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INTEGRATED SPEED-AND-COMMUNICATION MANAGEMENT MODEL FOR DOMINANCE IN NICHE TRANSPORT

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ABSTRACT

Amid intensifying competition in the logistics marketplace, niche carriers face the imperative to develop distinctive competitive advantages that transcend price-based rivalry. The research problem is the absence of a unified, theoretically grounded approach that treats delivery speed. The methodology's purpose is to equip niche operators with a structured, practically applicable framework for building sustainable competitive advantage anchored in service excellence. The methodology outlines three layers of the SC-D model: strategic (positioning and service commitment design), tactical (construction of a technology stack encompassing IoT, AI, and communications management platforms), and operational. Special attention is devoted to an implementation method grounded in established change management frameworks and to a key performance indicator system for outcome assessment. The practical significance lies in a clear algorithm for operational transformation, enabling niche carriers to transform logistics from a cost centre into a key driver of customer retention and market dominance.

Keywords: niche transport, speed-and-communication integration, service reliability, digital transparency, IoT and AI, micro-fulfillment centers, change management.

INTRODUCTION

The contemporary logistics market is characterized by unprecedented competitive pressure and continuously rising consumer expectations. The globalization of supply chains and the explosive growth of e-commerce — projected to increase last-mile delivery demand by 78% by 2030-have fundamentally reshaped the industry landscape [1]. In this environment, large logistics operators compete through scale, automation, and aggressive pricing, leaving narrower but high-margin niches to smaller, specialized firms. These niches require distinctive handling, including white-glove delivery with in-home setup of expensive furniture and electronics, transport of sensitive medical equipment, and carriage of large-format high-technology freight.

Within these segments, cost-centric advantages attenuate. The quality of the customer experience ascends to primacy, also its pivotal components are process transparency, reliability, with speed. According to studies, 74% of all online shoppers expect delivery within two days. After only one delay 63% would switch to different providers [2]. Consequently, a firm can no longer treat as secondary its capacity to govern delivery speed and orchestrate effective customer communications. Instead, that capacity mainly determines market positioning as well as long-term viability.

Niche carriers lack a purpose-built operating model within academic and practitioner texts despite communications' and speed's salience. Existing approaches typically treat these dimensions in isolation: speed management reduces to route and warehouse optimization, and communications relegate to customer-service departments within. Fragmentation is in a foundational way problematic for the reason that it ignores synergistic effects at the time it integrates.

If niche transport clients expect a lot and errors are costly, speed is inefficient without reliability and transparency.

A just-in-time delivery of costly medical equipment with compromised sterile packaging constitutes a complete service failure. Similarly, rapid delivery of a server rack damaged by mishandling inflicts disproportionate harm. Under such conditions, proactive, precise, and timely communication is not a mere adjunct; it is an integral dimension of the logistics process that underwrites reliability. The absence of an integrated model that formalizes this interdependence and offers concrete implementation tools creates a vacuum that niche firms fill with ad-hoc, atomized solutions — leading to service breakdowns, eroding trust, and forfeiting profit.

The primary objective is to theoretically justify and design an Integrated Speed-and-Communication Management Model (SC-D) for achieving dominant positions in niche transport markets. The folllowing tasks were defined to achieve this goal:

1. To combine theoretical bases of speed, reliability, and communication in logistics, such as the service gap concept, the architecture of digital transparency, and leagile principles.

2. To analyze the challenges operations face and the pain points in key niche markets, such as white-glove delivery, medical equipment transport, and high-tech freight, to reveal their unique service requirements.

3. To outline the SC-D model's processes and component structure across operational, tactical, and strategic layers.

4. Develop a practical framework for SC-D implementation, including a change-management-based roadmap and a comprehensive KPI system for monitoring and evaluation.

Scientific novelty. The research articulates a holistic, systemic model that overcomes traditional fragmentation in logistics management. Unlike extant approaches, SC-D reconceptualizes communication as a proactive operational instrument that directly shapes reliability and perceived delivery speed. The model formalizes a cybernetic coupling between logistics actions and communication events, configuring them as a single, continuous cycle of customer-experience management.

Practical significance. The study provides executives and managers of niche carriers with a ready-to-deploy, theoretically grounded, and practically applicable toolkit. SC-D offers a clear, sequential plan for process redesign, technology selection, and performance assessment, enabling a strategic shift from price competition to quality competition and the construction of a durable, competitor-resistant market advantage premised on superior service.

