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Fundamental Issues in Business Processes of Large Logistics Companies

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Abstract

The article examines key issues in the business processes of large logistics companies and their impact on operational efficiency and financial performance. The relevance of the study is determined by the increasing complexity of global supply chains and the growing demand for cost-effective logistics solutions.

Purpose. *The novelty of the research lies in a comprehensive analysis that includes inaccurate inventory tracking, suboptimal planning, high transportation costs, and delays caused by documentation errors. The role of artificial intelligence (AI) and real-time tracking systems in optimizing logistics operations is described.*

Materials and methods. *Industry reports and academic publications highlighting the potential of AI-driven automation in cost reduction and service quality improvement were discussed.*

Results. *The main result of the study is the identification of key business process issues in large logistics companies, such as a lack of accurate information, inefficient planning, high costs, missed deadlines, and resource shortages. Effective solutions are proposed, including the use of real-time tracking systems and artificial intelligence to enhance operational efficiency and competitiveness. This article will be of interest to logistics professionals, supply chain managers, and researchers focused on digital transformation in transportation and warehousing.*

Keywords: *Logistics, Supply Chains, Business Process Optimization, Artificial Intelligence, Inventory Management, Transportation Costs.*

INTRODUCTION

As world trade becomes ever more tightly interwoven, the large third-party logistics (3PL) providers act as the connective tissue of global supply chains. Their remit spans transport, warehousing and last-mile distribution—everything required to shepherd finished and intermediate goods from factory floor to final user. Yet the very scale that makes these firms indispensable also exposes them to a distinctive set of operational pain points. Day-to-day efficiency is eroded by patchy, sometimes contradictory data on inventory status and cargo movements; by sub-optimal scheduling and routing that ignore real-world constraints; and by a persistent drag from spiralling freight charges, late deliveries, paperwork errors, and chronic shortages of both labour and physical assets. Each weakness eats into margins and, taken together, they blunt a provider's competitive edge. Diagnosing these obstacles in a timely fashion is therefore more than an academic exercise—it is a practical prerequisite for lowering cost-to-serve and lifting service reliability across the sector.

Logistics remains the sine qua non of international commerce. Its wide-ranging impact is underscored in Figure 1, which plots the projected expansion of the industry over the next decade.

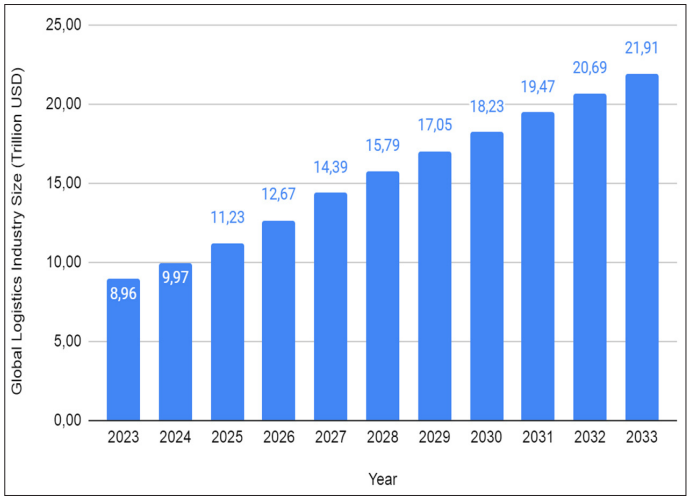

Fig. 1. Growth in the size of the logistics market for the period 2023-2033 (compiled by the author based on [8])

Analysts expect the U.S. freight and logistics segment alone to hit USD 1.62 trillion by 2029. Worldwide, the market stood at roughly USD 8.96 trillion in 2023 and is forecast to climb to USD 15.79 trillion by 2028—an annual compound growth rate of about 6.3 percent over the 2023–2028 window [8].

