



Moving the world, caring for tomorrow

Logistics trend report 2026

We are SmartPosti,

a forerunner of logistics in the Baltics. With the help of modern technology, companies and people can rely on effortless sending and collecting of parcels with us.

Our strength comes from being part of something bigger. We are part of Posti, a modern and international logistics expert with nearly 400 years of experience. Today, together, we foster connections between people and companies by delivering information, emotions, and goods with nearly 14,000 experts across the Nordic and Baltic countries.

We ensure a smoother flow of everyday life for you, our customers and society while building a more sustainable future for us all.

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A world in motion



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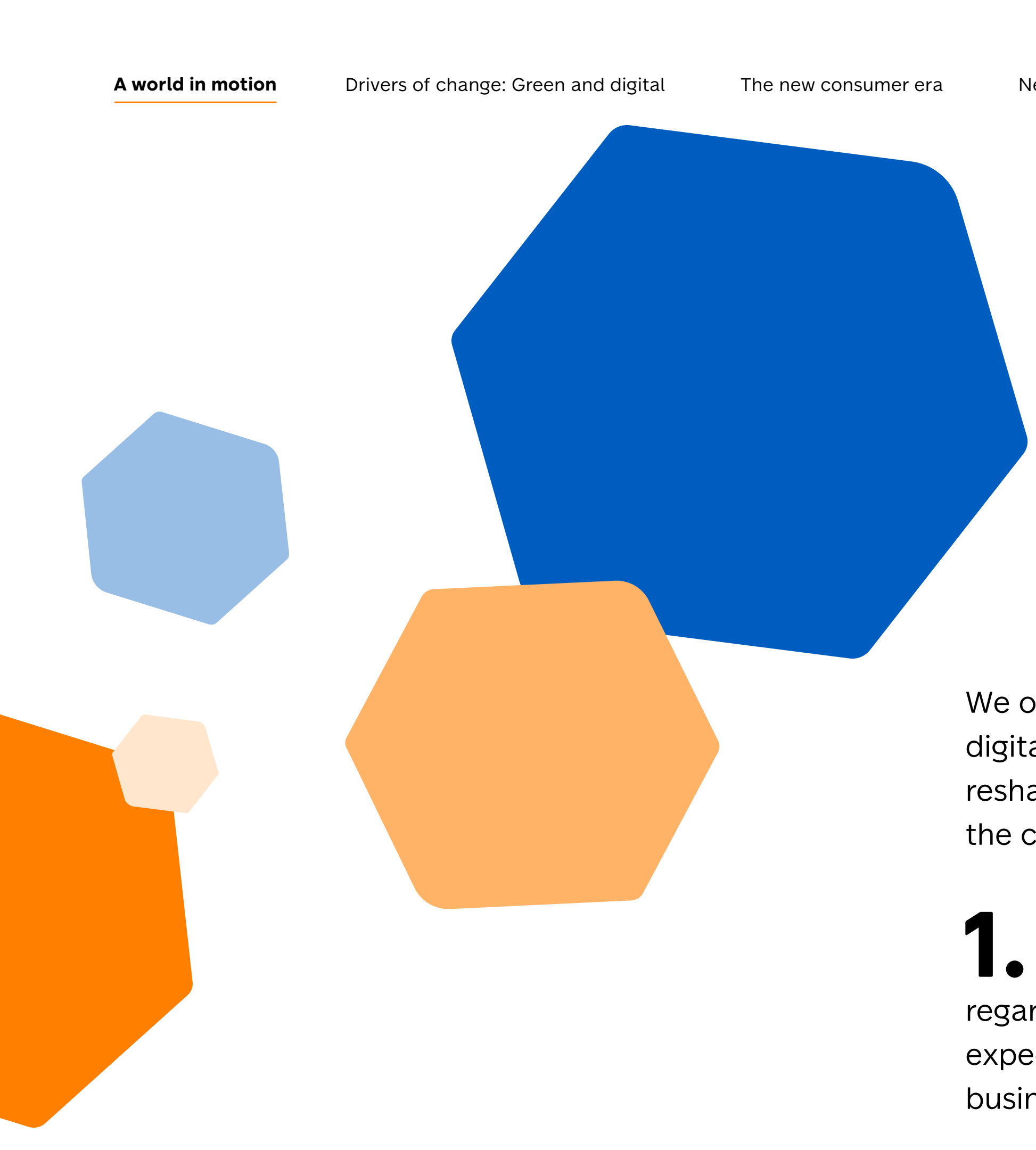
Logistics is society's invisible backbone: a system that keeps production, trade, and consumer daily life in motion. Today, logistics has become an even more strategic factor that accelerates corporate competitiveness, sustainability, and the development of customer experience.

This report brings together the transformative forces shaping logistics and its client industries, highlighting their impact. It is based on two main sources:

- **A logistics trend analysis commissioned by Posti** and prepared by experts at VTT (Technical Research Centre of Finland) regarding future trends in logistics. VTT is Finland's leading research organization focused on technology and innovation development.
- **A survey of 2,375 business decision-makers in Finland, Sweden, Estonia, Latvia, and Lithuania** exploring their views on development trends, risks, and investment intentions related to logistics. Conducted by Posti in collaboration with research company Norstat, the respondents represented businesses regardless of their current logistics service providers.

In this report, we describe the impact of two world-changing forces – **digitalization** and **sustainability** – on the entire logistics landscape. We discuss how consumer expectations are changing, how warehouses and distribution centers are evolving, and what technological solutions are already in use.

The goal is to make interconnected phenomena visible and offer insights that help companies grasp the change and identify the opportunities it opens. This report is intended for everyone affected by the impact of logistics on business and daily life.



We open with the **Twin Transition**, illustrating how digitalization and sustainability are converging to reshape the industry. This dual transformation serves as the connecting thread across four key themes:

1. The shift in consumer behavior, which challenges logistics to evolve, particularly regarding e-commerce purchasing, delivery expectations, and new types of circular economy business models.

2. The development of logistics centers, aiming for resource efficiency and flexibility through outsourcing, technology, and collaboration, including consolidation.

3. Network optimization and risk management, where data-driven operations, scalability, and cybersecurity are emphasized amidst geopolitical and economic pressures.

4. The renewal of transport modes, where diverse power sources and new urban solutions meet intelligent, data-driven cargo visibility.

The change is already underway – but its direction is now defined by the choices companies make at the intersection of technology, sustainability, and collaboration.

Drivers of change: Green and digital



Two immense forces are shaping logistics simultaneously: digitalization and sustainability. Their combined effect is known as the Twin Transition. It describes how digital and green transformations go hand in hand, creating a cycle where efficiency and responsibility support each other.

This is also evident in the views of the logistics decision-makers who responded to our survey, particularly in how widely digital solutions are seen as enablers of sustainability. According to our survey, over half of the respondents see that technologies such as AI, automation, and predictive analytics play an important role in logistics sustainability. Furthermore, as many as one-fifth consider their role to be extremely important.

We see the Twin Transition not just as one change among others, but as a phenomenon permeating all trends shaping logistics. It underpins changes in consumer behavior, the development of logistics centers, network optimization, and the renewal of transport modes.

→ **Over half of the respondents see that technologies such as AI, automation, and predictive analytics play an important role in logistics sustainability.**

Regulation and strategy drive the Twin Transition

A strong driver in this change is regulation regarding sustainable development, which is further reinforced by technological development and companies' own corporate responsibility. Logistics is affected, for example, by EU emissions reporting obligations and energy efficiency requirements for logistics centers.

Sustainability is increasingly an integral part of corporate strategy. Indeed, companies' own targets and legislative obligations are the primary forces driving carbon neutrality in logistics – not so much pressure arising from consumer expectations. According to our survey, only 7% of respondents estimate

that carbon-free transport will be a significant delivery criterion for consumers in the future. This indicates that emissions reductions in logistics are viewed primarily from the perspectives of corporate responsibility and competitiveness.

