



# 7 LOGISTICS TRENDS TO EMBRACE INNOVATION IN 2021

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Discover how you can best benefit from the latest innovations in logistics to prepare your company productively for the future.





# WHAT IS THE FUTURE OF LOGISTICS?

Today's linear supply chains are getting more complex faced with unprecedented demands and expectations. They remain efficient, but are missing the agility needed to successfully adapt to disruptive changes.

Meanwhile, the global logistics industry is expanding with annual growth at an estimated compound annual growth rate of 4.5% until 2027 when it should hit a value of over \$16,445 billion, according to a recent report. But logistics experts are aware that progress has to continue to keep this growth rate on course.

Now is the time to focus on identifying risks and learning new ways to thrive and stay ahead of the game. The objective of this whitepaper is to provide guidance for the future. With facts and case studies, **we explore 7 key trends that are influencing supply chain**, warehouse and logistics

management to push momentum for optimal performance and increased profit.

The global logistics industry is expanding :

compound annual growth

rate of **4,5%**

until **2027**

## CURRENT INFLUENCES AND IMPACTS

Logistics and warehouse managers face challenges to maintain efficiency when confronted with higher customer expectations, rising fuel costs, environmental concerns, lack of manpower, emerging technologies, etc.

Notably, the e-commerce boom across domestic and international markets has added a direct-to-consumer dimension that means volume per shipment is down, while number of delivery locations is up.

Online customers have gotten much more critical when it comes to logistics. They want their products and services cheaper and faster than ever before. They want flexible delivery and return options, with transparency to know the status and whereabouts of their order at any time. All of this plus a high level of accuracy must be provided to ensure satisfaction.

Additionally, growing concern for the environment adds a sustainability requirement for both transport and packaging. Pressure comes from regulations to further reduce carbon emissions and production waste, but companies still need to manage costs.

Together, these challenges put perpetual stress on operations, which then need smart tools to tackle ongoing productivity issues.

## NAVIGATING THE CHALLENGES AHEAD

The logistics winners of the next decade will invest in innovation that allows for performance optimization, flexibility and exceptional customer experience.

Analytics and technology are front and center, with IoT, Artificial Intelligence and Big Data being invaluable to successfully navigate the challenges ahead. **Packaging will get more environmentally friendly. Transport will be safer and quicker. Warehouses will be automated.**

### What innovative trends are transforming the future of logistics?

- 1. Smart Mobility**  
makes faster and greener transportation
- 2. Artificial Intelligence**  
adds accuracy
- 3. Eco-friendly Packaging**  
is safer for the environment
- 4. Warehouse Connectivity**  
optimizes performance
- 5. Big Data**  
provides smarter forecasts
- 6. Warehouse Robotics**  
increase productivity
- 7. Circular Supply Chain**  
allows sustainable logistics

**Are you ready for the future? Keep reading to find out how to best benefit from the latest innovations that can help you prepare productively.**





# 1 SMART MOBILITY

## Data Management & Sustainability Drive Efficiency For Logistics Deliveries.

Planes, trains, trucks, buses, bikes, boats – deliveries today know no boundaries, and modern logistics transport has to quickly adapt to changing market trends, digitization and environmental concerns.

These growing expectations mean extra pressure for logistics managers, who have to effectively manage fleet operations to ensure efficient delivery and customers satisfaction, especially for [last-mile deliveries](#), which are now a critical point of differentiation with **global e-commerce sales expected to double from \$3.53 trillion in 2019 to \$6.54 trillion in 2023** says Statista. Managing this final leg of shipment presents special challenges because it is often time consuming, adds pollution and can account for up to 53% of overall shipping costs, according to Business Insider Intelligence.

When faced with ongoing challenges, how can products be transported when and where they need to be, safely and without interruption?

## 1.1 IOT FOR SMARTER FLEET MANAGEMENT

With real-time data from GPS devices and sensors, the [Internet of Things](#) (IoT) provides precise calculations on the location and condition of vehicles and goods. This visibility lets warehouse managers improve the efficiency, accuracy and speed of fleet operations.

IoT intelligence makes it easier for managers to predict vehicle maintenance, minimize disruptions, improve performance and lower fuel consumption. It also solves sensitive challenges in the last mile for food and pharmaceutical supply chains, monitoring humidity, temperature, pressure and shock to prevent product damage.



## 1.2 AI FOR ACCURACY AND COST SAVINGS

[Artificial Intelligence](#) technologies are being used for autonomous vehicles and high-tech driving assistance in logistics transport, with market growth at nearly 14.5% and **value expected to hit \$3.5 billion by 2023** says the International Finance Corporation.

