

The Perfect Match: Artificial Intelligence and Global Logistics



Artificial intelligence is making a profound impact in the global logistics sector and AI applications are helping logistics managers around the world streamline their operations, improve efficiencies and enhance their teams' productivity levels.

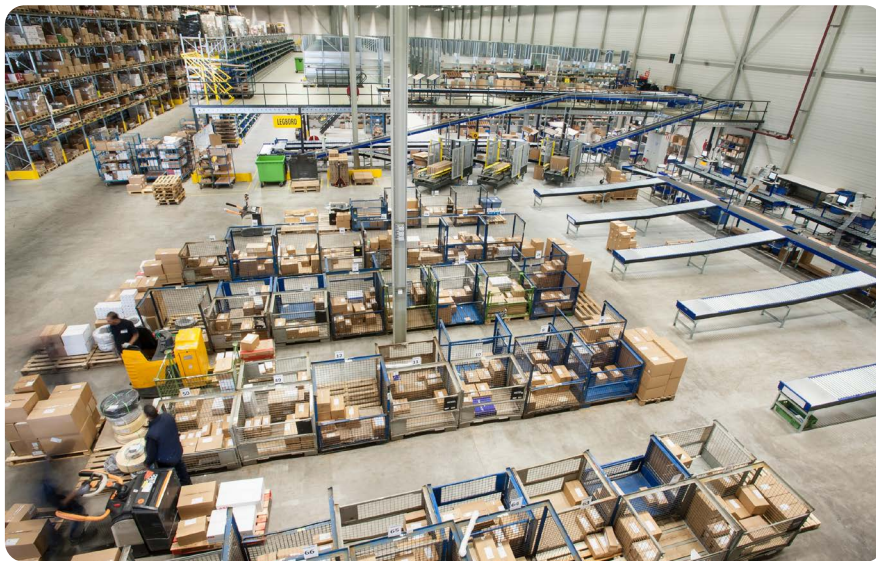
Combined, the uptick in e-commerce plus urbanization—or, the movement of people from rural areas to more urban areas—are both heavily influencing the current state of logistics and transportation operations. More than 50% of the world's population (4.4 billion people), now resides in urban areas. By 2045, the world's urban population is expected to increase by 1.5 times and reach 6 billion, The World Bank reports. By 2050, nearly seven out of every 10 people will reside in cities.

The global e-commerce growth rate for 2023 is forecast at 8.9%, which would bring total online sales to \$5.8 trillion. That growth rate is expected to hold steady over the next few years, according to Oberlo. This rapid expansion of online shopping has created a higher demand for efficient and timely logistics services.

At the same time, supply chain disruptions and unpredictable order volumes have both become more prevalent, requiring companies to adapt and find new ways to manage their operations effectively. Furthermore, customer expectations continue to evolve as shoppers demand faster delivery times, greater transparency of their orders and more personalized buying experiences.

To succeed in this competitive market, companies must focus on two key factors: price per order and timeliness of order deliveries. Smart organizations are offering competitive pricing while ensuring that deliveries are made within the promised time frame. Meeting these expectations is crucial for retaining customers and gaining a competitive edge in the business world.

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Increasing demands on AI technology in the modern logistics operation

Companies are turning to technology to help them navigate the complexities of the modern, global supply chain. They're investing in advanced technologies and optimized supply chain management systems to enhance their operational efficiency and meet customer demands effectively.

We're also seeing a significant rise in the use of technology, AI and automation in the logistics industry, where companies are leveraging AI-powered tools and systems to optimize various aspects of their operations. With these powerful tools in place, organizations can effectively streamline their processes, enhance efficiency and better respond to their customers' ever-changing demands.

According to IDC, global spending on AI will exceed \$301 billion by 2026—more than double the current AI spending rates of \$125 billion annually. In most cases, IDC says companies turn to AI to help them improve operational efficiency, the customer experience, employee productivity and innovation. "AI-powered automation is expected to take center stage in the next wave of enterprise automation as optimizations move from reactive to predictive and proactive," IDC states in a recent Infobrief.