For companies, one concrete way to reduce emissions and promote the circular economy is a logistics partner that offers fossil-free transport and utilizes smart systems and operates in sustainable warehouses. A partner can support both sustainable operating methods and the efficient fulfillment of compliance requirements.



Sources and further reading

European Environment Agency (2025): Imagining a sustainable Europe in 2050: Exploring implications for core production and consumption systems https://www.eea.europa.eu/en/analysis/publications/imagining-a-sustainable-europe-in-2050/imagining-a-sustainable-europe-report_2025-th-01-25-005-en-n.pdf

World Economic Forum (2022): The ‘twin transition’ playbook: 3 phases to accelerate sustainable digitization <https://www.weforum.org/stories/2022/10/twin-transition-playbook-3-phases-to-accelerate-sustainable-digitization/>

The new consumer era



Consumer behavior is changing, and logistics is changing with it. The growth of e-commerce, the strengthening role of AI, and diversifying consumer expectations are reshaping logistics structures and operating models. Simultaneously, sustainability is driving a shift towards the circular economy and service-based consumption.

In this section, we examine how the simultaneous impact of digitalization and sustainability changes the logic and logistics of e-commerce and consumption:

- What consumers are expecting
- How AI changes buying and the role of delivery services
- How the circular economy and service-based consumption require two-way logistics flows
- How secondhand e-commerce challenges logistics to renew itself
- What kind of new business opportunities these trends open.

Towards a frictionless shopping experience

Consumer expectations in e-commerce have diversified and grown. While speed and price remain key factors, effortless shopping experience is becoming increasingly important. According to our survey, consumers are seen to expect the following features:

- **Real-time tracking and visibility** into deliveries, emphasizing trust and a sense of control.
- **Clear and flexible delivery options**, such as the ability to choose the delivery time or to choose between speed and price.
- **Seamless shopping experiences** across different platforms, where one-click payments and frictionless payment processes are becoming common.

- **Fast deliveries, even on the same day:** up to 50% of our survey respondents estimate that same-day deliveries will become part of their e-commerce delivery options within the next year, if they are not already.
- **Sustainability elements**, such as product-specific carbon footprint data, which 26% of respondents estimate they will introduce to their online store within the next 3–5 years.

Consumer delivery preferences are viewed very similarly across different countries: free delivery, as well as speed and flexibility, emerge as the most important. Although the same factors topped the list in all countries, there are differences in emphasis: in Sweden and Estonia, instant deliveries took the top spot, while in other countries, price was the most significant factor.

Additionally, respondents saw that AI-based shopping agents and AR applications (“try before you buy”) will become part of the shopping experience within 3–5 years. This indicates that speed alone is no longer believed to be sufficient; consumers are seen to value ease and personalization as well.

Various technologies can make purchasing even easier and more accessible. For example, voice commerce can in the future bring e-commerce closer to users who prefer mobile devices or for whom traditional browsing is difficult, such as the elderly or visually impaired people. This development is also linked to the silver economy phenomenon: the growing needs and purchasing power of an aging population guide markets toward solutions that are easy to use and accessible to a wide group of consumers. According to our survey, voice commerce is not yet mainstream, but interest is growing.

→ **Delivery price is seen as the main driver of consumer choices in most countries. However, in Sweden and Estonia, instant delivery takes the top spot.**

AI revolutionizes purchasing

AI now acts as a catalyst in this development. In purchasing behavior, this is already visible as consumers utilize AI chats to search for and compare products. However, a model is emerging where an AI agent acts with the consumer's authorization: it searches, compares, and makes purchases based on the consumer's previous choices and set preferences.

Agentic commerce, where AI agents – applications assisting in purchasing – communicate with e-commerce systems and make decisions on behalf of the consumer. According to our survey, AI-based purchasing agents are seen as a rising phenomenon: 53% of respondents believe shopping agents will become part of their own e-commerce within the next five years.

Agentic commerce changes not only purchasing itself but also the dynamic between e-commerce and logistics. The use of an agent means that the choice of delivery method may no longer occur purely through consumer intuition; instead, AI compares options and makes decisions based on the consumer's criteria, driven by data.

For AI to be able to assess the suitability of a delivery method for the consumer's needs, it needs clean, comparable, and relevant data to make choices. This can include Service Level Agreements (SLA), delivery performance in a specific area, and data on delivery emissions. Delivery options must also be productized into clear choices that AI can compare.





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- 53% of respondents believe shopping agents will become part of their own e-commerce within the next five years.

How can e-commerce prepare for the era of agents?

For years, the priority has been polishing the customer journey to perfection. However, in this new era, a flawless human interface alone will simply not suffice. When the buyer is AI, the e-commerce “user interface” is no longer visual, but data based. What, then, is needed for an online store to succeed in competition where AI agents compare products and deliveries in milliseconds?

- **Making data accessible to AI:** Visibility is no longer enough. Both products and delivery options must be technically discoverable within the interfaces and APIs where AI agents operate.
- **Translating marketing into data:** AI agents do not understand marketing slogans like “Fast delivery”. Information must be standardized (e.g., using

Schema.org) into clear metrics that an agent can process: precise delivery times and carbon footprint figures.

- **Eliminating data gaps:** If critical logistics data is missing, the AI agent may ignore the store entirely.
- **Leveraging platforms:** Small businesses can rely on modern e-commerce platforms to handle technical machine readability. However, the merchant is still responsible for ensuring that all product and delivery information is correct and complete.

This development also offers new opportunities for online stores that do not compete primarily with visual appeal. When the buyer is AI, the significance of the site’s layout decreases. Structured data and the ease of purchasing become the more important factors.

The secondhand challenge for logistics

The online market for used goods is growing. For example, in the clothing sector, the used product market – or secondhand market – is expanding significantly faster than the traditional clothing market.

Secondhand clothing e-commerce is projected to grow globally five times faster than traditional apparel retail, averaging 13% annually.

However, secondhand is not just about clothing. Consumers also purchase used electronics, furniture, children's supplies, hobby equipment,

and home décor. A study commissioned by Posti in Finland in 2025 reveals that alongside clothing, electronics and furniture are the most attractive categories for those who have not previously tried purchasing used goods.

Although secondhand buying and selling is growing, the same study indicates it also involves friction. Barriers to purchasing include doubts regarding quality (41%) and reliability (33%), as well as perceived arduousness (22%). On the selling side, the primary obstacle is inconvenience (41%).

In our survey mapping the views of logistics decision-makers, respondents consider product affordability to remain a key driver for the popularity of used goods. Alongside this, the importance of digital platforms is rising.

Indeed, secondhand has become a viable option for an increasing number of consumers. Thanks to the extensive selection offered by digital platforms, buyers have better opportunities to find what they are looking for. Platforms also make purchasing safer and easier: payments and delivery methods increasingly resemble traditional e-commerce, which lowers the threshold to purchase and increases trust.

Logistics can help build trust by offering:

- **easy shipping** for consumer-to-consumer transactions
- **transparent tracking** that increases the sense of security
- **clear return policies:** many platforms now offer a return option via integrated delivery methods, which lowers the threshold to purchase.

The growth of the secondhand market requires logistics to be capable of handling decentralized, consumer-driven delivery and return flows. This demands flexible, technically compatible solutions that function in both platform-based and direct consumer-to-consumer trading.

