

Digitalization in the Logistics Industry

Trend report



What is the Logistics Industry?

The logistics industry connects the world, supporting trade, and acting as a catalyst for growth and development.

Today, [the global retail logistics market value is USD 227.61 billion, with an expected CAGR growth of 12.3% between 2022 to 2030.](#)

However, as dependence grows on the logistics industry to maintain supply chains and deliver upon consumer needs, any disturbance can dramatically affect a fragile system and have broad implications for the global economy.

For example, in 2021, the Suez Canal incident created a domino effect that led to

severe global supply chain disruptions and saw the global economy suffer [an estimated \\$54 billion loss in trade.](#)

Therefore, the logistics industry has sought to transform itself amidst growing challenges of risk, variability, and volatility compounded by the COVID-19 pandemic.

Whether through innovative digital technologies across logistics operations or embracing a more sustainable approach to its business practices, there are exciting shifts ahead for the logistics sector.



Defining Logistics

The logistics industry is built upon a highly integrated supply chain network that links producers and consumers through multiple transportation modes, including air, maritime, rail, and truck transport. For many organizations, logistics are critical to their success.

There are many distinct business models within the logistics industry. Although, in many situations, individual companies may operate under more than one model.

Many specialist logistics companies provide services to B2B or B2C audiences, whether

private consumers or retailers, manufacturers and wholesalers who require raw materials or goods. Nevertheless, regardless of the business models, logistics companies share the same goal.

For logistics companies to succeed, they must possess sufficient quantities of a resource and be capable of delivering to the correct internal or external customer at the right location in proper condition.

Logistics: From Past to Present

LOGISTICS 1.0:

From Manual to Machines (1960s-1970s)

Logistics was traditionally a military-based term, referring to how the armed forces obtained, stored and moved equipment and supplies.

However, it soon became adopted by the industrial and business sector as companies sought to optimize the transportation of goods.

Initially, the logistics sector focused on ensuring alignment with the Three P's:

- **Place (location and destination)** - Logistics delivered customer value by transporting goods between sites to ensure the best value for customers.
- **Period and pace (time value)** - The adherence to deadlines, the concise flow of goods and ensuring strict inventory management create value for customers.
- **Pattern (forms of order)** - With the creation of distinctive ordering processes, companies could ensure customers receive what they desire in its correct form.

LOGISTICS 2.0:

Mass Production and Automation of Cargo (1980s)

As the world became more interconnected, businesses saw the potential to increase their customer bases and deliver vast profits.

However, to do so, they needed fast and effective processes to deliver products to consumers.

Along with significant deregulation, vehicle, and information technology development enabled logistics companies to manage and coordinate the physical flow of goods inside and outside organizations, coining the term Supply Chain Management for the first time.

Companies could now work worldwide far more efficiently, deepening collaboration as they supplied goods to one another whilst simultaneously increasing competition.

Furthermore, researchers added the fourth "P" to the tenets of the logistics industry, "process coordination" or "partnerships management".

Which saw the shift from operations only to include warehousing and road activities as part of managerial coordination of processes that procure, produce, and deliver value to customers.

LOGISTICS 3.0:

Systems of logistics management (1990s)

As electronics and communication technologies developed, businesses began to consider logistics a central part of their strategies.

Furthermore, after Logistics 2.0, the division of companies' activities between "product development" and "operations", supported by several support functions such as finance and legal departments posed obstacles to the coordination of business activity spanning, in some instances, multiple countries.

Therefore, a new "P" was introduced that prioritized flow management.

The fifth P, called "pliancy", or agility, focused on physical operations and workflows, including cash flows and decision flows. Thus, businesses can plan, track and organize their shipments all through a few clicks of the mouse.

LOGISTICS 4.0:

Collaborative cyber-physical systems (present)

The present era is characterized by intelligent objects transforming traditional logistics and supply chain processes into intelligent systems.

Creating cyber-physical systems that link physical objects and processes with information processing objects via open and interconnected global networks enables businesses to manage an increasingly complex web of moving parts.