1. THEORETICAL–METHODOLOGICAL FOUNDATIONS OF SPEED AND COMMUNICATIONS MANAGEMENT IN LOGISTICS

1.1. The evolution of delivery speed as a driver of consumer loyalty

Over the last decade, delivery speed has undergone a radical transformation — from a differentiating amenity into a baseline expectation. Whereas in 2015 customers often deemed 5–7 days acceptable in exchange for free shipping, expectations have been re-anchored by the "Amazon effect" [2]. Leading e-commerce actors normalized next-day and even same-day fulfillment.

Moreover, speed now conditions seller selection: 63% of respondents would switch retailers if prior deliveries exceeded promised timelines, and 43% abandon carts due to lengthy or opaque delivery windows [2]. The fundamental inference is that speed has migrated from "delighter" to "hygiene factor". In Herzberg's two-factor theory, hygiene factors do not elevate satisfaction when present, but their absence precipitates dissatisfaction. Today, rapid delivery seldom delights; rather, failure to honor promised timelines provokes acute negative reactions. The high cost of error demonstrates that speed is not a standalone advantage but an entry condition. Any successful operating model must treat speed not as a terminal objective but as the substrate upon which more complex, customer-valued propositions — reliability and service quality — are constructed.

1.2. The service-gap concept and its role in expectation management

Enduring loyalty is forged less by absolute speed than by reliability — a firm's capability to flawlessly fulfill its commitments. This phenomenon is aptly captured by the Service Gap Model of Parasuraman, Zeithaml, and Berry [3]. Customer satisfaction is a function of the delta between expected and perceived service. Consumers assess not speed per se but deviations of actual delivery time from the promised time. A firm that promises three days and delivers in two and a half is perceived more favorably than a competitor guaranteeing next-day arrival yet routinely missing it.

The consequences of promise breaches can be catastrophic: 63% of buyers report they will not return to a retailer if a parcel arrives two days later than promised [2]. The promise, performance gap instantly erodes faith and neutralizes logistics speed investments.

Service shortfalls are managed using communication. It serves as the principal instrument for that. A communication strategy must govern both sides of that equation. Timeline disclosures at checkout, if clear, realistic, and transparent, calibrate expectations. Proactive notifications with real-time tracking throughout the adventure induce predictability and control, even amid contingencies.

Communication thus transforms from being ancillary into a key operational process tied inseparably with logistics. An effective communication strategy directly compresses the perceived service gap and thereby elevates satisfaction and loyalty.

1.3. Digital transparency as the substrate of trust: a three-layer tracking architecture

In modern economies, trust is a critical asset; in logistics, it is built upon digital transparency. The ability of clients to access precise, current information on order location and status diminishes waiting-related anxiety and converts logistics from a "black box" into a predictable, governable service. Transparency emerges from a comprehensive technological architecture comprising three interlinked layers:

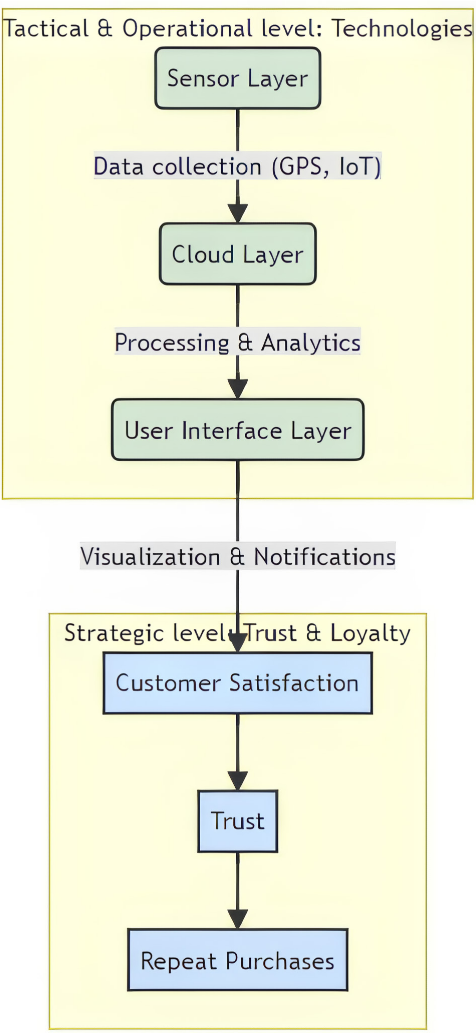

Figure 1. Three-layer architecture of digital transparency

1. Sensor Layer. The physical substrate that captures primary data: miniaturized GPS trackers integrated into vehicles or affixed to cargo transmit continuous coordinates; auxiliary IoT sensors (temperature, humidity, shock, container-open events) enrich telemetry to form a complete state vector. The scale and maturity of the technology are evidenced by market indicators: the global GPS tracker market in 2024 was valued at USD4.04 billion with a projected CAGR of 17.4% through 2030, and total connected IoT devices by end-2024 reached 18.8 billion [4].

