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3PL AND 4PL OPERATORS: HOW THE ROLE OF LOGISTICS INTERMEDIARIES IS CHANGING

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Today, logistics plays a key role in the functioning of the economy, as it ensures the efficient movement of goods, services and information in a globalised market. As globalisation spreads and consumers' expectations of speed and quality of service grow, the importance of logistics is becoming even more important. The increasing complexity of supply chains is forcing businesses to turn to professional logistics intermediaries more and more often. This allows them to focus on their core business, optimise costs and strengthen their competitive advantage.

Under the influence of modern business environment challenges, such as digitalisation, the growing need for flexibility and adaptability, traditional logistics models are gradually changing and modernising. New formats of logistics services are gradually emerging that take these changes into account. Among them, a special place is occupied by third-party (3PL) and fourth-party (4PL) operators, which assume different levels of responsibility for logistics processes. Particular attention should be paid to how the role of these intermediaries in modern logistics is transforming in the context of digital innovation and global change.

3PLs (Third Party Logistics) are companies that provide services for managing individual logistics processes, such as transportation, storage, cargo handling, and distribution. This approach allows companies to outsource some of their operational tasks to an external contractor, which is especially important when resources are

limited. 3PL providers usually have a well-developed infrastructure, including transport, warehouses, and staff, and can tailor services to meet the specifics of the client. At the same time, the customer retains control over the overall supply strategy, customer relationship management and planning.

4PLs (Fourth Party Logistics) are companies that fully take over the management of all logistics processes for a client. They act as a single integrator that coordinates the activities of several 3PL providers, optimises supply chains, analyses data, provides monitoring and strategic planning. 4PL companies usually do not have their own physical infrastructure, but compensate for this with expertise, access to modern IT platforms and flexible management. Their main function is to ensure a high level of transparency, strategic control and efficiency of the client's entire logistics system. The main difference lies in the strategic nature of managing 4PL operators, who become long-term partners of the client.

With the development of digital technologies, globalisation and the growing need for customised solutions, the role of logistics intermediaries is changing. 3PL providers are evolving towards integrated solutions that combine transportation, warehousing, document management, IT support and after-sales services. They are implementing modern warehouse management systems (WMS), transport management systems (TMS), real-time tracking technologies and other digital tools that help improve productivity and service levels.

4PLs, in turn, have responded to the need for integrated, flexible and digitally controlled logistics management. Their role is not only to perform logistics functions, but also to create a supply chain strategy, manage risks, and formulate customer service policies. Modern 4PL providers are actively implementing analytical tools, automation, artificial intelligence, machine learning, blockchain and other digital technologies to integrate all stages of the supply chain into a single management system. As a result, they perform not only a coordination function, but also become 'logistics architects' who create flexible, adaptive and transparent logistics solutions that can quickly respond to market dynamics. With this transformation of functional roles and deep immersion in digital logistics processes, 4PL providers are increasingly moving to a

qualitatively new level - 5PL (Fifth Party Logistics), which is focused on full digital integration and strategic management of the entire supply chain ecosystem in a global market.

Table – Comparative characteristics of 3PL and 4PL operators

Indicator	3PL	4PL
Key function	Use of logistics operations	Strategic logistics management
Degree of customer involvement	Partial	Minimal
Process integration	Limited	Full
Cost	Relatively lower	Higher, but with higher efficiency
Flexibility	High	Medium

3PLs are suitable for small and medium-sized businesses that want to optimize their operational logistics but retain control over their strategy. 4PLs are suitable for large corporations or companies with global reach that seek full digitalisation of logistics, transparency and strategic supply management.

Global companies such as DHL, UPS, Maersk, DB Schenker and Kuehne + Nagel are examples of successful 3PL and 4PL combinations. DHL Supply Chain offers a full range of 3PL services, including warehousing, transportation, cross-docking, and logistics consulting. At the same time, the company carries out strategic management as a 4PL operator, using innovative solutions and forecasting systems.

Maersk Logistics provides integrated solutions that include physical transport, data management, analytics, and regulatory compliance. Kuehne + Nagel is actively developing digital services for real-time logistics management. Such companies are particularly effective in the context of e-commerce, high delivery traffic, and international customer service.

The demand for 4PLs is expected to grow in the coming years, especially due to:

- the need to process large volumes of data;
- the growth of international trade and the need to unify processes;
- the spread of e-commerce and the need for flexible last-mile logistics;
- the introduction of artificial intelligence, the Internet of Things (IoT), digital twins;
- increased requirements for transparency, environmental friendliness and social responsibility of business.

The development of intelligent control systems, robotic warehouses, automatic route planning and predictive analytics is creating new horizons for logistics intermediaries. The combination of the 4PL model with Supply Chain as a Service (SCaaS) platforms is particularly promising, allowing small and medium-sized companies to take advantage of global systems without large investments.

In today's world, logistics intermediaries play a key role in ensuring supply chain efficiency. 3PL operators remain relevant for operational tasks, but it is 4PLs that open up new opportunities for strategic logistics management. They contribute to the digital transformation of logistics, implementing flexible and scalable solutions that meet modern business challenges.

With the development of digital technologies, the role of 4PLs will only increase, especially in the face of global competition, market volatility, increasing supply chain complexity and customer expectations. The companies that are the first to adapt to these changes and integrate innovative logistics models will gain a significant market advantage.

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TRAFFIC SAFETY AND THE FACTORS ENSURING IT

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Road traffic safety is a comprehensive system of measures aimed at preventing accidents, protecting the lives and health of all road users, and ensuring the reliable operation of the transportation network. It involves the proper design and maintenance of roads, technical condition of vehicles, enforcement of traffic laws, responsible behavior by drivers and pedestrians, and the use of modern technologies.

This area is essential not only for reducing injuries and fatalities but also for supporting economic stability by minimizing traffic disruptions and costs related to accidents. Moreover, road safety contributes to the well-being and comfort of society by creating safer and more predictable conditions for travel.

Effective road traffic safety requires coordinated efforts from governments, local authorities, law enforcement, vehicle manufacturers, and individuals. Continuous improvement and adaptation to new challenges are necessary to reduce risks and enhance overall safety on the roads.

Road Infrastructure:

Road infrastructure is one of the key pillars of ensuring safety on the roads. The quality of road design, construction, and maintenance directly influences how safely vehicles and pedestrians can travel. Modern roads must comply with established safety standards, which include durable and skid-resistant pavement, sufficient width, clearly