For businesses, cyber-physical systems enable the monitoring of their processes. In addition, sensors in IoT systems and products allow interaction in real-time, increasing transparency, and support of the implementation of a decentralized decision-making process.

In addition, integrating hardware systems, such as sensors, robots and transport, and cloud computing into a centralized data storage unit enables organizations to offer more accurate forecasting and enhanced order management.

Digitalization promises a lucrative future for the logistics sector through potential cost reductions and revenue boosts.



Studies shows:

The logistics industry is predicted to gain **34.2 % in cost reduction** and **33.6 % additional revenue** due to the new waves of digitalization in the sector.

Trends that will shape the logistics industry

Digitalizing logistics and supply chain operations are driving growth and opportunities for the logistics industry.

As businesses seek to improve their flexibility, sustainability, and technical expertise to counter challenges and prosper long-term, we will discuss the trends shaping the logistics sector's future.

Dig deeper

Supergrid Logistics

Data-driven logistics

Artificial Intelligence

Cloud & APIs

IoT: Better connection across devices and borders

Robotics & Automation

Future of work: Data scientist replacing truck drivers?

Next-Generation Security

Sustainable Logistics

Supergrid Logistics

The trend of supergrid logistics signifies the next era of consolidation, orchestration, and optimization of global supply chain networks.

Supergrid logistics are global supply chains arranged in a grid-like structure integrating borders, sectors, and services.

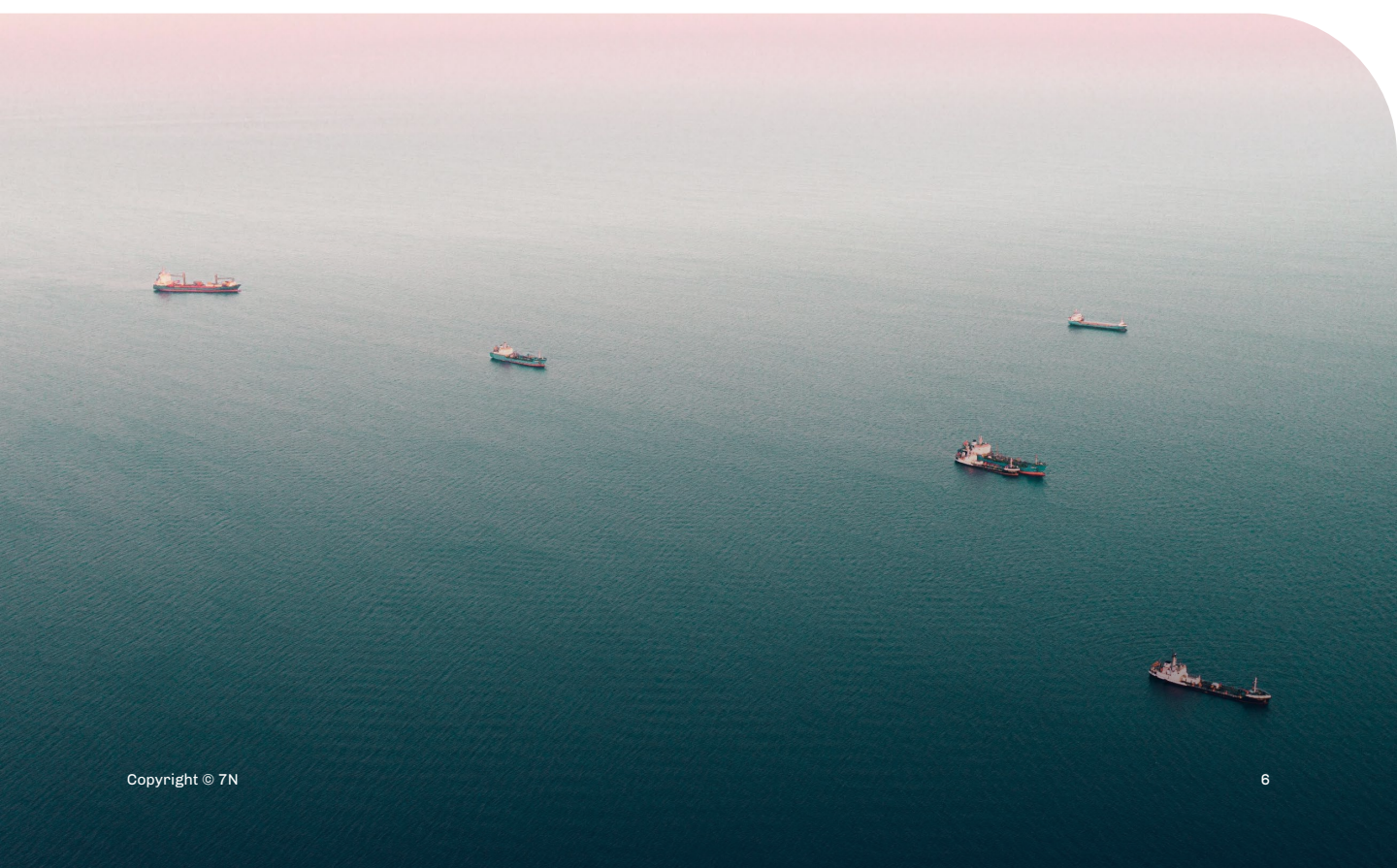
It establishes a single global entity or platform that integrates all actors across multiple supply chains, from production enterprises to logistics providers.