→ **The growth of the second-hand market requires logistics to be capable of handling decentralized, consumer-driven delivery and return flows.**



Two-way flows support circular economy

In the circular economy, logistics is no longer a unidirectional chain but a multi-directional network. A large portion of reverse logistics volumes consists of e-commerce returns, but that is by no means the whole picture: the growing demand for sustainable products and services creates new business opportunities for companies. Products do not merely move from producer or seller to buyer; during its

lifecycle, a product may continue its journey to repair, refurbishment, storage, loaning, rental, or to the next owner. Instead of being a niche operation, bidirectional logistics is becoming a strategic focus for companies.

Functional multi-directional logistics flows create a foundation for companies upon which lifecycle services and new circulation-based revenue models can be built.

- 1. Secondhand trade:** Brands and premium retailers can take control of the aftermarket by building their own used product store or by collaborating with existing platforms. This allows them to gain a better grip on pricing, quality assurance, and customer experience, as well as valuable data on the product's entire lifecycle.
- 2. Trade-in and exchange programs:** Exchange programs and credit models engage the customer to return to shop and increase purchasing power. When part of a new product's price can be covered by the value of an old device, the threshold to upgrade decreases. The company, in turn, gets the product back into its own circulation, either for resale, refurbishment, or parts utilization.
- 3. Closed loop models – the advantage of internal circulation:** In a closed loop, the company does not surrender returning products to third parties but utilizes them within its own channels. Used products are inspected and serviced before sale. Supply often originates from B2B customers, such as companies returning their devices, while demand is focused on the consumer side. In this way, the company manages the entire value chain, keeps the data in its own hands, and maximizes the value of every product.

- 4. Commercialization of returns and discontinued products:** The circular economy also extends to returns, items found to be defective, discontinued products, and surplus stock. When these are inspected, refurbished, and directed back to sale – either as like-new or through outlet channels – they become valuable assets again. This releases capital tied up in inventory, reduces waste, and creates new revenue streams. At the same time, the brand is strengthened, and consumers are offered a sustainable option.
- 5. New platform services:** Platform operators can develop solutions that connect consumers with each other, for example, in the form of peer-to-peer rental, shared use, or donation services.

Circular business models depend on efficient logistics. Items must move from customers back to sellers, be stored in warehouses, sent for repair, reintegrated into inventory, repriced, and finally redistributed to shops or delivered again. A logistics partner can manage this entire cycle seamlessly. Because sellers already rely on them for transport and warehousing, extending the partnership to circular flows avoids duplicating systems, reduces handling costs, and ensures scale. In short, logistics players make circularity not only possible but cost-efficient.

Circular economy in practice –

Case Posti & Nanso

Finnish clothing brand Nanso and logistics company Posti have developed a model that integrates the circular economy as part of the fashion supply chain. The goal of the collaboration is to extend product lifecycles and reduce waste while creating new business opportunities.

Here is how it works:

Returned garments are processed at Posti's logistics center:

- **Inspection and refurbishment:** Products are evaluated, washed, and repaired.
- **Preparation for sale:** Refurbished products are marked with a “New Life” tag or sold as like-new.
- **Delivery:** Finished products are added to inventory and delivered to customers or stores.

How does the concept meet modern needs?

- **Cost-efficiency:** Logistics challenges decreased, product tracking improved, and the need for discount sales was reduced.
- **Sustainability:** The circular economy model reduces waste and supports the principles of sustainable fashion.
- **Consumer trust:** Hygiene and quality are ensured in Posti's process, which removes barriers to buying used clothes.
- **New revenue models:** Profitable business is generated from returned products.

Sources and further reading

Capgemini (2025): What matters to today's consumer. 2025 consumer behavior tracker for the consumer product and retail industries https://www.capgemini.com/wp-content/uploads/2025/03/Capgemini_Consumer_Trends_2025.pdf

McKinsey & Company (2025): What do US consumers want from e-commerce deliveries? <https://www.mckinsey.com/industries/logistics/our-insights/what-do-us-consumers-want-from-e-commerce-deliveries>

McKinsey & Company (2024): The agentic commerce opportunity – How AI agents are ushering in a new era for consumers and merchants <https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-agentic-commerce-opportunity-how-ai-agents-are-ushering-in-a-new-era-for-consumers-and-merchants>

Posti Group (2025): Secondhand is growing rapidly – Yet one in four Finns has never bought secondhand <https://www.posti.fi/en/latest-news-at-posti/news/secondhand-is-growing-rapidly-2025>

Posti Group (2025): Posti x Nanso: Circular economy in practice – sustainability meets efficiency <https://www.posti.fi/en/for-businesses/latest-news/20250414-posti-x-nanso-circular-economy-in-practice-sustainability-meets-efficiency>

Statista (2025): Relevance of machine customers in companies worldwide <https://www.statista.com/statistics/1421561/machine-customers-relevance/>

Statista (2025): Second-hand e-commerce – Statistics and market insights <https://www.statista.com/topics/9448/second-hand-e-commerce/>

STAT Times (2024): From design to delivery: the changing face of fashion logistics <https://www.stattimes.com/logistics/from-design-to-delivery-the-changing-face-of-fashion-logistics-1353982>

SWR Aktuell (2025): Retoure-Paket-Automat – Mystery Box und Secret Pack als neue Retourenlösungen <https://www.swr.de/swraktuell/baden-wuerttemberg/retoure-paket-automat-mystery-box-secret-pack-100.html>

ThredUp (2025): Resale Report – Insights on secondhand fashion and resale market trends <https://www.thredup.com/resale>

Next-generation fulfillment



Companies are seeking solutions that support efficiency, flexibility, and sustainability. This presents outsourcing as a **resource-intelligent solution** that provides scalability and speed as well as the testing of new markets without heavy investments. At the same time, technological development – automation, robotics, and AI – is shaping the operations of logistics centers and creating new opportunities for cost-efficiency, speed, and employee experience and safety.



Outsourcing as a resource-intelligent choice

Companies seek logistics solutions that enable agile operations. According to a third-party survey commissioned by Posti, approximately 70% of the customers are willing to outsource more of their logistics operations within the next five years. Our survey for this report indicates that the reasons for outsourcing relate to efficiency (48%), the opportunity to focus on core business (40%), and scalability, for example during peak seasons (39%).

