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Analysis of Trends and Future Challenges in the Field of Logistics Consulting Services

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Abstract

The study presents an analysis of trends and upcoming challenges that determine the trajectory of evolution in logistics consulting services. The purpose of the work is manifested in identifying and assessing trends, as well as determining the accompanying challenges for logistics consulting companies. The methodological foundation of the research includes a systematic review of scientific publications, content analysis of specialized industry reports, and the application of forecasting methods. The analysis established that the effectiveness of logistics consulting is increasingly shifting from one-off operational improvements to the creation of integrated, adaptive, and predictive logistics ecosystems. The hypothesis concerning the need to reorient the professional competencies of consultants toward data management specialists, systems architects, and sustainability experts has been confirmed. The main conclusions emphasize the inevitability of a transition to proactive, data-driven consulting models to maintain client competitiveness. The presented materials will be useful to managers of logistics and consulting companies, as well as to researchers in the field of supply chain management.

Keywords: *Logistics Consulting, Digitalization, Sustainability, Supply Chain Management, Artificial Intelligence, Industry 4.0, Forecasting, Optimization, Consumer Behavior, Risk Management.*

INTRODUCTION

The global economy is currently experiencing unprecedented turbulence and multilayered complexity, which sharply raises the requirements for flexibility and efficiency in supply chains. Under the pressure of geopolitical upheavals, post-pandemic shifts in world trade, and the accelerating green transition, a new paradigm for managing logistics flows is emerging. The logistics sector—the circulatory system of the world economy—must undergo profound transformation: the volume of the global logistics market in 2022 was estimated at 4.09 billion dollars, and by the end of 2030 it is expected to reach 12.09 billion dollars with an average annual growth rate of almost 17.1 % in the period from 2023 to 2030 [1]. These growth rates reflect not so much a quantitative increase in commodity flows as a qualitative complication of logistics operations, which radically intensifies the demand for highly qualified consulting services. Traditional consulting models focused on point-based optimization become inadequate when a comprehensive reconfiguration of supply chains is required that takes into account digital, environmental, and social determinants.

A significant scientific gap lies in the insufficient systematization of knowledge about how the combined influence of advanced technologies (artificial intelligence, digital twins), ESG imperatives, and a sharp shift in consumer behavior transforms the methodology and toolkit of logistics consulting. Existing literature examines these factors mainly in isolation, whereas their mutual integration creates fundamentally new challenges and opportunities.

The aim of the study is to identify and assess trends, as well as to determine the associated challenges for logistics consulting companies.

The scientific novelty of the study is expressed in a comprehensive assessment of the synergistic influence of digitalization, sustainable development, and changing consumer patterns on the transformation of methodologies and competence profiles in logistics consulting.

As the author's hypothesis, the thesis is advanced that the long-term competitiveness of logistics consulting in the twenty-first century is determined not by offering discrete solutions (for example, implementing WMS) but by the ability to design and integrate adaptive, predictive logistics ecosystems based on advanced analytics and artificial intelligence. This requires the renewal of consultants' professional competencies and a transition from the role of advisers to the role of architects and integrators of complex socio-technical systems.

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MATERIALS AND METHODS

A review of the existing literature demonstrates that contemporary consulting in logistics is increasingly relying on the development of digital technologies, seeking to provide clients not only with cost reduction but also with flexibility, transparency, and resilience of supply chains. Li P., Chen Y., Guo X. [2] link digital transformation to enhanced supply-chain resilience through the introduction of real-time analytics and machine-learning methods for predictive risk management Karakas S., Acar A. Z., Kucukaltan B. [3] emphasize the potential of blockchain for ensuring the credibility and traceability of operations, yet note the low maturity of technological ecosystems and the absence of a unified legal framework. In the context of new communication standards, Dolgui A., Ivanov D. [4] demonstrate how 5G technologies can ensure instantaneous data exchange between Internet-of-Everything objects, which is important for managing smart warehouse complexes and autonomous transport. Gartner forecasts [11] complement this picture by predicting that, up to 2025, digital twins, advanced analytics, and the automation of operations will become an integral part of consulting projects in logistics.

Parallel to technological innovations, the issue of training and retraining personnel stands out. Koh L. Y., Yuen K. F. [5] in their review point to the need for developing interdisciplinary competencies: from understanding the principles of big data and IoT to skills in change management and cooperation with digital start-ups. In their view, traditional professional training programs have not yet kept pace with the rate of technological change, creating bottlenecks in the implementation of consulting projects.

The topic of sustainable development is no less important. Akomea-Frimpong I. et al. [6] analyze the barriers to implementing the circular economy in various industries, identifying key obstacles: the absence of financial mechanisms, weak regulatory support, and insufficient cooperation among market participants. McIntosh O. B. et al. [7] propose platform-based solutions for the exchange of knowledge and sustainability practices among multi-stakeholder groups, highlighting the role of open data and joint initiatives. Mashud A. H. M. et al. [8] develop a model of sustainable inventory management with controlled carbon emissions, demonstrating an attempt to integrate environmental indicators into classical logistics tasks.