In addition, it ensures any combination of internally and externally operated services can be seamlessly selected, orchestrated, or executed on demand.

Whether it is the fulfillment of core logistics services, like transportation and deliveries commoditized in the supergrid, digital services like risk management, compliance checks, and customs provide critical value for actors in the logistics supergrid.

For businesses, supergrid logistics allows them to venture beyond existing fourth party logistics and logistics marketplaces.

The leveraging of the supergrid grants businesses access to a new level of market transparency to support established fourth party suppliers, specialized companies, and local companies' access to the global market.



Data-driven logistics

Data-driven insights are powering transformation across the logistics industry. [In 2020, the supply chain of the big data analytics market was valued at \\$3.55B. By 2026, it is expected to reach \\$9.28B.](#)

As global supply chains become more complex, logistics businesses can access unprecedented volumes of data across the supply chain. [In 2018, the typical supply chain accessed 50 times more data than in the preceding five years.](#)

Data-driven insights transform businesses and move their decision-making beyond historical experience and intrinsic knowledge. For example, every supply chain element is now measurable; businesses can uncover patterns and anomalies to improve efficiency and drive performance.

Data not only delivers insight to optimize processes but enables businesses to personalize services in line with customer demands, mitigate disaster risks and potential bottlenecks in supply chains, and ensure readiness for any circumstance through simulating operations.

Today, supply chains face significant challenges. Thus, adopting data-driven logistics can help businesses to pivot in the face of uncertainty.



Artificial Intelligence

AI is finding a receptive audience across the logistics industry.

For businesses, AI stands to improve supply chain efficiency with its prediction and vision recognition capabilities and drive intelligent workflow automation to free the workforce from repetitive tasks and focus on new priorities.

For example, processing millions of documents in non-uniform formats can now be streamlined through OCR programs.

Processing business-critical information through AI can reduce human error and improve accuracy. Furthermore, as AI develops, it can draw connections, create context, and improve the speed of its output.

[A third of the 4.2 trillion dollars of value created by AI in the next twenty years will stem from the application of technology on supply chains alone.](#)

For logistics companies, the shift toward a predictive AI-powered supply chain can ensure they stay competitive. In addition, it can help to reduce costs and improve the synergy between the physical and digital realms of their daily operations, a priority in an era of high demand.