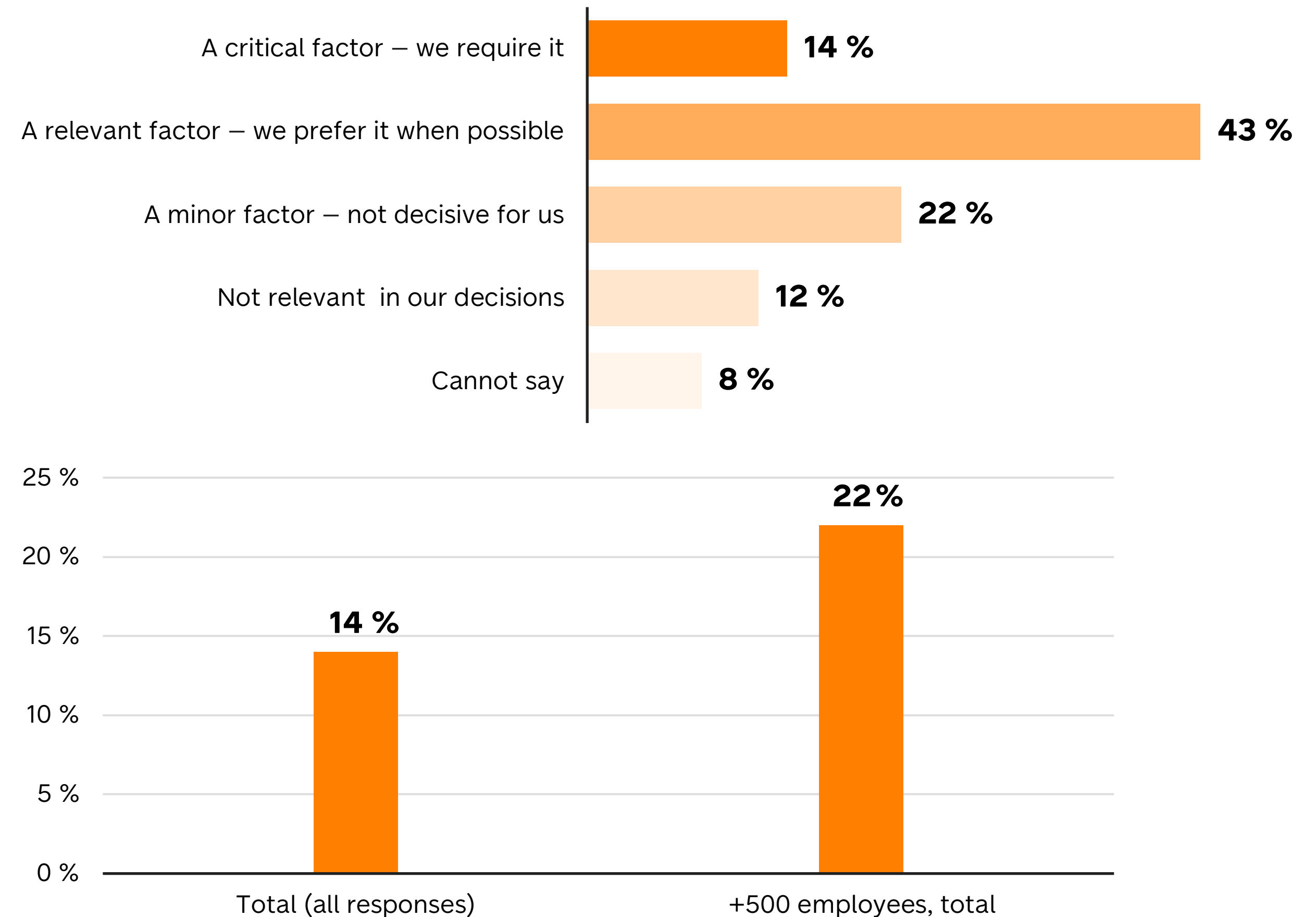
Resource intelligence refers to the ability to utilize available resources – such as time, money, space, and expertise – in a sustainable way that optimizes the whole. Outsourcing supports this thinking in the following ways:

- **Reduces overlaps and improves manageability:** When a company does not do everything itself, the whole remains more manageable, and resources are allocated more efficiently.

- **Enables proactive and scalable operations:** Outsourcing brings flexibility to the management of seasons and demand fluctuations.
- **Leverages the expertise and capacity of the partner network:** The company gains access to special expertise and additional capacity without having to build them itself.
- **Enables growth into new markets:** Partnerships allow for testing new markets without heavy infrastructure construction, making expansion more agile and less risky. Partners can also provide valuable insight and learnings regarding new markets.
- **Supports local distribution models:** Partners can operate close to the customer, which reduces transport distances and emissions.

→ **The reasons for outsourcing relate to efficiency (48%), the opportunity to focus on core business (40%), and scalability, for example during peak seasons.**

Outsourcing supports sustainability when low-emission solutions and responsible practices are prioritized in partner selection. In our survey, 43% of the respondents consider sustainability essential and prioritize responsible partners whenever possible. Sustainability is a critical selection criterion for 14% of respondents, with Finland leading at 19%. Among large enterprises (500+ employees), this figure rises to 22%, driven by strategic integration and reporting obligations.



The upper graphic shows the distribution of all responses regarding how critical responsibility is in the selection of a logistics partner. The lower graphic shows the share of respondents who consider responsibility a critical factor, compared with the corresponding share among companies with at least 500 employees.

Efficiency through shared resources

Behind an individual outsourcing decision lies a broader structural change in logistics: a shift from closed systems toward **consolidation** and shared infrastructure. Future efficiency does not arise from every operator optimizing their own warehouse, but from spaces, technology, and transport networks being utilized jointly across company boundaries.

In this ecosystem, the logistics partner can act as the **orchestrator** and integrator of the whole. By aggregating the goods flows of customers into the same centers and

networks, the partner can balance volume fluctuations and create economies of scale that are impossible for a single company to achieve alone. The company gains access to technological benefits and dynamic capacity without having to tie its own capital to heavy investments or bear the risk of technology obsolescence.

Globally, we are seeing the rise of **shared logistics**, where even retailers are opening their proprietary networks to others, recognizing that higher flow density ultimately benefits all stakeholders.



When robots, cobots, and algorithms handle delivery

Let's imagine a future emerging from logistics trends:

When a customer clicks “order now,” a discreet but high-tech logistics chain begins from the warehouse to the doorstep.

The journey starts at a logistics center: a large, automated warehouse where people and robots work seamlessly together. A cobot, or collaborative robot, identifies products, sorts orders, and moves them forward. It recognizes gestures and voice intonations and handles objects like a human worker. Amazon's Vulcan robot has already developed a sense of touch, enabling this new kind of collaboration.

In the case of a so-called dark warehouse, no humans are present at all. There, robots handle

everything fully independently from sorting to transfers. Such spaces require no lighting, which saves energy.

Once the package is ready, it moves to transport. Here, autonomous transport solutions come into play. KargoBot's autonomous truck platoons travel long distances without a driver, reacting to their environment and optimizing their routes in real time. In the US, Aurora Innovation's driverless trucks are already in commercial use.

According to some estimates, humanoid robots may also transport packages in the future using public transport.

In the recipient's home city, the package arrives at a nano-fulfillment center: a small unit located in an urban area that enables same-

day delivery. These hyper-local centers can be self-assembling and operate as a swarm-like coordinated network.

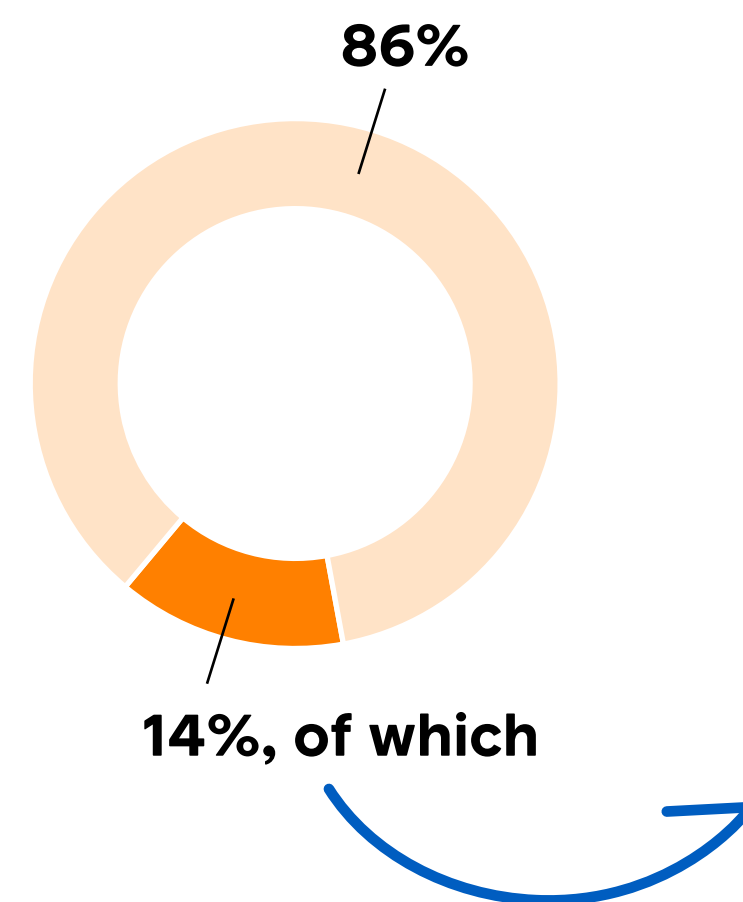
In last-mile delivery, robots take the lead again. Sidewalk robots and drones transport packages directly to the customer's doorstep. Alternatively, a robot can deliver the package to the nearest smart parcel locker, which runs on solar power and identifies the recipient biometrically.