2. Interface Layer. The layer that transduces raw telemetry into intelligible customer information. Mobile apps and web portals visualize interactive courier movement, progress bars, and dynamically updated ETA estimates that account for traffic, weather, and other exogenous factors. Proactive notifications (push, SMS, email) signal key milestones (order picked, out for delivery, courier en route).

3. Cloud Layer. The infrastructural core binding sensors, gateways, and client applications into a single computational system. Field data flow to distributed cloud stores for cleansing, aggregation, and analytics, including machine-learning-driven prediction. Processed data are exposed via APIs for integration with internal systems (WMS, TMS, ERP) and partner systems.

As shown in Figure 1, integrating these layers yields a seamless information flow — the technological foundation of trust. Trust, in turn, mediates the service quality → satisfaction → loyalty chain, a pathway repeatedly observed to attain statistically significant coefficients.

1.4. Synthesizing Lean and Agile for transport-operations governance

To achieve an operating model that is simultaneously reliable and adaptable, two managerial philosophies must be integrated: Lean and Agile. Historically orthogonal — Lean in Toyota-style manufacturing and Agile in software— their synthesis, leagile, constitutes a potent basis for modern logistics.

Lean logistics pursues systematic waste (muda) elimination to elevate efficiency, reduce cost, and stabilize quality. In transport, salient wastes include waiting (yard/warehouse dwell, paperwork delays), unnecessary transportation (suboptimal routing, deadheading), excess motion (inefficient warehouse labor), excess inventory (buffers against unpredictability), and defects (cargo damage, pick errors, documentation errors) [5]. Tools such as value-stream mapping, process standardization, and just-in-time enable highly efficient, predictable delivery processes — prerequisites for credible, reliable SLA commitments.

Agile logistics emphasizes rapid adaptation to variability: demand swings, exogenous conditions (congestion, weather, roadworks), client-initiated changes (time windows, addresses), and supply-chain disruptions (supplier delays, vehicle breakdowns). Agile prescribes short planning cadences, continuous feedback, cross-functional coordination, and empowered frontline decision-making (e.g., by drivers). These mechanisms are indispensable for real-time route re-optimization and the deft handling of exceptions.

A Lean-only model is efficient but brittle; an Agile-only model is flexible but potentially chaotic and costly. The SC-D model requires leagile: Lean principles architect the standardized, high-reliability baseline that underwrites the SLA; Agile principles govern operational execution to manage variances, adapt in real time, and sustain proactive customer communications — so the promise is fulfilled despite disturbances. The result is a system that is intrinsically efficient and extrinsically resilient, a sine qua non for dominance in complex niche transport. Figure 2 depicts Lean creating a reliable promise and Agile enabling its flexible fulfillment, jointly forming the SC-D foundation.

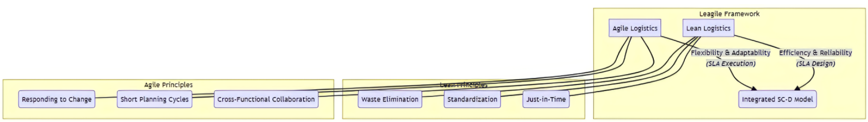

Figure 2. Synthesis of Lean and Agile approaches in the SC-D model

2. CHARACTERISTICS AND CHALLENGES OF NICHE TRANSPORT MARKETS

2.1. Classifying niche transport: criteria and segments

"Niche transport" extends beyond commodity classifications by cargo type. The determinant is not merely what is moved but how it is moved and what the client expects. A niche forms at the intersection of several factors: high cargo value (material — expensive equipment, luxury items; and immaterial — process-critical components, medical supplies); special handling requirements (temperature control, vibration/impact protection, sterility, specialized loading/unloading); last-mile service complexity (beyond "to the door" to specific room placement, assembly, installation, haul-away); and heightened communication/timing expectations (narrow windows; coordination with multiple parties such as installers or hospital staff; full transparency and proactive updates). Broadly, niches are partitioned into B2B and B2C segments:

In B2B, there are medical equipment and pharmaceuticals (diagnostic devices, surgical instruments, implants, drugs) requiring sterility, temperature control, urgency, and regulatory compliance; high-technology equipment (server racks, telecom gear, industrial robots) necessitating vibration mitigation, ESD protection, and on-site coordination with engineering teams; aerospace/defense components demanding maximal security, strict access control, and specialized documentation.