Companies face common pitfalls along their planning transformation journey, leading to more than 60 % of projects being late or over budget

Areas of an AI driven supply-chain transformation journey

Typical pitfalls	Challenge	Best practices
Value unclearly identified	Under one third of companies perform a value diagnostic.	Value-creation identification, strategy, and road map.
Overlooked design phase	Few companies conduct a design of solutions prior to vendor and solution selection, leading to suboptimal choices and value leakage.	Design of target solution and vendor selection.
Insufficient impact focus and execution rigor	25% of supply chain leaders feel their objectives are aligned with system integrator's incentives	Implementation and systems integration.
Inadequate capability building and change management	13% of global senior executives say their companies are adequately prepared to address the skills gap.	Change management, capability building, and full value capture.

Source: McKinsey survey of global supply-chain leaders (2020, n = 52)

Cloud & APIs

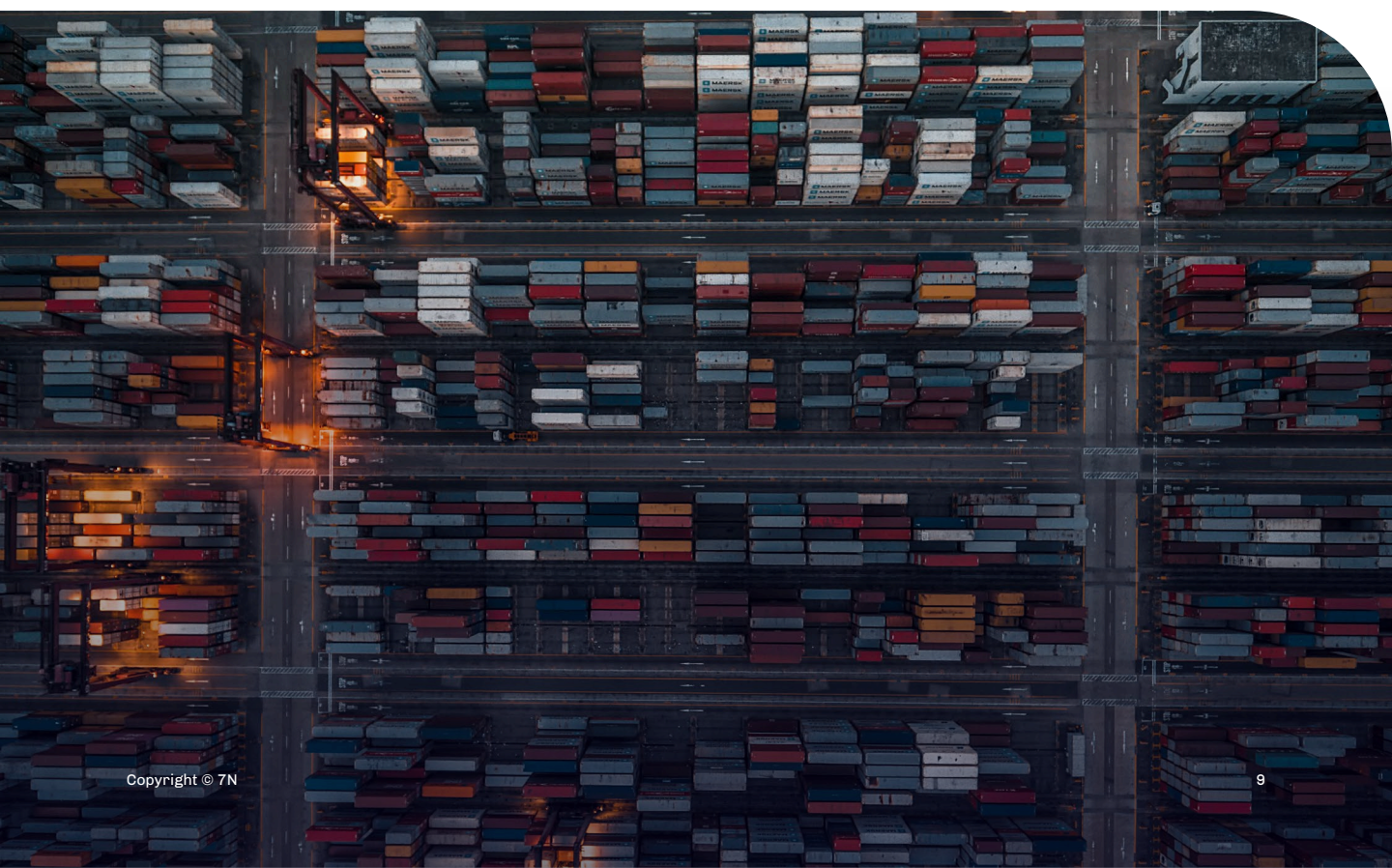
Whereas EDI (Electronic Data Interchange) previously were at the heart of transport management systems, APIs (Application Programming Interfaces) support the transition of businesses from “on-premises” solutions to cloud-based applications.