Providing higher accuracy, AI improves logistics transport performance by detecting traffic and weather patterns to better navigate routes and prevent accidents. AI also saves money for last-mile deliveries by reducing fuel, time spent in traffic and

### IKEA: ZERO-EMISSION LAST MILES BY 2025

**IKEA** was one of the first companies to support EV100, a global initiative for the transition toward electric vehicles. Already in place in Shanghai with New York, Los Angeles, Paris, Amsterdam soon to follow, **IKEA** has set a zero-emissions target using EVs for all last-mile deliveries by 2025.

From a logistics perspective, EVs meet regulations on urban pollution restrictions and can move faster in narrow city streets to keep delivery satisfaction high.

## 1.3 ELECTRIC VEHICLES FOR LOWER EMISSIONS AND FUEL CONSUMPTION

Greener logistics are possible with energy-efficient electric vehicles (EV). EVs are reducing the impact of global freight transport, which generates **30% of all transport-related CO2 emissions and over 7% of global emissions**, according to the International Transport Forum.

Electric vehicles are also attractive for supply chains because they involve lower fuel consumption, cheaper upkeep and increased safety, which are all wins for logistics managers.



### SMART MOBILITY SOLUTION: URBANTZ FOR LAST-MILE DELIVERY INNOVATION

The French last-mile delivery start-up **Urbantz** offers a comprehensive cloud-based SaaS solution that manages and monitors the entire delivery chain, from fleet management to driver solutions and customer experience.

Designed for retail, e-commerce, logistics, food and field services, deliveries can be planned, dispatched and controlled using a single platform. Real-time visibility helps reduce the cost and impact of last mile logistics in urban areas for a more sustainable ecosystem.

**30%** OF ALL TRANSPORT-RELATED CO2 EMISSIONS ARE GENERATED BY GLOBAL FREIGHT TRANSPORT

## 1.4 CROWDSHIPING FOR FASTER SERVICE

Scheduled at the customer's convenience, crowd-shipping provides logistics synergies that speed-up delivery in urban areas, where high delivery demand can be matched with an abundance of couriers.

Delivery service startups like Instacart and Postmates crowdsource last-mile deliveries by connecting companies to local, non-professional couriers who use their own transportation to ship goods on-demand.

Logistics experts know smart mobility drives next generation transport, combining connectivity, cost control, speed and sustainability to support supply chain efficiency like never before.





# 2

## ARTIFICIAL INTELLIGENCE FOR ACCURACY

### Artificial Intelligence Adds Speed and Accuracy to the Supply Chain.

Supply chains are rapidly evolving, and Artificial Intelligence (AI) offers big potential to reshape how networks, processes and transportation are managed. In fact, **adding artificial intelligence to the supply chain can create value of \$1.2 trillion to \$2 trillion per year** reports McKinsey.

AI solutions augment human capabilities, predicting patterns and automating time-consuming tasks for speed and accuracy while cutting logistics costs: **54% of executives surveyed by PwC are already making investments in AI** and 63% are planning further investment in the next 3 years.

### 2.1 PREDICTING DEMAND

AI detects trends with higher-than-human accuracy to more precisely predict demand for supply chains. According to a study, **AI-powered analysis can reduce forecasting errors by 30-50% as well as decrease lost sales due to stock outages by up to 65%**, according to a McKinsey study.

In retail for example, a high degree of confidence in the forecast helps reduce logistics costs because stock levels can be lowered, freeing up valuable space and decreasing working capital.

Demand data is also valuable to warehouse managers for maximizing inventory volumes, revenue and, in the end, customer satisfaction. Deeper understanding of demand also makes planning easier for fleet management, delivery times, seasonal surges and manpower hours.



### 2.2 AUTOMATING WAREHOUSES

Using computer vision to recognize and organize products, AI automates routine warehouse tasks quickly and efficiently for a more cost-effective supply chain. It can collect data, modify or re-route orders, control quality, inspect inventory and more, allowing staff to focus on strategic activities. When several warehouses are involved, AI can connect them to find the best solutions.

Part of the automation mix, warehouse and logistics robots serve to increase productivity by working alongside humans, with industry revenue expected to hit over \$30 billion in 2022 says research from Tractica.

#### PROCTER & GAMBLE: SUPPLY CHAIN SAVINGS WITH AI AUTOMATION

Procter & Gamble adopted an AI solution to automate distribution centers and warehouses that involves collaborative robots and autonomous vehicles.

It customizes automation of deliveries for 7,000 SKUs, helping cut supply chain costs by \$1 billion annually.

### 2.3 PRODUCING ACTIONABLE DATA

Supply chains generate **big data** which offers important insight for measuring and optimizing performance. But there are often gaps in the information, making it difficult to use or share. AI unleashes the full potential of this data by accessing broader data sets to find patterns that humans are unable to detect.