In B2C, there is white-glove delivery of premium furniture, luxury appliances, art, and antiques, involving careful handling, in-home placement, assembly, cleanup, immaculate presentation, and courteous conduct. Additionally, luxury and jewelry delivery (including watches, fine jewelry, and designer apparel) requires maximum security, insurance, and confidentiality.

Across these segments, logistics is not a mere conveyance function; it is an inseparable part of the product's value proposition. A logistics failure is a direct failure of the entire customer experience.

2.2. Specific requirements for speed, reliability, and communications in highlighted niches

In niche markets, the standard definition of "On-Time Delivery" (OTD), which is understood as simply arriving at the appointed time, is losing its relevance. It is being replaced by a more comprehensive concept, which can be formulated as "On-Time, In-Full, Damage-Free, and As-Instructed" (OTIFDAI) — "On-Time, In-Full, Damage-Free, and As-Instructed".

This expanded interpretation fundamentally changes the approach to logistics management. "On-Time" means not just a single day, but a narrow, pre-agreed time window, synchronized with other customer processes. "In-Full" implies the presence of not only the goods themselves but also all necessary fittings, documentation, and tools for subsequent work. "Damage-Free" is an absolute imperative, as the cost of replacing or repairing the cargo is incomparable to the cost of delivery itself. "In accordance with instructions" means the performance of all related services (delivery to the desired room, assembly, removal of packaging) in strict accordance with the agreements.

Meeting this multidimensional standard is impossible through speed optimization alone. Here, the integration of speed and communications is decisive. Proactive communication becomes a critical operational instrument for achieving OTIFDAI: synchronizing participants, transmitting special handling instructions to drivers, confirming receiver readiness, providing proof of condition at all stages (e.g., photo evidence), and resolving issues in real-time.

Hence, in niche segments, speed and communication are two faces of the same coin. Managing them separately invites systemic breakdowns. Success requires complete integration within a unified operating model.

3. INTEGRATED SPEED-AND-COMMUNICATION MANAGEMENT MODEL (SC-D MODEL)

The Integrated Speed and Communications Management Model (the SC-D Model) is a three-tiered framework that translates an organization's strategic objectives into concrete technological solutions and operational procedures. The foundation of the model is a strategic decision to compete not on price but on superior service quality — positioning the firm as the "most reliable and convenient" partner for its target clientele. For these strategic promises to become operational realities, a detailed process model is required that prescribes every step of the order life cycle. This section presents the operational core of the methodology: an original client-logistics model built on three interrelated pillars — the Instant Response Protocol, the Transparent Delivery System, and the Time-Compression Operational Model. Together, these three elements produce a synergistic effect that enables the firm not merely to execute logistics operations but to manage the entire customer experience from first contact through post-sales support — a prerequisite for dominance in niche transport markets.

3.1. Pillar 1: Instant Response Protocol — an algorithm for ultra-rapid request handling

The first contact with a prospective client is a moment of truth. In niche transport sectors, where urgency and bespoke solutions are standard, the ability to process an incoming inquiry within minutes rather than hours constitutes a decisive competitive advantage. The Instant Response Protocol is a standardized, partially automated action algorithm that ensures each new lead proceeds from initial inquiry to receipt of a commercial offer in the shortest feasible time. The objective of the protocol is not merely a rapid response, but the immediate engagement of the client — demonstrating competence, precision, and a readiness to resolve the client's problem in real-time. This capability intercepts clients before they begin to evaluate alternatives. The algorithm comprises five successive steps, each optimized for maximal speed and efficiency.

First is the request for identification. Any incoming inquiry — whether by phone, email, or messenger — is instantaneously logged in the CRM and automatically classified. The system determines the request type (e.g., "urgent delivery", "scheduled transport", "consultation request") and immediately assigns a responsible manager from the pool of currently available staff. This eliminates the risk of an inquiry languishing in a shared inbox.

Second is qualification. The assigned manager contacts the client within 1–3 minutes via the fastest available channel (typically a phone call) to verify the key order parameters. A standardized questionnaire script is used to collect all necessary information in 2–5 minutes: precise pick-up and delivery addresses, cargo dimensions and weight (for example, the model and quantity of a golf cart), desired delivery time, and any special requirements (e.g., on-site assembly).