APIs form the basis of on-demand logistics services, LaaS and real-time data processing, and act as the middleman between applications with different designs and codes.

Within the logistics sector, API is pivotal in improving visibility throughout the supply chain and ensuring data sharing across applications into a single management system to make the flow of information for businesses and customers seamless.

Thus, it is easier for businesses to provide accurate shipping quotes, view equipment capacity, book freight, track shipments in real-time, and address any issues with data made available to third parties and retailers.

The management of seamless flows of data, financials and physical goods is critical to logistics companies. APIs are the glue that ensures the transfer of customer purchase data and intent to logistics providers, enabling the smooth delivery of goods and improving customer experiences.



IoT: Better connection across devices and borders

Logistics companies can enjoy access to almost every aspect of their business through a growing number of connected devices, embedded sensors, and analytics technologies.

Intelligently exploiting their rich and complex data asset base allows businesses to utilize data in their processes actively. Thus, resulting in the accelerating of data-driven logistics where insight can improve businesses' infrastructure and operations and ensure more informed decision-making.

The scope of IoT across logistics operations has much potential. For example, as packaged goods may need to cross

numerous borders via different transparent methods, IoT devices can improve forecasting and connection.

Whether that is managing light, temperature, and other necessities to ensure goods arrive in excellent condition, delivery is on time, diverse legal and physical requirements are met and providing a seamless freight journey.

Common IoT applications in Logistics

Capacity sensing

Systems that use sensors to detect the location and size of open spaces in a warehouse, port, or parking lot.

Planning & reporting

System that can analyze various events, such as traffic accidents, to help predict delivery dates.

Route optimization

Tools that can help companies decide on the shortest and most fuel-efficient delivery routes for their vehicles.

Energy management

Tools that help monitor and make decisions about fuel, lighting, and heating/cooling for fleets and facilities.

Fault detection & resolution

Enabling monitoring of fleets of vehicles, aircraft, or ships for problems, improving uptime and reducing liability.

Source: [Deloitte](#)

Robotics & Automation

Through technological advancements and greater affordability, robotics solutions are transforming supply chain operations to be faster, safer, and more productive.

Whether through stationary robots or AMRs (Autonomous Mobile Robots), leveraging robotics enables logistics businesses to be globally competitive.

By delivering proficiency that matches and exceeds human capabilities, robotics can help to [reduce warehouse labor costs](#). In addition, the automation of physical tasks allows the assignment of labor to more complex tasks and, in the process, boosts productivity and improves worker safety.

As robots adopt more roles across the supply chain, they can assist companies across numerous operations, from warehousing to transportation and last-