Against this backdrop, the present study sets out to pinpoint and dissect the principal bottlenecks hampering the business processes of leading logistics operators. Specifically, wewill

- investigate how incomplete or inaccurate consignment data undercuts decision-making;
- evaluate the fallout from poorly optimised schedules and routes, including cargo damage or loss attributable to neglected human-factor considerations;
- quantify the burden that rising logistics costs place on financial performance;
- chart the ripple effects of delivery delays and documentation errors, both of which translate directly into monetary penalties; and
- analyse how shortages of key resources, together with escalating order-processing expenses, threaten operational resilience in today's volatile marketplace.

By unravelling these interlinked challenges, the study aims to furnish a clearer evidence base for strategic interventions that enhance productivity and contain costs throughout the logistics value chain.

MATERIALS AND METHODS

The study unfolded in two complementary phases. First, a desk-based review mapped the state of knowledge on operational shortfalls in large-scale logistics. Core references included Tuglular T. et al. model-driven prescriptions for process improvement [1];Wang C. N. et al. efficiency benchmark of international carriers in the pre- and mid-COVID years [2]; and Bugri, Toku, and Adu's examination of how logistics management practices translate into organisational performance [3]. Industry evidence rounded out the academic record: Detrack's field notes on the most frequent causes of delivery delays [4]; European Commission statistics linking driver fatigue to accident probability [5]; the International Freight Association's loss ledger for different categories of cargo damage [6]; and the American Trucking Associations' warning on the worsening driver shortfall [7].

The empirical phase combined a comparative design with statistical diagnostics. Using a systems lens, we traced how sub-optimal planning propagates through higher transport costs and longer lead times, then quantified those relationships against standard industry KPIs—cost-per-mile, on-time-delivery rate, damage ratio, and order-to-cash cycle length. Predictive models were next trained to gauge the upside of AI-enabled routing, dynamic pricing, and inventory forecasting; input variables were drawn from publicly reported balance-sheet items and anonymised operational logs. Adoption data for such digital tools came from the Contimod survey, whose latest wave forecasts a double-digit annual rise in AI use across supply-chain functions through 2032 [8].

By integrating literature insight with real-world performance metrics and forward-looking analytics, the methodology delivers an evidence base for practical recommendations—chief among them a phased digital-transformation roadmap aimed at trimming avoidable cost, tightening schedule reliability, and future-proofing the business processes of large logistics providers.

RESULTS AND DISCUSSION

Business processes in the logistics sector form an intricate web of activities whose collective purpose is to shepherd goods smoothly from the point of manufacture to the end user. Core threads in that web—inventory control, physical transportation, documentation flow, and customer liaison—must all function in concert if a provider is to keep costs down and service levels high [1].

Inventory control sits at the foundation. When managers carry too much stock, they pay twice: once in capital tied up on the shelf and again in higher storage fees. When they carry too little, they miss sales and risk damaging long-term client trust. The art, therefore, is to hold just enough. Achieving that balance presupposes continuous, accurate visibility into every pallet and SKU scattered across the network.

Transport planning picks up the baton. Moving freight efficiently means orchestrating routes and schedules so that trucks, containers, aircraft, and railcars run full and on time while burning the least possible fuel. Optimal plans must flex in real time as traffic snarls, weather events, or production slips scramble earlier assumptions.

Documentation processing is no less critical. Each consignment spawns a trail of invoices, customs declarations, insurance certificates, sanitary attestations, and proof-of-delivery notes. Errors in any one document can stall a shipment at a port, invite regulatory penalties, or trigger payment delays.

Finally, the customer-facing layer—order acknowledgments, status updates, claims handling, reverse logistics—closes the loop. Clear, proactive communication here often spells the difference between a routine hiccup and a lost account, making this "soft" process a hard driver of loyalty.

Large global providers grapple with those tasks at daunting scale. Millions of tracking events, optimisation decisions, and regulatory checks must be executed daily. Operations that stretch across borders must accommodate not just multiple time zones but also incompatible tax regimes, road-toll systems, labour laws, and market conventions [2]. The physical backbone—multi-story distribution centres, cross-dock hubs, prime-mover fleets, and IT backbones—demands steady reinvestment simply to hold service steady.

