer behavior. Indeed, innovation is more critical than ever for responding to crisis-induced complexity and uncertainty. Digital platforms such as websites, social media, and data analytics have emerged as core enablers of resilience, visibility, and customer connection [24]. Reflecting this shift, especially in the logistics and digital commerce ecosystems, three papers in this Special Issue examine how organizations have leveraged technological innovation to adapt their marketing strategies, communication processes, and operational models in the face of crisis. These studies offer complementary insights into how digital transformation is being strategically deployed to foster agility, engagement, and brand strength.

The study by Zondervan et al. looks at how logistics trends and innovations have changed in response to the COVID-19 pandemic by revisiting 5098 journal abstracts. The study investigates the formation of sustainability and digitization trends prior to and during the pandemic, and whether the crisis has expedited movements toward resilience and smart logistics. The trends of two timeframes (pre-pandemic (2016–2018) and during the pandemic (2019–2021)) are identified and quantified using text mining techniques. Three primary findings emerge from the data: first, resiliency is still a key logistics theme, and it became even more prominent during COVID-19; second, digitalization has accelerated, with a greater focus on blockchain, IoT, data, drones, robots, and unmanned vehicles; and third, while the conversation around sustainability has changed from bioenergy and biofuel to low-carbon, hydrogen, and electric vehicles, there is no conclusive evidence that COVID-19 significantly accelerated these sustainability trends. By underlining the importance of digitization in bolstering logistics systems, the study also exhorts SMEs to use tools like maturity scans to evaluate their digital preparedness. This contribution offers a useful analysis for policymakers who support these SMEs by providing information, funding, and template solutions. It also complements previous analysis by being the first to use text mining, especially logistics literature in the context of COVID-19, closing a gap in the literature and in the meantime, inviting further analysis of full-text articles or segment results by geography or sector to offer more nuanced insights into emerging logistics innovations.

Sakas et al. investigate the correlation between the development of the corporate brand name and the technological aspects of logistics websites. Logistics businesses are depending more and more on websites to win customers while maintaining their loyalty. The authors use a novel approach based on big data and web analytics in support of their argument. The study is divided into three stages: first, 180 days of data were gathered from seven of the top logistics companies in the world; second, statistical analysis was performed using

regression, correlations, and descriptive statistics; third, fuzzy cognitive mapping (FCM) was utilized to show the causal relationships between metrics; and finally, a predictive simulation model was used to investigate optimization approaches. The authors found a strong link between brand performance and website technical and behavioral factors. This also highlights the value of FCM and agent-based models in simulating optimal digital marketing scenarios. Key practical findings include the greater effectiveness of social media ads over traditional ones, the critical role of website usability in branding, and the benefits of using simulation tools in terms of cost and time efficiency. The study also identifies gaps that challenge solving the lack of qualitative organizational insights and analysis at the microenvironment level. In addition, the paper calls for more thorough investigations into interview-based or neuromarketing techniques. Building upon their prior exploration of how website technical factors influence digital brand performance, in this Special Issue, Sarkas et al. further extend their analysis to examine the strategic role of social media analytics in enhancing digital marketing effectiveness for centralized payment network services during times of crisis. This study explored the role of social media strategies during crisis events by using centralized payment network services datasets from five CPNs over a six-month period. In detail, how social media behavioral KPIs can be used to explain variations in customer engagement and digital KPIs and how social media analytics relate to SEO tracking metrics and overall digital marketing performance and visibility are investigated. To this end, the authors use a layered analytical framework that includes statistical analysis, Agent-Based Modeling (ABM), and Fuzzy Cognitive Mapping (FCM). The paper underscores the potential of social media analytics not only for boosting digital visibility, but also as a practical tool for strengthening crisis-time marketing resilience.

Finally, extending logistics innovation to the most critical domains, one study applies advanced multi-criteria decision-making to the context of national defense and security logistics. Based on the Simple Aggregation of Preferences Expressed by Ordinal Vectors-Multi Decision-Making (SAPEVO-M) method model, Moreira et al. used the evolution model SAPEVO-Hybrid and Hierarchical (SAPEVO-H<sup>2</sup>) methodology to process both quantitative and qualitative data, while also considering multiple decision-makers across strategic, tactical, and operational levels. By structuring complex problems with causal mapping and enabling outranking analyses, the model supports a nuanced evaluation of defense strategies, particularly in scenarios involving emerging technological threats. While the study applies this method in a high-stakes context, its flexibility suggests strong potential for adaptation across other sectors requiring robust, layered decision support. As such, it marks a fitting conclusion to this Special Issue, where logistics optimization culminates in its most critical and strategic application: safeguarding national security in an increasingly complex global landscape.

### 3. Looking Ahead

As we look through the articles in this Special Issue, one thing becomes increasingly clear: logistics and supply chain management are no longer limited to issues of efficiency or cost. They have taken on a broader role, connecting resilience, innovation, and long-term sustainability in ways that were unimaginable a decade ago. From optimizing last-mile delivery in urban networks to rethinking supply chain resilience in healthcare and defense, these articles illustrate that logistics today is no longer a logistics support process, but an enabler of frontline transformation.

What ties many of these articles together is the common drive toward digital transformation. The rise of Industry 4.0 is more than just a trend; it is reshaping the way logistics systems operate from the inside out. An irreversible shift toward data-driven, agile, and predictive systems not only improves operational efficiency, but also reshapes

decision-making in high-risk and uncertain environments. Particularly in times of crisis, from pandemics to geopolitical disruptions, the ability to process information in real time and act decisively has proven to be critical.

However, technology does not operate in a vacuum. What is just as critical and far more difficult is embedding sustainability into logistics systems in a way that is genuine and scalable. Many papers in this issue wrestle with this challenge: selecting suppliers who meet environmental goals, preserving perishables with fewer resources, or using traceability to safeguard public health. These are not simple tasks. What we see, instead, is a slow but steady shift toward circular thinking, where efficiency coexists with responsibility.

To ensure that these opportunities are seized, logistics strategies must be underpinned by multi-level governance, stronger digital infrastructure, and inclusive capacity-building. It is a must that adaptive decision frameworks embrace not only technological and financial dimensions, but also human, ethical, and environmental factors. This includes rethinking procurement models, strengthening local–global coordination in emergencies, and extending analytical approaches to frontier areas such as defense logistics. If these developments continue to build momentum, they can help the logistics field move from fragmented optimization toward a more resilient, sustainable, and responsive global supply network. This can not only help these systems in recovering from disruption, but also help them to thrive in complexity.

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