Third is instant estimation. The collected data are entered into a specialized calculator that calculates the price and estimated delivery time in real-time. The algorithm takes into account current traffic conditions, the availability of suitable vehicles in the pickup area, and route complexity. This replaces the typical "we will calculate and get back to you" response with immediate provision of actionable information.

Offer generation. Based on the calculation, the system automatically generates a standardized commercial proposal in PDF format, specifying the exact price, route details, estimated transit time, and a clearly stated service level agreement (SLA). For example: "Delivery of golf cart model X along route Y will be completed tomorrow between 10:00 and 12:00. Price: Z USD. Included: map tracking and photographic delivery report".

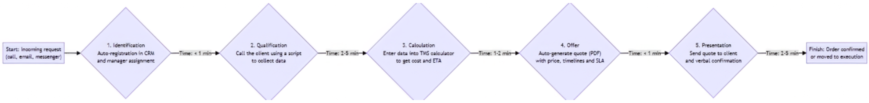

Figure 3. Flowchart of the Instant Response Protocol

Presentation and closing. Without interrupting the client interaction, the manager sends the offer via email or messenger, verbally highlighting the key terms and answering any questions. The whole cycle depicted in Figure 3-from first contact to offer dispatch — ideally requires no more than 10–15 minutes. Such speed and transparency at the outset create a powerful first impression and materially increase the conversion rate from inquiry to confirmed order.

3.2. Pillar 2: Transparent Delivery System — real-time expectation management

Once an order is confirmed, attention shifts from reactive speed to evolving the client experience throughout the delivery life cycle. The Transparent Delivery System is a procedural framework that fosters proactive communication, aiming not only to inform but also to alleviate the uncertainty and anxiety associated with waiting. This approach transforms passive waiting into a controlled and predictable process — particularly valuable for high-value or time-sensitive consignments such as premium golf carts. The system is founded on a sequence of automated notifications triggered by key events in the logistics chain. Each stage is accompanied by a message sent via the most relevant communication channel.

Immediately after order confirmation, the client receives an automated email and messenger notification that summarizes all order parameters: item description, addresses, agreed time window, price, and — crucially — a persistent link to a real-time tracking page. The following trigger occurs when a driver is assigned:

a personalized notification, such as “Your Club Car Tempo delivery has been assigned to driver John (vehicle: Mercedes Sprinter, registration number …)”. This personalization of the process creates an impression of accountable execution.

Notifications during the en route phase are of particular value. Instead of generic statuses like “dispatched” or “in city”, the system leverages geo-triggers. When the vehicle enters a predefined radius around the destination (e.g., 10 km), the client receives an SMS: “Our driver will arrive in approximately 20 minutes. Track their approach on the map: [link]”. This allows the recipient to prepare for receipt without having to check the status or call the company repeatedly. The delivery moment is the service climax: upon arrival, the driver records arrival in the mobile application, triggering a “Driver has arrived” notice. After unloading, inspection, and the client’s digital signature on the device, the system immediately generates and emails a Proof of Delivery (POD). This document contains the signature and photographic evidence of the delivered golf cart on the client’s premises, providing incontrovertible proof of service quality.

The closing stage comprises post-sales communication. A few hours after delivery, the client receives a brief request to evaluate service quality (NPS/CSAT). This signals that client feedback is valued and supplies data for continuous process improvement. The whole cycle of the Transparent Delivery System is summarized in Figure 4.