In the context of risk management and enhancing adaptability, Q Queiroz M. M. et al. [9] systematize studies on the impact of epidemics on supply chains, proposing a structured approach to building emergency roadmaps for different stages of the chain. Beigi Firoozi A. et al. [10], using meta-analysis, show that increased agility of supply chains directly correlates with financial performance; however, the actual effect strongly depends on industry specifics and the level of digitalization of the participants.

Finally, market studies demonstrate the expansion of 3PL–4PL services and the transition to Everything-as-a-Service models. The FN FResearch report [1] provides detailed segmentation by models, modes of transport, and industries, but is largely descriptive. Hernandez Gonzalez A. L. [12] focuses on the dynamics of the 3PL market, showing that companies increasingly seek turnkey comprehensive solutions but at the same time face rising competition and declining margins.

Thus, the literature review reveals several contradictions. First, optimism regarding the rapid implementation of blockchain and 5G [3, 4] conflicts with data on limited training resources [5]. Second, sustainable-development models [8] are often theoretically justified but practically inapplicable without considering industry specifics [10]. Finally, extensive descriptive market reports [1, 12] are not complemented by a critical analysis of the effectiveness of various outsourcing schemes in terms of sustainability and digital maturity.

Among the insufficiently covered issues, the following can be noted:

- The impact of the synergy of several technologies (blockchain + 5G + IoT) on the creation of a unified platform for logistics consulting;

- The empirical assessment of the effectiveness of employee retraining programs for new digital tasks;

- The integration of sustainability and circularity indicators into traditional consulting financial models;

- The impact of outsourcing on the long-term resilience and flexibility of supply chains;

- Risk-management mechanisms combining strategic and operational levels within digital transformations.

RESULTS AND DISCUSSION

The research conducted made it possible to systematise the main changes in logistics consulting and to outline the principal directions of its further evolution. It has been established that the industry is gradually moving away from isolated optimisation services, transforming into a strategic ally that ensures the client's business a comprehensive and long-term adaptation to market changes.

Digitalisation is no longer perceived as an optional upgrade; it has become the cornerstone of competitive resilience. For logistics consultants this marks a paradigm shift: the focus is moving from the implementation of standardised off-the-shelf IT solutions (WMS, TMS) to the formation of end-to-end digital ecosystems. Artificial intelligence, the Internet of Things, digital twins and blockchain come to the fore. The main mission of the consultant lies not so much in the technical installation of these instruments as in their strategic embedding into the client's operating model [2, 4]. As shown in table 1, a profound revision of the principles for implementing consulting projects is taking place.

Table 1. Comparative characteristics of the traditional and digital approaches in logistics consulting (compiled by the author based on [2, 4, 11]).

Parameter	Traditional approach	Digital approach (data-driven)
Source of solutions	Industry benchmarks, consultant's experience	Big Data analysis, predictive analytics
Optimization focus	Individual functions (warehouse, transport)	End-to-end processes, entire supply chain
Main tool	Process audit, flow mapping	Digital twin, simulation modeling
Project outcome	Report with recommendations, KPI	Interactive model, self-learning system
Work format	Discrete projects	Long-term partnership, subscription-based consulting

Digital twin technology functions as a cornerstone of contemporary supply chain management: dynamic virtual replicas make it possible to monitor ongoing operations synchronously and to experiment with alternative scenarios in real time. A consulting project aimed at their creation (see Fig. 1) — is a multi-level, highly intellectual process that requires the synergy of deep expertise in the domains of data aggregation and interpretation, mathematical modeling, and the integration of heterogeneous IT systems. This approach differs radically from the traditional audit, which is limited to the analysis of a static snapshot of information.

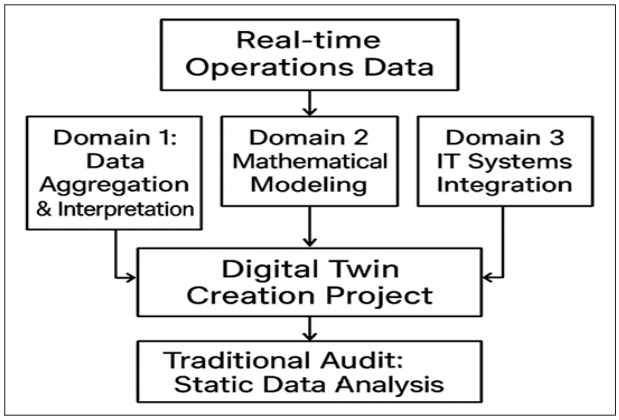

Fig. 1. Simplified diagram of a consulting project to create a digital twin of a chain (compiled by the author based on [3, 4, 7, 9]).