A persistent headache is patchy, delayed, or downright inaccurate data on inventory positions and cargo movements. Legacy warehouse-management or enterprise-resource-planning systems, often bolted together through mergers, cannot deliver the split-second granularity now required. The resulting blind spots manifest as simultaneous surpluses and stock-outs across the same network. Bugri, Toku, and Adu [3] show that such mismatches cascade into order cancellations, rush shipments, and inflated safety stock—all symptoms of information latency rather than genuine demand variance.

Routing and scheduling present a different but related weakness. Human dispatchers still plan many fleets by experience and spreadsheet. In practice this means that

crew hours, legal rest periods, and loading-dock queues are approximated rather than rigorously modelled. Fatigue metrics from the European Commission [4] bring the risk into sharp relief: drivers who have logged fewer than five hours of sleep in the previous 24 hours face nearly triple the accident probability of well-rested peers. Beyond the obvious safety hazard, every crash or near-miss triggers direct repair costs, insurance premiums, and schedule knock-ons across an already stretched network.

A further source of waste lies in the mundane but error-prone routines of loading and unloading. Mishandled pallets, mis-set refrigeration controls, and hurried lash-downs are responsible for a surprisingly large slice of cargo claims. Industry loss data show that roughly 11 percent of containerised freight that goes missing does so because units are literally washed overboard, 14 percent of claims stem from temperature mismanagement, and a quarter from blunt-force shocks sustained while lifting or in transit. Shortages account for another 8 percent, while outright theft adds about 9 percent to the tally [6]. Each incident triggers direct write-offs, recovery expenses, and—most damaging in the long run—customer frustration that erodes contract renewals.

The financial picture is further clouded by structurally high logistics costs. These arise less from unavoidable line items such as diesel or lease rates than from *how* resources are marshalled. Under-utilised tractors, excess buffer stock in regional warehouses, and routings that march empty trailers back to origin all conspire to inflate the cost base. Labour inefficiencies compound the problem: overtime premiums and idle shifts coexist because the workforce plan cannot flex with demand peaks and troughs.

Delays and paperwork snags amplify the burden. Vehicle availability is now a recurring bottleneck, as the driver market—though stabilised after last year's broad wage increases—still shows the second-highest vacancy rate on record [7]. The resulting capacity gaps ripple down to missed collection windows and late deliveries. Meanwhile, a single typo on a customs entry or a slow-moving proof-of-delivery docket can stall an entire shipment, incur storage fees, and delay invoicing.

Resource constraints do not end with drivers. Congested yards, overbooked cross-docks, and limited pick-face locations in fulfilment centres inflate the cost of each e-commerce order even as service guarantees tighten. Penalty clauses for missed delivery-time promises are now common in large retail contracts, so every late truck or mis-picked carton translates directly into margin erosion and reputational drag.

Targeted investment offers a path out of the spiral. Real-time visibility platforms built on RFID tags, GPS telemetry, and IoT sensors give planners up-to-the-minute snapshots of load position, condition, and chain-of-custody events. Such systems close information gaps that formerly necessitated surplus inventory and manual exception hunting. With accurate location and status feeds, inventory rebalancing becomes proactive, temperature deviations trigger instant corrective action, and automated reconciliations shrink paperwork cycles. In short, data delivered in real time converts what were once hidden disruptions into manageable, often preventable, exceptions—cutting waste, protecting customer service levels, and freeing cash locked in safety buffers.

A second—arguably more transformative—avenue of improvement lies in the deliberate application of artificial-intelligence techniques to everyday planning decisions. Modern optimisation engines ingest traffic feeds, weather forecasts, historical lead-time data, and live order books, then generate route manifests that minimise fuel burn and lateness while respecting driver-hours legislation. The same models, pointing their algorithms at inventory flows, spot demand inflections early enough to curb over-stocking and avert stock-outs. What once demanded hours of spreadsheet iteration now happens continuously, in milliseconds, and at a scale no human dispatcher could hope to match.

Preliminary data indicate a significant impact. Industry analysts predict that AI can boost labor productivity in logistics operations. The volume of the global market for artificial intelligence in logistics in 2023 was estimated at 11.61 billion US dollars. It is projected to increase from US$16.95 billion in 2024 to US$348.62 billion by 2032, increasing by an average of 45.93% — the trajectory shown in Figure 2.