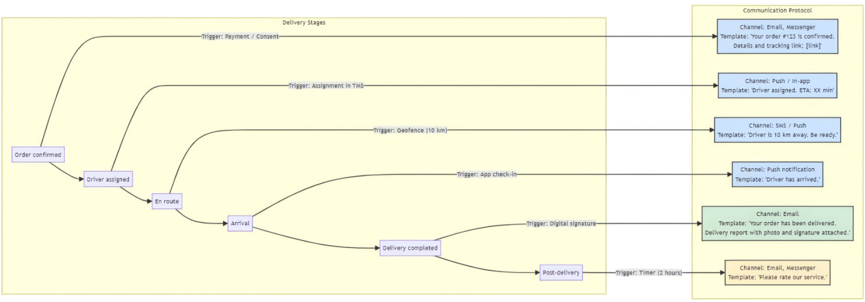

Figure 4. Communication protocol schematic for the Transparent Delivery System

3.3. Pillar 3: Time-Compression Operational Model — the internal architecture of speed

The external promises of speed and accuracy communicated through the first two pillars can be fulfilled only if the firm's internal operational model is engineered to minimize delays at every stage. The Time-Compression Operational Model is an internal architecture of speed composed of three components: express route planning, permanent resource readiness, and proactive coordination. A fundamental difference from conventional practice lies in a shift of the route-planning objective function. Traditional TMS solutions optimize for cost minimization (e.g., mileage, fuel). In the proposed model, the primary optimization target is the minimization of time-to-delivery (min (time_to_delivery)). A dynamic routing system driven by artificial intelligence analyzes scores of variables in real time — traffic congestion, weather, road closures, and delivery time windows — and can select a longer but faster toll-road route over a shorter congested urban corridor if doing so secures a critical 20–30 minute advantage and thus guarantees SLA compliance.

The second component is the principle of continual vehicle readiness. Rather than basing vehicles in a central depot and dispatching them on demand, the Time-Compression model maintains hot reserve standby vehicles. These units — configured for transporting golf carts — undergo pre-trip inspection, are fully fueled, and are strategically stationed near key nodes within the service area (e.g., near major residential developments or business parks where core clients are concentrated). This concept is analogous to micro-fulfillment centers in e-commerce, but adapted for vehicles, reducing dispatch lead time from several hours to tens of minutes.

The third component is effective driver coordination via a unified Control Tower. The logistics dispatcher is not merely an order allocator but a continuous monitor and orchestrator of the fleet. The platform visualizes all vehicles, their statuses, and load conditions. Suppose the system forecasts that an unforeseen traffic jam will delay driver A. In that case, the dispatcher can identify that driver B is becoming available nearby and instantly reassign the task, informing both drivers and the client. This capability mitigates external disturbances and preserves overall system reliability. For example, to deliver three golf carts to different golf clubs by 09:00, a cost-optimized plan might sequence a single vehicle through three stops, risking tardiness at the final location. A time-optimized plan, as in the proposed model, may deploy two cars on parallel routes, ensuring timely delivery to all three sites. The incremental cost of the second vehicle is recouped through adherence to rigid time commitments and increased client loyalty. A comparison of these two routing scenarios is presented in Figure 5.

The synergistic interaction of the three pillars yields a powerful and hard-to-replicate competitive position. The Instant Response Protocol efficiently attracts and converts clients by delivering speed and certainty at the outset. The Transparent Delivery System sustains client loyalty by managing expectations and providing psychological reassurance. The Time-Compression Operational Model is the internal engine that reliably delivers on external promises. Together, this integrated system enables the firm not merely to provide transport services but to manage the total customer experience, a foundation for market dominance within the selected niche.

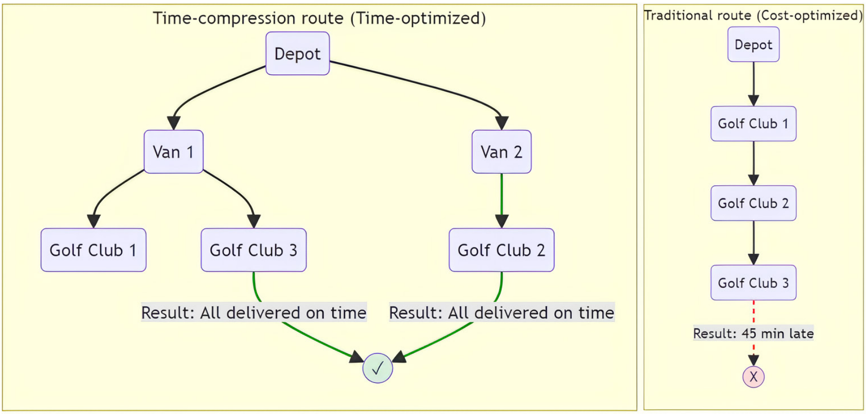

Figure 5. Comparative analysis of cost-optimized versus time-optimized routing

4. IMPLEMENTATION METHOD AND EFFECTIVENESS ASSESSMENT

4.1. Implementation roadmap: applying change-management models

Implementing SC-D is not a software installation or route refresh; it is an organizational transformation that touches culture, processes, and roles. Success hinges on competent change management. Applying Lewin's three-phase model and Kotter's eight-step model structures complexity and mitigates resistance [7]. Figure 5 presents the conceptual roadmap.

Phase 1: Unfreeze — prepare for change.