When the recipient receives the package, they may find their order in a shipping box made from mushroom-based material. The packaging is lightweight, shock-resistant, and fully compostable. It protects the product during transport just as well as plastic but decomposes naturally after use.

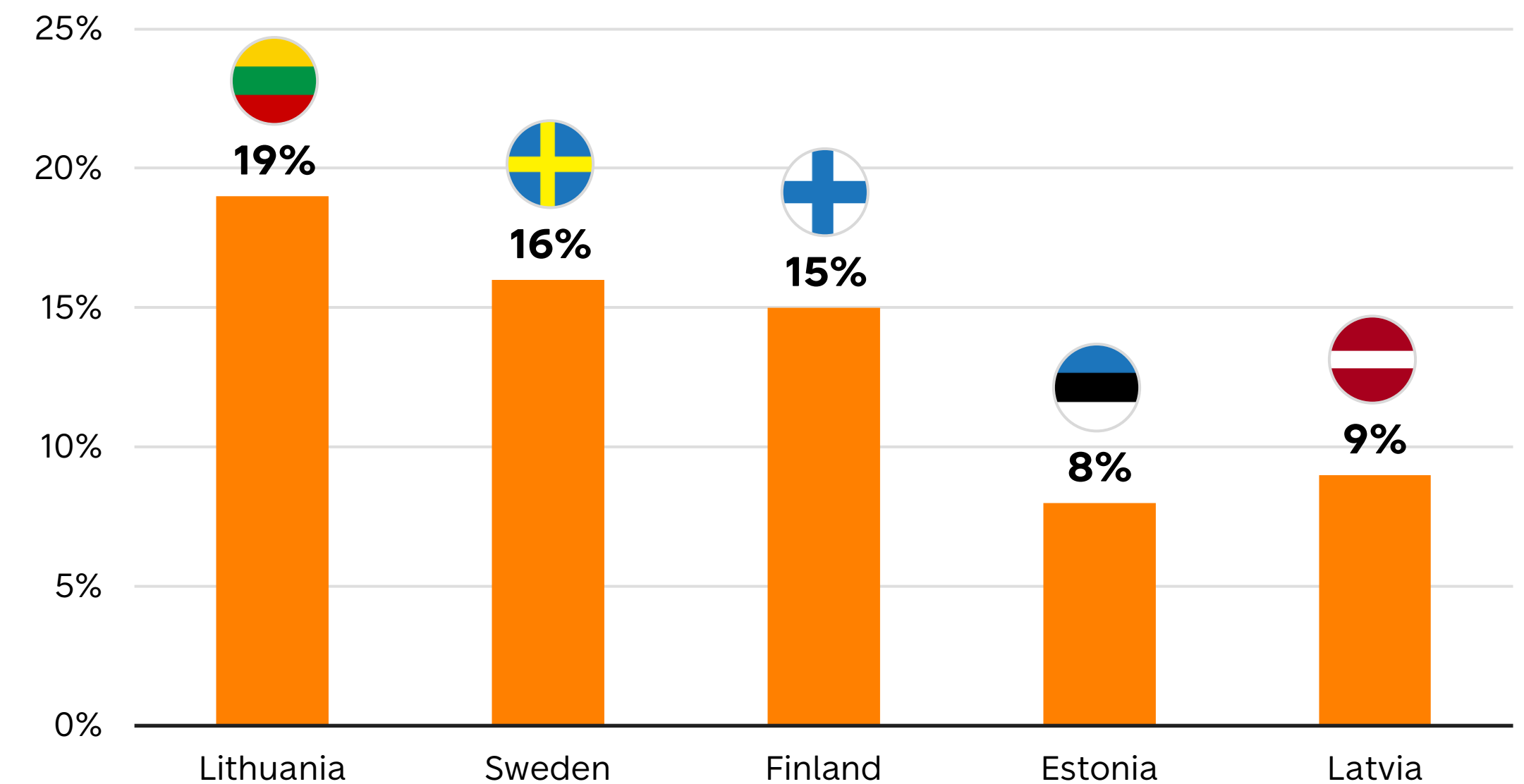
The robot revolution is not here yet

Robots are already a reality in individual companies and applications. These involve dark warehouse solutions, cobots, and drones handling last-mile deliveries.

However, our survey indicates that robots are not yet commonplace in the majority of companies. The utilization rate is very low: currently, only about 3–5% of companies in all countries utilize robots. Nevertheless, a group of pioneers stands out, and interest in technology is growing. Significant growth is expected within 3–5 years, especially in Lithuania (19%), Sweden (16%), and Finland (15%). This suggests that robots are seen as an opportunity, even if it has not yet materialized widely.



Of all respondents, 14% say they plan to start using robots within the next 3-5 years.



Distribution by country of respondents who estimate that they will start using robots within the next 3-5 years.

However, there are major differences in views depending on company size. Small companies (2–10 people) are not significantly adopting robot usage; 62% state that implementation is not in their plans at all. This highlights the need for external support: a logistics partner can help assess where robots and automation bring the most benefit and offer solutions that enhance efficiency and speed. This way, technology adoption does not remain the sole privilege of large operators but can also support the competitiveness of smaller companies.

Traditional automation solutions can be challenging to implement in existing facilities that were not originally designed for automation. Cobots, or collaborative robots, and RaaS (Robotics-as-a-Service) services offer a more agile alternative. They can be deployed without major structural changes, making them attractive for current warehouses and production environments. This flexibility is one reason why cobots have risen to the top of warehouse automation procurements.



Human-machine collaboration

The balance in the division of labor between humans and machines is still taking shape. Where does the robot complement the human, and where does the work shift entirely to automation? There are no final answers to these questions yet and solving them requires shared learning and experimentation alongside technological development. Fundamentally, the attitude toward human-machine collaboration in companies is positive according to our survey.

Companies are investing in training and recruitment to strengthen digital capabilities and keeping their know-how fresh along the evolving needs. This signals that human expertise and continuous learning are still needed. According to our survey, 31% of respondents consider competence development one of the most important priorities of their logistics strategy. This indicates that although automation and technology are

advancing, the role and capabilities of humans are seen as decisive for the success of the twin transition.

Robots may not yet be everyday life for many companies, but technological development can be seen in the daily life of warehouses and terminals in other ways. So-called exoskeletons, or external body support structures, and smart clothing support the employee's physical performance and improve occupational safety. Exoskeletons can reduce the load in lifting situations, and sensors integrated into smart clothing (such as gyroscopes and accelerometers) can monitor working postures and warn of risks.

Thus, human-machine collaboration is not just about automation, but also about solutions that support efficiency and well-being simultaneously.



A donut chart with an orange segment representing 31% of the total. The rest of the chart is a light beige color. The percentage '31%' is written in large, bold, black font in the center of the chart.

31%

see competence
development as
a priority

-
- According to our survey,
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of their logistics strategy.

Exoskeletons supporting the employee –

Case Exia

German company German Bionic has developed the world's first AI-controlled exoskeleton that physically supports heavy work and improves occupational safety.

Here is how it works:

The Exia exoskeleton recognizes user movements and working postures, interprets the context, and reacts in real time. It reduces the load by up to 38 kg per lifting movement and supports carrying and walking. The device learns from every use and improves support over time.

How does the concept meet modern needs?

- **Occupational safety and ergonomics:** Technology can help prevent musculoskeletal disorders and extend careers.
- **Low-threshold technology:** Exoskeletons and smart clothing are relatively cheaper and faster to implement than fully automated systems.
- **Attractiveness of work:** Technological innovation reduces physical strain, making the work lighter and less strenuous.