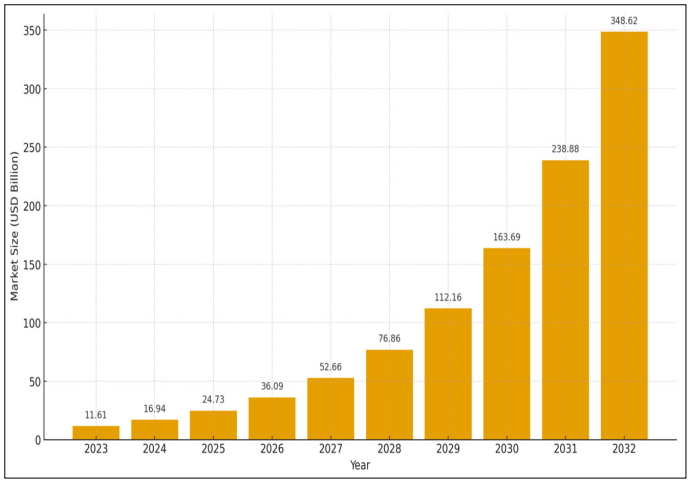

Fig. 2. Growth of AI in the logistics market for the period 2023-2032 (compiled by the author based on [8])

Such promise does not come free. Rolling out real-time visibility and AI-driven optimisation tools requires capital—RFID tagging programmes, next-generation warehouse-management software, high-availability data links between yard gates, trucks, and cloud dashboards. Equally important, the human layer must evolve: planners need training to interpret algorithmic recommendations, maintenance crews must learn to service a more sensor-laden fleet, and senior managers must adjust performance metrics to reward data-driven decision-making.

When the technological outlay is paired with organisational readiness, the pay-offs can be striking: sharper demand forecasts trim working capital; dynamic routing lowers

fuel cost and cuts emissions; rapid anomaly detection curbs spoilage, theft, and damage; and faster, more reliable deliveries shore up customer loyalty. In short, real-time tracking systems and AI-powered optimisation engines address precisely the pain points that plague large logistics operators—information opacity, planning inefficiency, and ballooning cost—while laying the groundwork for a more resilient, competitive, and profitable future.

CONCLUSION

The investigation into operational bottlenecks at large logistics providers confirms that process frictions translate directly into lost efficiency, weaker financial returns, and diminished competitive position. At the centre of the problem set lie several intertwined pain points: patchy real-time visibility of freight, sub-optimal routing and scheduling, structurally high cost-to-serve, chronic delivery delays, paperwork backlogs, and periodic shortages of both human and physical resources. Each weakness amplifies the others, forming a self-reinforcing drag on sustainable growth. Only an integrated response can break the cycle.

Digital technologies supply the core of that response. End-to-end tracking built on RFID, GPS, and IoT sensors closes data gaps, sharpens inventory accuracy, and brings much-needed transparency to every node in the supply chain. Artificial-intelligence engines extend the benefit by digesting vast, heterogeneous data streams—traffic flows, weather patterns, historical lead times, order volatility—to recommend optimal routes, predict demand swings, and rebalance stock before imbalances appear. Deployed together, these tools can compress lead times, trim fuel and storage spend, and lift on-time-delivery metrics, thereby enhancing both customer satisfaction and margin performance.

Yet technology alone is insufficient. Realising its full value calls for significant capital outlays—sensors, cloud platforms, edge devices—as well as a parallel investment in people and process redesign. Teams must be trained to trust and interpret algorithmic outputs; legacy workflows must be re-engineered to accommodate real-time data feeds; and leadership must embed a culture of continuous improvement that prizes data-driven decisions. In short, the path forward is as much organisational as it is technical.

The payoff justifies the effort: lower operating costs, greater agility in the face of market shocks, and service levels that differentiate a provider in an increasingly crowded field. Companies that embrace a proactive change-management stance—aligning investment, governance, and workforce development with the possibilities of digital transformation—stand to convert today's challenges into a durable strategic advantage.

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