Steps 1–2: create urgency and build a coalition. Leadership must evidence the need for change — via numbers, not slogans: churn attributable to service failures, the cost of handling WISMO calls, losses from cargo damage. The aim is to show that maintaining the status quo is riskier than transforming it. Concurrently, form a cross-functional project team (operations, IT, sales, customer service). The primary barrier to overcome is the set of cultural/organizational silos that impede effective interdepartmental collaboration.

Phase 2: Change — execute transformation

Steps 3–6: visioning, communication, barrier removal, and quick wins. The team designs a detailed future-state vision, encompassing processes, technologies, and role changes. The vision is communicated clearly to all staff. Barrier removal follows: invest in the technology stack (Section 3.3); revise job descriptions (e.g., drivers as service-quality representatives); train personnel (mobile app use, customer-interaction standards). Quick, visible wins are crucial: a pilot with a loyal client or single route allows small-scale validation and demonstrable advantages.

Phase 3: Refreeze — institutionalize the new normal

Steps 7–8: build on gains and anchor in culture. Scale the successful pilot company-wide; codify new practices as SOPs. Most

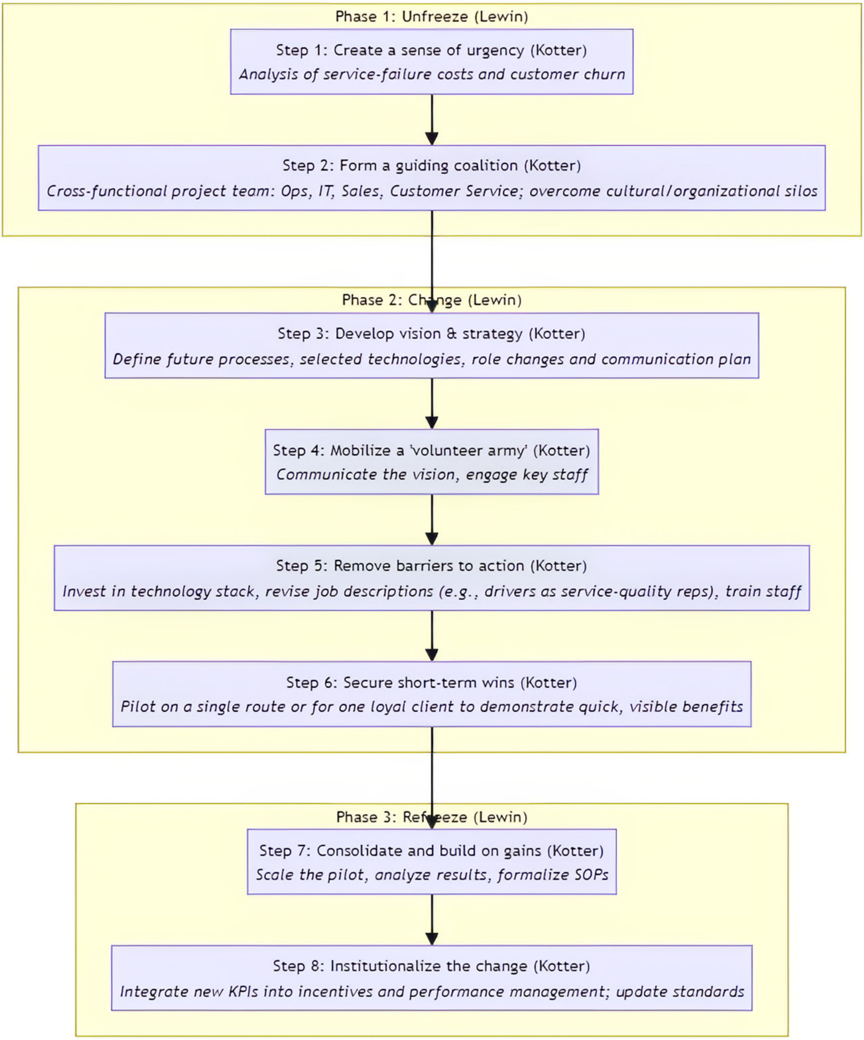

Figure 5. Roadmap for the implementation of the SC-D model based on the Lewin and Kotter models

importantly, embed the new metrics and KPIs (Section 4.2) in performance management and incentives. Change becomes the new status quo when the old way is untenable and unrewarded. Ongoing KPI monitoring and feedback secure continuous improvement.

4.2. KPI system for monitoring and control

To manage the performance of the SC-D model, a balanced KPI system is required that reflects all key aspects of its operation. Indicators must meet the SMART criteria (Specific, Measurable, Achievable, Relevant, Time-bound) and cover four key areas: speed and reliability, quality and communication, customer experience, and financial performance.