Sources and further reading

Bittermann, A. & Hess, D. B. (2024): Illuminating dark stores: the continued evolution of the post-COVID-19 pandemic retail landscape of cities <https://doi.org/10.3828/tpr.2024.24>

Future Today Institute (2024): Tech Trends Report: Supply Chain – Logistics https://futuretodayinstitute.com/wp-content/uploads/2024/03/TR2024_Supply-Chain_FINAL_LINKED.pdf

KEBA (2025): Mobile robots in logistics: Potential for high autonomy and increased efficiency <https://www.keba.com/en/news/industrial-automation/mobile-robots-in-the-logistics-industry>

Logistics Innovation (n.d.): With brains on the spot <https://www.logisticsinnovation.org/en/logistics1/intralogistics/2939-with-grips-on-the-hand>

Symbotic Inc. (n.d.): Warehouse Automation for High Efficiency & Agility <https://www.symbotic.com/>

World Economic Forum (2024): Logistics: Labour Market Trends and Demographic Change <https://intelligence.weforum.org/topics/a1Gb0000000pTDoEAM/key-issues/a1Gb00000005QyaFEAS>

Smart and resilient networks



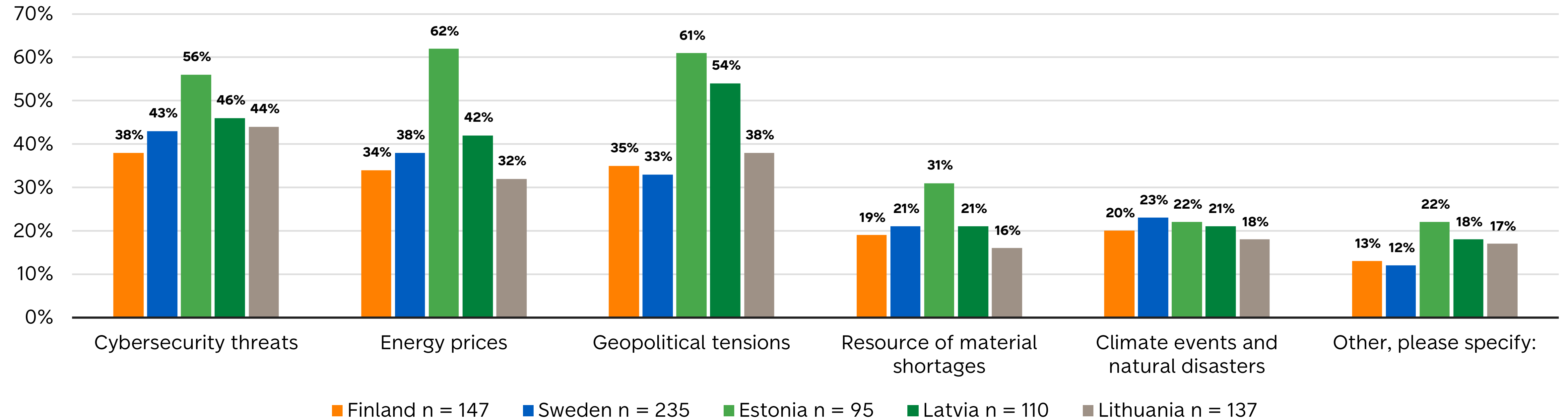


Optimizing logistics networks has become a key issue for companies balancing growing pressures and requirements. The goal is to ensure efficiency, rapid response capabilities, and cost-effectiveness while meeting sustainability requirements. Digitalization enables predictive and data-driven logistics, which improves network transparency and flexibility.

Optimization is also driven by new risk factors: geopolitical uncertainty, energy price fluctuations, and cybersecurity threats, which force companies to decentralize operations and increase resilience. Combating cyber threats in logistics is essential, as logistics operators handle customer data and order information. Partner reliability and shared standards determine how well the supply chain withstands disruptions and protects customer data.

There are various technologies and operating models for adapting to these changes, which are emphasized differently depending on the market. Our survey in five Baltic Sea countries (Finland, Sweden, Estonia, Latvia, Lithuania) reveals that network optimization is not merely a technical question but reflects regional risks and strategic priorities.

The biggest risks for logistics at the moment



- **Cybersecurity** has emerged as a significant concern, especially in Estonia (56%), Latvia (46%), and Lithuania (44%). This explains the interest in decentralized solutions that improve information security and resilience.

- **Energy price fluctuations** are highlighted in Estonia (62%) and Latvia (42%), increasing the pressure to develop energy-efficient routing and warehousing models.

- **Geopolitical uncertainty** weighs heavily, particularly in Estonia (61%) and Latvia (54%).

Optimal routing with AI

Artificial intelligence is rapidly developing into a central tool for logistics optimization. Its strength lies not only in calculating the fastest route but in the ability to evaluate millions of options simultaneously and make decisions in real time.

In these decisions, AI synchronizes and steers the whole, considering delivery time, costs, emissions, and energy consumption, as well as customer preferences. The technology enables even a complex and fragmented network – including small local partners – to function as precisely as a unified organization.

AI supports companies' strategic goals, such as speed and cost-efficiency. It can also take optimization a step further with predictiveness: inventory can be moved closer to the customer based on anticipated demand. This improves flexibility, reduces the risk caused by energy price fluctuations, and lowers the environmental load when unnecessary transfers are eliminated.

Our survey indicates that despite the potential, AI is not yet mainstream in route optimization: approximately 18% of companies utilize AI-based routing or are implementing it, and 17% plan implementation within the next 3–5 years. Here, a logistics partner can be the key: outsourcing allows companies to access the benefits of AI-driven optimization directly through the partnership.

Data collaboration unlocks optimization

Data is an essential part of logistics optimization, as is the flow of data. Logistics partners share information with their customers, but accurate data produced by senders is also essential so that systems can operate proactively and efficiently.

These benefits arise when systems can process data automatically and in real time:

- **Reliable deliveries:** Comprehensive data enables increasingly accurate delivery time estimates, in the future even before order confirmation, when real-time capacity and shipment data can be utilized. Real-time transport tracking makes the process transparent, aiding in the management of customer promises.
- **Flexible optimization of transport flows:** Real-time data allows for routing, consolidation, and prioritization under changing conditions.

- **Strategic improvement opportunities:** Visibility into performance and bottlenecks transform logistics from a reactive process into a competitive advantage.

To achieve this, the following types of data are needed, for example:

- **Shipment readiness** for transport – when the shipment is available for pickup
- **Exact dimensions** and weight of the shipment – for routing and capacity optimization
- **Order priorities** – which delivery is urgent or strategically important
- **Flexibility rules** – how much leeway there is in the delivery window or route
- **Demand signals** – predictive planning of capacity and routing (e.g., sales forecasts, campaigns, order flows)

Security through decentralization

Logistics information systems have traditionally relied on centralized solutions where all data is gathered in one point and processed there. This model is efficient but susceptible to disruptions: the failure of one center or a cyberattack can paralyze the whole network. In our survey, nearly half of the respondents view cybersecurity as a significant risk already now, and its importance will continue to grow in the coming years.

Decentralized architecture and technologies offer a solution, reducing dependence on one vulnerable point. **Edge computing** and **blockchain technology** are central to this: they enable data processing and identity management in a decentralized way. However, based on our survey, the adoption of these technologies is still at a very early stage, and their possibilities are not yet well known.

What does edge computing mean?

It shifts data processing closer to its source – to warehouses, transport vehicles, and distribution points – instead of everything going through a centralized cloud. This reduces latency, improves data security, and protects sensitive data because it does not need to be transferred long distances online. Moreover, decentralized processing supports sustainability by reducing the load and energy consumption of data centers.