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AI-Driven Innovations in Logistics: Improving efficiency and customer satisfaction

As more AI applications make their way into the logistics industry, these solutions are delivering both short- and long-term benefits for the organizations that adopt them. In fact, AI has the potential to revolutionize the logistics industry. For example, it can facilitate the adoption of autonomous vehicles for last-mile delivery, enhancing efficiency and reducing labor costs.

More specifically, AI-powered analytics help companies anticipate disruptions, manage risks and effectively allocate resources throughout the supply chain. Additionally, AI-driven innovations in data analytics, robotics and machine learning can support continuous process improvement and enable smarter decision-making.

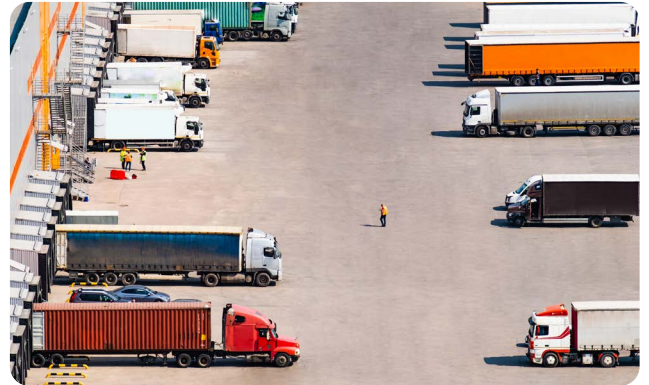
Here are some real-world use solutions from Hikvision that illustrate the value AI delivers to the modern logistics operation:

AI solutions for the warehouse and yard

Artificial intelligence can help automate the process by using real-time data and AI algorithms to coordinate the movement and loading/unloading of goods, minimizing delays and improving productivity.

- Automatic Number Plate Recognition (ANPR) for vehicle management:** Hikvision's ANPR technology assists in identifying and managing vehicles by reading their plate characters and features, all automatically with algorithm-embedded cameras at entrances and exits, or on the roadways. The technology enables faster and smarter vehicle entry and exit, especially in logistics facilities where there is a lot of traffic ingress and egress. The solution also provides a way to let authorized vehicles enter only if needed, thus enhancing operational efficiency and improving security.

- Smart Dock management:** With customers expecting faster and faster order turnaround times, efficient dock management has become crucial. Artificial intelligence can help automate the process by using real-time data and AI algorithms to coordinate the movement and loading/unloading of goods, minimizing delays and improving productivity. Hikvision's AI-powered systems enable real-time monitoring of loading/unloading activities, optimizing dock operations, minimizing turnaround times and reducing errors.



- Facial recognition for access control:** Facial recognition technology provides secure and convenient access control, allowing authorized personnel to enter restricted areas, improving overall site security. With AI-powered systems in place, organizations can facilitate employee attendance tracking, access control through facial recognition, better manage onsite visitors and improve overall security protocols.

- Thermal imaging for fire prevention:** Fire incidents can be catastrophic for logistics operations. Artificial intelligence can play a vital role in fire prevention by utilizing thermal imaging technology to detect abnormal rises in temperature. This triggers preventive measures and minimizes the risk of fire accidents. Hikvision's thermal imaging technology detects abnormal temperature increases before a fire occurs, triggering early warning systems and minimizing potential damage.

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- PPE detection:** Introducing health and safety policies is relatively easy, but enforcing them can be much harder. Hikvision's AI-based systems effectively promote safety compliance by identifying whether employees are wearing the required personal protective equipment (e.g., hardhats) or not. Issues are detected automatically, which saves companies time and ensures that potential health and safety breaches are not overlooked.

Automatic solutions for driver, vehicle and goods management on the road

- Real-time vehicle status management:** By centralizing core functionalities like smart video recording, footage playback, real-time vehicle positioning and other key data points on a single dashboard, Hikvision’s solution takes the guesswork out of line haul fleet management and helps organizations do more with less. The platform also provides a range of reports that operators can access to attain high levels of visibility across their transportation networks, handle emergencies quickly and make smart decisions.