The KPIs in the model are interconnected, forming a unified picture of performance. At the core are the speed and reliability metrics — On-Time Delivery (OTD), which shows the percentage of orders delivered within the promised SLA, and Order Fulfillment Cycle Time, which reflects the average time from order placement to the actual delivery of an order to the customer. These metrics establish a baseline level of operational discipline and influence other metrics.

Quality and communication are also measured through the Perfect Order Rate — the percentage of completely correct and undamaged orders with complete documentation — and the WISMO Inquiry Rate — the frequency of “Where is my order?” requests. Per 1,000 deliveries as an indicator of the effectiveness of proactive notifications, and First Contact Resolution (FCR), demonstrating the customer service team’s ability to resolve issues during the first contact; together, these metrics reflect the extent to which processes and communications reduce customer friction.

At the customer experience level, Customer Satisfaction (CSAT) and Net Promoter Score (NPS) are used to assess service perception and potential for recommendations. At the same time, the financial metrics Customer Lifetime Value (CLV) and Cost per

Delivery link operational improvements to economics: increasing CLV confirms the return on investment in quality through retention and upselling, while controlling Cost per Delivery prevents uncontrolled cost growth as service levels improve.

Ideally, all KPIs are tracked in concert — improving OTD and Perfect Order Rate should reduce WISMO and increase CSAT/NPS, which over time is reflected in increased CLV with sustainable delivery cost control.

CONCLUSION

The research and development of the "Integrated Speed and Communication Management Model" (SC-D model) enable us to draw several fundamental conclusions of both theoretical and practical significance for niche transport companies.

First, in today's highly competitive and highly demanding environment, achieving a sustainable competitive advantage in niche logistics segments is not accomplished through price competition, but rather by creating a superior customer experience. The key determinants of this experience are speed, reliability, and transparency of delivery.

Second, an inextricable, symbiotic relationship between speed and communication has been proven. Customer loyalty is built not on absolute speed, but on the reliability of service promises. Minimizing the "service gap" between promised and actual service quality becomes a central objective, and proactive, accurate, and timely communication is the primary tool for achieving this. The SC-D model formalizes this thesis by representing logistics actions and communication events as a single cybernetic circuit. Third, implementing such an integrated model is impossible without the targeted development of a technology stack. Key components include IoT sensors for data collection, artificial intelligence to optimize operations dynamically, micro-fulfillment centers to accelerate physical processes, and a unified platform for managing visibility and communications. These technologies are not an end in and of themselves; however, they are a necessary tool. This instrument is necessary to fulfill planned company commitments.

In summary, to implement the SC-D model is an organizational, not a technical task, thus it needs an organized change management plan. Management's ability to overcome cross-functional barriers is critical to the success of transformation, as it also hinges on staff engagement. Also, restructuring the incentive system around new, customer-focused KPIs is critical. Practical tools for this are provided in the proposed roadmap based on the Kotter and Levin models, and the KPI matrix.

The SC-D model provides niche carriers with a comprehensive, empirically validated approach that facilitates a shift toward a customer-centric business from a transaction-centric one. This transition enables logistics to transform from a cost center into a powerful driver of loyalty, customer retention, and, consequently, long-term market dominance.

The first and most important area for further research is to conduct pilot implementations of the SC-D model in real niche transport companies, followed by a quantitative analysis of its impact on operational and financial KPIs (OTD, Perfect Order Rate, CSAT, CLV, etc.) in a longitudinal study format.

The second area is about expanding of the model's applicability. In this study three specific niche segments were examined. Future research could focus on adapting and testing the SC-D model in niches like hazardous cargo transportation, event logistics, or agribusiness delivery, which allows identifying characteristics specific to each industry to improve the model.

A third promising area involves studying emerging technologies' impact. Artificial intelligence of the generative kind does develop in a rapid way, in particular. This development opens new opportunities for automating also personalizing customer communications. The proposed approach's advancement could involve integrating GenAI agents into the SC-D model's communication matrix. This integration is able to create hyper-personalized notifications and process complex queries then even predictively resolve customer issues before they arise now.

A much more in-depth study of the human factor could then involve a fourth direction. Researching the impact of model implementation on corporate culture, motivation, and stress levels among staff (especially drivers, whose role is becoming significantly more complex) could enable the development of more sophisticated change management methods and training programs that ensure not only the technological but also the social and psychological sustainability of the transformation.

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