What about blockchains?

Blockchain technology is based on the immutability and transparency of transaction records. In logistics, this implies that every shipment, vehicle, and logistics center can have its own digital identity, with events recorded in the chain. Each new entry is linked to the previous one, forming an entity that cannot be altered unnoticed; all changes would be immediately visible throughout the chain. Control does not rest with a single centralized entity. Instead, information and its integrity are secured through the blockchain.

Parcel lockers – enabling smarter last-mile delivery to meet changing customer needs

In Europe, parcel lockers are an established part of the e-commerce supply chain, but development trajectories have varied significantly by country. In Germany, lockers were introduced as early as the 2000s, but usage remained low at first. In Estonia and Finland, however, comprehensive parcel locker networks were rapidly created in the 2010s, quickly becoming European leaders in both quantity and usage. In Finland, Posti was the first logistics operator to bring parcel lockers to the market.

The importance of parcel lockers is now growing globally. In Asia, they are already commonplace, also with innovations such as solar-powered lockers being adopted. In North America, development is slower due to a strong standard for home delivery, but cost pressures and security needs are accelerating the shift there as well.

→ In Estonia and Finland, comprehensive parcel locker networks were rapidly created in the 2010s, quickly becoming European leaders in both quantity and usage.

The development is a result of the growth in e-commerce volumes and the increase in returns. Lockers offer a solution that combines cost-efficiency, customer convenience, and environmental benefits. In urban areas, they can significantly reduce driving kilometers and emissions – according to some sources, by more than a third – because deliveries are concentrated at a single point rather than being dispersed to individual addresses.

For the consumer, parcel lockers make delivery predictable and flexible. Customers can pick up their parcel when it suits them best, and lockers also support returns, ensuring a smooth and hassle-free customer experience.

Technological development is taking lockers even further: they are integrating with digital payment systems, return processes, and even cold chain management. In terms of security, the Australian company Vlocker is showing a new direction by utilizing fingerprint and facial recognition in their lockers. Biometric authentication ensures that the locker opens only for the registered recipient, raising delivery reliability to a new level. Furthermore, in the future, AI could dynamically guide locker placement and capacity management, improving network utilization rates and optimizing overall logistics.



Sources and further reading

ALICE, The European Technology Platform (2024): White paper AI in logistics <https://www.etp-logistics.eu/wp-content/uploads/2024/05/AI-White-Paper-web.pdf>

CDO Times (2025): UPS and Agentic AI: A Case Study in Logistics Innovation <https://cdotimes.com/2025/01/06/ups-and-agentic-ai-a-case-study-in-logistics-innovation/>

Data Spaces Support Centre (2025): Data Spaces Blueprint v1.5 <https://dssc.eu/space/bv15e/766061169/Data+Spaces+Blueprint+v1.5+-+Home>

Global Trade (2024): Digital Freight Matching Platforms: The Uberization of Logistics <https://www.globaltrademag.com/digital-freight-matching-platforms-the-uberization-of-logistics/>

MIT Technology Review (2025): Artificial Intelligence - Cyberattacks by Ai agents are coming <https://www.technologyreview.com/2025/04/04/1114228/cyberattacks-by-ai-agents-are-coming/>

PWC (2023): Shifting pattern: The future of the logistics industry <https://www.pwc.com/sg/en/publications/assets/future-of-the-logistics-industry.pdf>

Traficom (2025): Liikennejärjestelmän nykytila ja toimintaympäristön muutokset – yhteenveto <https://tieto.traficom.fi/fi/tilastot/liikennejarjestelman-nykytila-ja-toimintaympariston-muutokset-yhteenveto>

Vlocker (2025): Security Entry – Setting the Gold Standard in Locker Security Entry <https://www.vlocker.com/lockers/security-entry>

WIPO Technology Trends (2025): Future of Transportation https://www.wipo.int/web-publications/wipo-technology-trends-future-of-transportation/assets/71569/1055_Future%20of%20Transportation_WEBlr.pdf

Zhang, Q., & Demir, E. (2025): Parcel locker solutions for last mile delivery: a systematic literature review and future research directions <https://doi.org/10.3389/ffutr.2025.1654621>

The future of transport



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Urban transport is seeking new forms as traditional delivery methods encounter their physical and ecological limits. Simultaneously, fleet power sources are rapidly diversifying in response to tightening regulation and delivery reliability requirements.

The renewal of transport modes is one of the most concrete examples of logistics' twin transition. However, the vehicle is only half the story. The future of transport is also defined by intelligence and visibility. To optimize flows and minimize waste, we need to know not just where the truck is, but what is inside it and in what condition.

In this section, we delve into how this change is visible in transport:

- How does intelligence and item-level tracking transform the efficiency of moving goods?
- How is the energy transition renewing the fleet and demanding new kinds of infrastructure?
- How do urban emission restrictions force the search for new, innovative solutions?

Intelligence in transit: The end of shipping air

Smart transport requires smart cargo. To achieve the goals of the twin transition, logistics must eliminate inefficiencies – specifically, the transport of “air.” Ambient IoT addresses this by making every item trackable, enabling operators to identify underutilized vehicles and optimize truckloads in real time. Ensuring every vehicle carries its full capacity reduces the number of trucks on the road, directly lowering fuel consumption and emissions.

Simultaneously, the technology creates a fully digital audit trail. Automated shipment and delivery receipts eliminate paperwork and manual errors, while asset-level geolocation provides transparency from warehouse to customer. This creates a supply chain that is not only greener but radically more transparent.



Ambient IoT in Transit –

Case Wiliot and Walmart

Ambient IoT digitalizes supply chains by making products and transport assets trackable in real-time. Walmart utilizes Wiliot’s battery-free sensors to create a “living” supply chain where inventory and the cold chain remain automatically under control.

Here is how it works:

The system is based on small, sticker-like Wiliot IoT Pixel sensors that derive energy from surrounding radio waves. The sensors transmit location and condition data to the cloud, where AI processes it into real-time operational instructions.

How does the concept meet modern needs?

- **Cost-efficient scalability:** Utilizing existing infrastructure, battery-free sensors are inexpensive to install on massive product quantities.
- **Resource efficiency and sustainability:** Battery-free technology reduces electronic waste, and precise condition monitoring (e.g., temperature) minimizes food waste.
- **Optimization of logistical assets:** Tracking transport assets (such as pallets and roll cages) prevents asset loss and speeds up rotation, improving utilization rates.
- **Enhancing work through automation:** Automatic tracking replaces manual scanning, reducing errors and freeing up working time.
- **Omnichannel customer experience:** Real-time stock data ensures reliable pickup orders and reduces on-shelf stockouts.

Toward energy-flexible logistics

Energy usage in logistics is shifting toward fossil-free solutions. In the future, the focus will be on energy flexibility—utilizing multiple different energy sources in parallel. Electricity, hydrogen, and renewable fuels form an entity where, especially for large operators, relying on a single option is no longer viable.

Our survey indicates that business decision-makers see there to be no single dominant power source in future transport; instead, diversity is emphasized. Electricity is seen as the most important (49% of respondents believe it will dominate by 2035), but hybrids also maintain their position (43%). Renewable fuels (25%) are strongly present, and hydrogen is also gaining a foothold (21%). However, while respondents foresee a mix of solutions, the actual market direction is heavily dictated by regulation and incentives, which are increasingly steering the industry toward electrification.

The choice of power source is also a logistical question dependent on infrastructure: charging networks, refueling points, and energy storage. For example, in the Baltics, an electrifying fleet requires investments in the basic charging network, whereas in Finland, the focus is already on high-power charging and hydrogen capabilities. Sweden acts as a trendsetter: electrification there is in the scaling phase, and the charging network for heavy traffic is the densest in the Nordics.