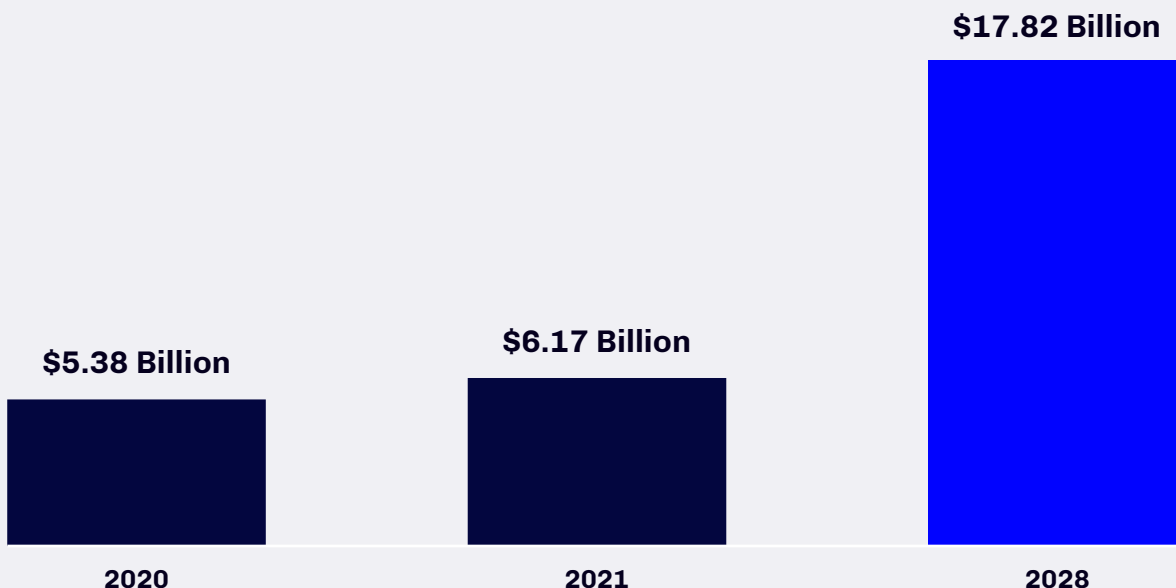
minute delivery activities.

Moreover, as businesses look to deliver around-the-clock operations to satisfy demand, creating micro-fulfilment centers in urban locations with automated systems and integrated robotic technology provides opportunities for short-time delivery to large numbers of customers.

[The projections of the global logistics robots market highlight growth at a CAGR of 16.4% from \\$6.17 billion in 2021 to \\$17.82 billion in 2028](#). For logistics companies, the time to identify the robotic solutions that suit their operations is now.

The global logistics robots market is projected to grow at a CAGR of 16.4% in forecast period 2021-2028

Logistics robots market, USD Billion, globally (2020-2028)



Future of work: Data scientists replacing truck drivers?

As automation becomes a central aspect of logistics operations, businesses and the workforce must adapt.

It is predicted that [by 2025, machines will perform more current work tasks than humans](#). As a result, manual and repetitive tasks will soon become the responsibility of robots that can work continually and with minimal restraint, such as self-driving vehicles, resulting in job losses amongst truck drivers and within warehousing.

Whether jobs will no longer be viable or require new skills, logistics businesses must look to deploy recruitment strategies to attract, retain, and develop workers able to

support their organization's adaptation and prosper in the new digital era.

They must identify digital talent, software engineers and data scientists, and individuals with excellent critical thinking and creativity to meet customer needs and drive innovation across the sector.

As the digital sphere of logistics operations expands, companies must be able to offer rewarding employment opportunities and career prospects to their future workforces.



Next-Generation Security

As new technologies drive the transformation of the logistics industry, it also inadvertently creates space for unknown risks. Therefore, as entire supply chains digitalize and connect, companies must shield vulnerabilities from increasing threats of cyberattacks.

The impact of cyberattacks can be significant. As seen, when the global NotPetya ransomware attack in 2017 froze [Danish shipping firm Maersk's worldwide logistics operations](#), costing the company up to \$300 million in damages.

For logistics companies, their priority is to safeguard consumer data and ensure the security of their networks. Therefore, the migration to cloud centers has led to developments such as edge computing, offering digital protection anywhere and the adoption of complex cyber-protection concepts, such as zero-trust architecture.

In addition to long-established security practices, supply chains must also leverage

intelligent technology to guarantee the physical security of their products.

To protect shipments, privacy, and authenticity, intelligent physical security designed to defer nefarious activity in logistics operations can help protect companies from the growing sophistication of counterfeit goods and allow customers to verify product authenticity.

Inaction is not an option regarding the security of supply chains. Therefore, logistics organizations must seek to employ proactive cybersecurity policies and leverage technology as security solutions to remain a step ahead of those who wish to cause harm.