The sustainable development paradigm articulated through ESG criteria has undergone a qualitative shift. Today it is regarded not as an optional component of corporate philanthropy but as an element of risk-management systems and a source of sustainable competitive advantage. The convergence of investor requirements, the tightening of regulatory standards, and the growing environmental awareness of consumers compel companies to rethink their supply chains, making them not only operationally efficient but also climate-neutral and socially responsible. For consulting firms this gives rise to a fully fledged ESG support line in logistics. The range of tasks extends from the detailed calculation of the carbon footprint across all 3 emission categories to the comprehensive redesign of global supply networks aimed at minimising environmental impact. Industry surveys show that regulatory pressure and the desire to strengthen brand reputational capital are the key drivers for the adoption of green practices.

It should be emphasised that the discourse on sustainable development is inseparable from the objective of increasing resilience, that is, the ability of a supply chain to remain functional under disruptions. A shift toward local suppliers, which shortens the logistics leg and reduces the carbon footprint, simultaneously decreases dependence on unstable trans-boundary corridors [8, 9]. Consulting teams assist companies in establishing a fine balance among operational efficiency, environmental sustainability, and fault tolerance, which inevitably requires complex trade-offs. For example, increasing safety stock raises the system's immunity to disruptions but also increases warehousing costs and greenhouse-gas emissions. To support well-grounded decision-making, the key tool becomes the modelling of such dilemmas on the basis of digital twins.

The lightning-fast growth of electronic commerce and ultra-fast delivery services (q-commerce) has radically transformed customer expectations: speed, precision, flexibility of order receipt, and seamless returns have become the minimum standard. As a result, the logistics focus shifts to the last mile, which remains the most expensive and technologically complex segment of the chain. Consulting projects here are concentrated on courier route optimisation, the creation of urban micro-warehouse networks (dark stores), the deployment of omnichannel models (click-and-collect), and the improvement of reverse logistics processes [5, 6].

The evolution of consulting services under the influence of these trends can be represented as a multi-layer architecture (see Figure 2): traditional offerings are located at the centre, whereas the main added value and margin are gradually shifting toward the outer layers associated with data processing, sustainable practices, and strategic partnerships.

Fig. 2. Evolution of the logistics consulting services portfolio (compiled by the author based on [5, 6, 10, 12]).

Future challenges of the consulting sector are: chronic staff shortages and a simultaneous shift in the profile of sought-after competencies. The market is experiencing an acute shortage of specialists capable of bridging different disciplines: data science professionals with deep expertise in logistics; ESG experts versed in operational processes; systems architects who design highly complex integrated IT ecosystems. Consulting firms are forced to make substantial investments in retraining existing personnel and to engage in intense competition with the IT sector to attract new talent.

The transformation of the monetization model compels logistics consultants to abandon the classical time-and-material calculation or fixed project cost and to move toward subscription agreements and contracts that include a success fee component, that is, a payment directly dependent on the achieved effect. Such a scheme requires consultants to place deeper trust in their own solutions and to be ready to share entrepreneurial risks with the client.

The intensive introduction of artificial intelligence into logistics processes — from algorithmic selection of warehouse personnel to dynamic pricing — sharpens ethical issues. At the same time, rapid digital integration increases the vulnerability of supply chains to cyber-threats, and therefore expert consultants must conduct not only operational but also comprehensive cybersecurity audits.

Thus, logistics consulting has approached a bifurcation point: those companies that succeed in adapting to new demands by rethinking services, competencies, and the economic model will become strategically essential business partners in forming efficient, sustainable, and client-centric supply chains of the future. Organizations that continue to adhere to outdated approaches risk losing relevance and exiting the market.

CONCLUSION

The conducted study provided a comprehensive analysis of current trends and prospective challenges, outlining the trajectory of the logistics consulting market. It was found that the industry is undergoing a large-scale transformation under the influence of the synergy of three megatrends: pervasive digitalization, the strengthening of the sustainable development agenda and a radical shift in consumer preferences.

The results obtained confirmed the proposed hypothesis: the competitive advantage of logistics consulting is gradually shifting from the provision of isolated tactical improvements to the strategic formation of integrated, adaptive and predictive logistics ecosystems. Solving such tasks becomes possible thanks to Industry 4.0 technologies, primarily artificial intelligence and digital twins, which make it possible to model and optimize supply chains in real time.

The analysis showed that the role of the consultant is evolving toward that of a systems architect and long-term partner. The consultant's role is not limited to issuing recommendations but also involves participation in their implementation and the sharing of related risks. This imposes fundamentally different requirements on professional competencies, which must now combine deep knowledge in logistics with expertise in data analytics, sustainable development and systems engineering.

The findings of the study are as follows: first, digitalization is not an end in itself but a tool for achieving the client's business results—improving efficiency, minimizing risks or ensuring compliance with ESG criteria. Second, the sustainability and resilience of supply chains are becoming interdependent, critically important parameters whose management requires a comprehensive approach. Third, client centricity, especially in the last-mile sector, dictates the need for the introduction of flexible high-tech solutions. Future challenges for the industry are concentrated around overcoming the talent shortage, adapting business models to new partnership formats and managing ethical as well as cybernetic risks.

Thus, the future of logistics consulting belongs to companies capable of offering the client not a local solution but a holistic transformation strategy based on data, the principles of sustainability and a deep understanding of the end consumer.

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