An energy-flexible transport fleet adapts to these regulatory and geographic boundary conditions. It requires solutions that combine a diverse fleet with the ability to optimize routes and charging using data. Ultimately, this multi-power strategy is what secures delivery reliability and enables companies to react to energy market fluctuations and tightening emission restrictions.

→ **Sweden acts as a trendsetter: electrification there is in the scaling phase, and the charging network for heavy traffic is the densest in the Nordics.**

From diesel to electricity –

Case Posti

The combustion engine is replaced with an electric powertrain, but the vehicle's expensive chassis and body are saved. This gives a truck reaching the end of its lifecycle a new life as a fully electric delivery vehicle. The pilot truck's range is approximately 150 km, which is sufficient to cover planned delivery routes.

Here is how it works:

The combustion engine is replaced with an electric powertrain, but the vehicle's expensive chassis and body are saved. This gives a truck reaching the end of its lifecycle a new life as a fully electric delivery vehicle. The pilot truck's range is approximately 150 km, which is sufficient to cover planned delivery routes.

How does the concept meet modern needs?

- **Cost-efficiency:** The conversion costs only about half the price of a new electric truck, which significantly lowers the threshold for electrification.
- **Sustainability:** The solution zeros out driving emissions but also saves natural resources: since a new truck does not need to be manufactured, a significant amount of production emissions is avoided.
- **Employee experience:** Drivers have praised the drivability and silence of the electrified truck, which improves work comfort in the urban environment.

New forms of urban logistics

Urban logistics faces new challenges in many areas: street space is scarce, and citizens demand a quieter, emission-free living environment. In our survey, over half of the respondents considered it somewhat likely that delivery restrictions will be imposed in large cities within the next 3–5 years.

Future logistics trends paint a picture of urban logistics that are quieter, smarter, and integrated as part of urban life.

This means, for example, a shift from centralized distribution to neighborhood-level micro-networks. Large terminals are supplemented by small micro-terminals in city centers, from which deliveries move agilely to lockers and street-level pickup points.

At the same time, logistics is taking over a new dimension: airspace. The European Union's U-space strategy creates ground rules for urban air logistics, where drones and VTOL aircraft (Vertical Take-off and Landing electric aircraft) handle urgent deliveries. In the future, cargo drones may transport everything from medicines to spare parts above the congestion.

According to trend analyses, underground transport networks – such as automated tube systems – will challenge the role of traditional street traffic in the long run. However, such scenarios require massive investments in infrastructure and technology, which is why they are likely not on the horizon in the immediate future.

Autonomous last mile –

Case Starship & Uber Eats

Starship Technologies and Uber Eats announced a global partnership in November 2025, which is a significant step in the mainstreaming of robot deliveries. The goal is to increase the number of robots to over 12,000 units by 2027.

Here is how it works:

The consumer places an order via a mobile app. Staff packs the products into the robot, which transports them independently (Level 4 autonomy) along sidewalks and pedestrian paths.

- The robot plans the route using AI and GPS within a 3–4 km radius, and delivery often takes less than an hour.
- Upon arrival, the customer opens the lid using the app, at which point the robot plays a greeting or a melody.

How does the concept meet modern needs?

- **Scalability and cost-efficiency:** The Uber partnership and higher automation level significantly lower last-mile unit costs. The massive order volume brought by Uber maximizes the robots' utilization rate, enabling profitable expansion.
- **Speed and sustainability in the urban environment:** Robots do not get stuck in traffic jams, and they operate in almost all weather conditions. They are capable of delivering short-radius orders often faster and more ecologically than cars.
- **User experience and acceptability:** The technology is designed to be friendly and interactive (e.g., music and speech). Human-like features reduce vandalism and lower the threshold for integrating robots into daily life.

Sources and further reading

ARUP (2022): Future of Urban Logistics <https://www.arup.com/insights/future-of-urban-logistics/>

Cities Today (2024): Thirty-five cities to introduce zero-emission freight zones <https://cities-today.com/thirty-five-cities-to-introduce-zero-emission-freight-zones/>

EU Commission (2025): EU Drone Strategy 2.0. Update https://www.eurocontrol.int/sites/default/files/2024-10/2024-09-05-ospace-meeting-vilnius-millere-eu-drone-strategy-2-0-status-update_0.pdf

European Alternative Fuels Observatory (2025): Transport mode: Road <https://alternative-fuels-observatory.ec.europa.eu/transport-mode/road>

Interreg Baltic Sea Region (2025): Social Readiness and Urban Air Mobility – Aspects to Consider <https://interreg-baltic.eu/project-posts/cityam/social-readiness-and-urban-air-mobility-aspects-to-consider/>

Li, F., Yuen, K. F. (2025): A systematic review on underground logistics system: designs, impacts, and future directions <https://doi.org/10.1016/j.tust.2025.106483>

MHP (2024): Whitepaper: Electrification of Logistics https://www.mhp.com/fileadmin/www.mhp.com/downloads/whitepaper/MHP_Whitepaper_Electrification_of_Logistics.pdf

Posti Group (2024): Case: conversion truck from diesel to electric <https://www.posti.com/en/case-conversion-truck-from-diesel-to-electric>

Solakivi, T., et al. (2023): Logistiikkaselvitys 2023 https://www.utupub.fi/bitstream/handle/10024/176199/Logistiikkaselvitys_2023_TuKKK_E-5_2023_FINAL.pdf?sequence=5&isAllowed=y

Starship Technologies (2025): Starship Technologies and Uber Eats Launch Autonomous Delivery Partnership <https://www.starship.xyz/press/starship-technologies-and-uber-eats-launch-autonomous-delivery-partnership/>

Wiliot (2024): Wiliot Collaborates with Walmart to Transform Retail Supply Chain with Ambient IoT and AI <https://www.wiliot.com/wiliot-collaborates-with-walmart-to-transform-retail-supply-chain-with-ambient-iot-and-ai>

Building the future



Logistics is the invisible backbone of society and today it is recognized as a strategic competitive advantage as well as an enabler of new business models.

Change is a permanent state. Therefore, successful companies do not merely react to changes, but actively build the new by experimenting, measuring, and learning.

The Twin Transition discussed in this review – the union of digitalization and sustainability – is the foundation of the future. Soon, we will no longer speak separately of “green logistics” or “digital supply chains,” as they are the default and also inextricably linked. Data-driven

operations enable resource wisdom, and sustainability requirements drive technological development. This is already visible in transport route optimization, the logistical flows of the circular economy, and the proliferation of low-emission transport modes.

As one of the world’s most carbon-intensive sectors, logistics plays a decisive role in reducing global emissions. The responsibility is great, but current technologies offer better means to address it than before. Smart routing, energy-efficient solutions, and new power sources are no longer just promises of the future, but increasingly a reality.

The transformation of logistics also emphasizes human perspective and social responsibility. Technology is at its best when utilized to support people. It can be used to improve occupational safety, reduce physical strain, and free up experts' time for value-creating tasks. The change requires continuous competence development and reskilling from the perspective of the entire personnel. Through their own choices, companies can ensure that technological development and digitalization support a fair and safe working life while promoting ecological goals.

At the same time, the importance of collaboration within networks is highlighted. No single operator needs to – nor should – solve everything alone. Future sustainable and efficient logistics is born in

ecosystems where data moves securely and smoothly, and partnerships bring agility. Risk management and delivery reliability are not created by building walls, but by strengthening networks.

This review of the future is a selected sample of the diverse field of logistics. It is not an all-encompassing handbook, but a starting point for your own thinking. We hope that these highlights spark conversation in your organization: Which of these phenomena affect us? What could we try next?

The future cannot be predicted but it can be prepared for. The best way to anticipate the future is to be involved in building it.

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