Sustainable Logistics

By 2050, the logistics industry is set to become the highest carbon-emitting sector globally, with freight transportation comprising 8% of global greenhouse gas emissions.

However, as pressure from customers and governments mounts for sustainable solutions, logistics companies must seek environmentally friendly practices across their supply chains.

Many supply chain elements contribute to unwanted carbon emissions; therefore, there is much scope for improvement across the logistics industry.

Across warehouse operations, IoT sensors can detect and monitor utilities to save costs by optimizing usage alongside moving traditional paper-based procedures online to ensure daily logistics operations have a lower environmental impact.

Additionally, using alternative vehicles or fuel technologies can reduce the impact of transportation on greenhouse gas emissions.

Furthermore, the introduction of digital freight matching can lower the number of wasted or empty journeys and match a vehicle's capacity to carry cargo with the closest shipments awaiting transportation.

Today, customers want to buy products from businesses that act sustainably. [A survey](#) showed that 73% of consumers are changing their consumption habits to reduce their environmental impact. [With 165 billion packages shipped in the USA annually](#), logistics companies must reduce waste and plastic usage to connect with environmentally aware consumers.

Consequently, as demand for greener solutions drives investments in technology, it is creating an upward cycle that will allow greener alternatives to direct the future of the logistics industry.

Digital frontrunners: DHL to deploy ePlanes

As a world-leading logistics company, DHL constantly strives to utilize technology to achieve its environmental targets and make its supply chains more sustainable.

DHL Express has been a pioneer in the aviation industry for decades. Today, DHL plans to build the world's first electric air cargo network and announced a partnership with Aviation to electrify the airspace.

A single pilot can fly these electric planes and carry 1200 kilograms. It requires 30 minutes or less to charge per flight, with a maximum range of 815 kilometers.

To achieve clean logistics operations, the electrification of every transport mode will play a crucial role and significantly contribute to DHL's overall sustainability goal of zero emissions.



The 7N Way: The flexible IT consultancy

A global network of extraordinary IT people – delivering on clients' objectives and beyond

Sector expertise drives the digital transformation

In recent years, macro events have increased the pace of innovation, development cycles, and competition, while creating an ever-changing risk landscape. Armed with knowledge of these trends and their implications on the business, our agents and consultants can help mitigate risk and identify opportunities in our clients' business cycle.

Over decades, 7N has been part of several waves of digitalization. Today, our consultants work across industries and geographical borders to deliver the projects that define the new digital realities.

We offer clients a highly specialized portfolio of IT services and solutions delivered by the top 3% of IT professionals. Our expertise spans across many industries providing digital transformation across all phases of the IT project life cycle.

By engaging early with 7N, our clients already benefit from our expertise when defining project scope and strategic needs, and they always gain flexibility to adapt and accommodate changing demands while retaining control and maintaining ownership of IT development in-house.

How we deliver high-performance IT

Delivering with high efficiency shouldn't lead to higher workload. We build efficient teams, where expertise and experience accelerate more than headcount and capacity. In doing so, we help form small, highly efficient teams, staffed to maximize client impact.

A tailored recruitment process refined over 30 years

We have a sophisticated our best-of-breed approach to identifying and quality-assuring top 3% IT professionals. Our model is designed to identify personal capacities, professional skills, and drive to deliver to our clients. For all clients, we have dedicated recruitment teams with extensive local knowledge and global reach for candidate sourcing. We tailor our recruitment process to each client's technical and cultural needs.



Connect with our advisors

Schedule a meeting and hear more about how we can help you assess your possibilities and overcome your challenges.

GET IN TOUCH



7N Group is an elite IT consultancy agency with more than 20 years of market experience in serving all aspects of critical IT projects both within the public and private sector.

We have dedicated ourselves to finding the right match between our consultants and the companies we serve – we believe that is how the best results are created. At 7N, we have built a professional community of extraordinary people. A community dedicated to achieving professional and personal development. A place where the best gets to play with the best.

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