- Driver protection and assistance with the intelligent ADAS system:** Truck drivers often spend long hours behind the wheel, deal with unexpected traffic perils and drive through inclement weather conditions. Realizing that at-risk driving is extremely dangerous for drivers, cargo and road safety in general, Hikvision makes



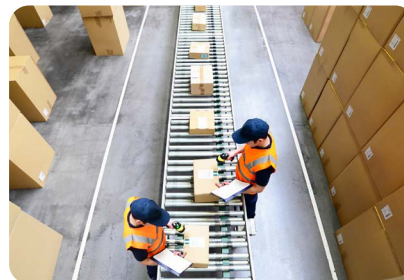
intelligent driving assistance systems that incorporate forward collision warning (FCW), lane departure warning (LDW), pedestrian collision warning (PCW), blind spot detection (BSD), headway monitoring warning (HMW) and driving analysis.

Container door status sensors, temperature sensors, and fuel level sensors and so on — all of which work together to help shippers drive risk out of their line haul operations.

- Enhanced fuel and goods management with assorted automatic sensors:** Hikvision’s solution include flexible solutions with assorted sensors to help secure their fuels and transported goods. Container door status sensors, temperature sensors, and fuel level sensors and so on — all of which work together to help shippers drive risk out of their line haul operations.

AI solutions for last-mile delivery

- Parcel tracking:** Hikvision provides a powerful, end-to-end, visualized parcel tracking solution that integrates data from video security systems and third-party barcode reading systems to achieve easy identification and tracking of parcels. The technology helps companies enhance customer service quality, respond faster, provide transparency and improve overall customer satisfaction.



Logistics AI in action

Artificial intelligence solutions have already made a significant impact across all logistics scenarios. Worldwide, many companies have successfully utilized Hikvision's technologies and solutions to enhance operation efficiency and security of their logistics management.

For example, a leading express service provider in Southeast Asia partnered with Hikvision to revolutionize their logistics operations.

By leveraging AI solutions, specifically in dock management and parcel tracking, the express services provider overcame challenges and achieved remarkable improvements.

For this particular customer, Hikvision implemented an intelligent dock camera system at each loading and unloading dock. The systems provide real-time information to managers and eliminate unnecessary waiting times at the dock. The dock camera systems also enhance productivity by accurately determining

dock availability and optimizing vehicle loading and unloading.

The company has seen major benefits since implementing the Hikvision systems. For example, its truck dispatching efficiency increased by 20% with a visible dock map and online performance analysis. This helped the company optimize its operations both at the dock and individual manager level. Video verification efficiency rose by 50% because the company is able to trace related video clips using barcodes. This improvement streamlined after-sales services, increasing customer satisfaction.

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What's next for AI in logistics?

Artificial intelligence has a promising future in the logistics industry, particularly with the integration of AIoT (Artificial Intelligence of Things). AIoT combines AI with the capabilities of IoT devices. Working together, the two technologies can provide total visibility from different systems across the supply chain, helping to increase efficiency and responsiveness. AIoT also enables automated, data-driven decision-making that can enhance service levels, reduce costs and improve operational efficiency.

Applications of AIoT are increasingly being used to optimize transportation routes and schedules, leading to more efficient transportation operations, reduced fuel consumption and minimized carbon emissions. AIoT is enabling smart warehouses, where machine learning algorithms can monitor inventory levels, track assets and automate order fulfillment processes.

Robots equipped with AI abilities can facilitate warehouse operations like sorting, packaging, and storing goods. This not only improves the accuracy and speed of operation, but it also enhances overall warehouse productivity. By automating tasks, optimizing operations and providing real-time visibility, AIoT is helping companies improve efficiency, deliver higher customer service levels and drive the costs out of their global logistics operations.

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Hikvision has established one of the most extensive regional networks in the industry, comprising 72 international subsidiaries and branch offices to ensure quick responses to the needs of customers, users, and partners. Customers can [contact us](#) to discuss their specific requirements and we'll be happy to help. To find out more about the Hikvision smart logistics solution, please visit [here](#).