Offering a competitive edge, AI extracts clean, actionable data that gives logistics and warehouse managers visibility across supply chain operations at all times. This is essential to leverage and exchange data with other logistics players (suppliers, shipping companies, last-mile delivery services, etc.) in order to keep up with giants like Amazon.



#### ARTIFICIAL INTELLIGENCE SOLUTION: CLEARMETAL PRODUCES ACTIONABLE SUPPLY CHAIN DATA

**ClearMetal**, a predictive logistics start-up, helps retailers and manufacturers transform their supply chains using artificial intelligence and data science. It provides a cloud-based software-as-a-service application that organizes and makes sense of inaccurate supply chain data to provide visibility and let companies be proactive instead of reactive.

The key benefits of actionable data and predictive intelligence for logistics include being able to better manage inventory, cut transportation costs, enhance productivity and improve customer service.

“AI shifts the supply chain from reactive to proactive, adding the agility needed to thrive in the global logistics game of the future.”

### 2.4 IMPROVING CUSTOMER EXPERIENCE

Information needs to be fast and convenient for customer satisfaction, and Salesforce reports that **62% of customers are open to the use of AI** to improve their experience.

AI-powered solutions provide real-time assistance with limited error. Either voice or messaging-based, AI chatbots are conversation agents that can greet calls, guide self-service, track orders, resolve complaints, etc. Data is verified and validated to cater to customer preferences, and this personalization builds customer confidence as well as brand loyalty. AI shifts the supply chain from reactive to proactive, adding the agility needed to thrive in the global logistics game of the future.





**ECO-FRIENDLY  
PACKAGING**

Embrace sustainability  
with packaging made of  
eco-friendly materials, less  
plastic and smart fillers

**“ THE TIME TO GO  
SUSTAINABLE  
IS NOW! ”**





# 3 ECO-FRIENDLY PACKAGING

**Sustainable packaging (eco-friendly materials, less plastic and smart fillers) contributes to the preservation of our Planet while keeping efficiency in operations.**

Packaging has a big impact on supply chain efficiency and packaging demand is evolving quickly, with growth set at nearly 3% to reach \$1.05 trillion in 2024, according to research from Smithers (2019).

Logistics managers need future packaging to check many boxes: it needs to be resilient to protect products effectively yet flexible for changing uses, plus attractive to consumers and streamlined to minimize environmental waste. Less is definitely more, with reusable packing programs like Loop and zero-waste solutions attracting attention.

Innovations are helping create size-optimized sustainable packaging to generate efficiencies and savings for the supply chain.

**TOO GOOD TO GO: THE RIGHT SUSTAINABLE PACKAGING SOLUTION FOR FOOD**

The food waste warrior app **Too Good To Go** chose global packaging leader Antalis Packaging to find the right sustainable solution to pack food purchased through their app.

With strict material requests, bespoke packaging was designed with the corporate logo on it using a dry fibrous substance called Bagasse, which is an easily biodegradable byproduct of sugar. One of the most environmentally friendly materials for the food industry, Bagasse is durable and can be molded into various shapes to be used as containers or tableware.



## 3.1 SUSTAINABLE RAW MATERIALS

Green is king at a time where consumers are ever more environmentally conscious. In fact, a recent survey from Globalwebindex found **42% of consumers said packaging made from recycled or sustainable materials was crucial in their everyday purchase habits.** Another 57% reported that they are willing to pay more for environmentally friendly packaging.

Packaging is evolving and will be designed for reuse and recycling, and produced with eco-friendly materials that support sustainability.

Logistics experts are focusing on flexible or mono-materials as well as biodegradable, plant-based and other eco-friendly alternatives to integrate packaging into a circular supply chain – and reduce energy consumption, including:

- Cornstarch can be used for molded forms, bottles, bags and loose-fill packaging.
- Wood can be converted into cardboard and corrugated paper for a variety of packaging solutions.
- Mushroom roots mixed with agricultural waste provide a cost-effective alternative to support smaller items.
- Bamboo is an excellent protective option because of its strength and durability.
- Seaweed, an abundant raw material, is also gaining popularity as a packaging medium.
- Organic fabrics, such as hemp, cotton, tapioca and palm leaves, make reusable bags that more easily and quickly decompose than plastic.

## 3.2 RETHINKING PLASTIC

The plastic problem can't be ignored, but warehouse managers face a challenge in finding environmentally friendly substitutions to plastics for heavy shipments that require sturdy support.

Improvement is being made, and the New Plastics Economy Global Commitment Progress Report 2019 states that **60% of signatories' plastic packaging is reusable, recyclable or compostable in practice and at scale today.** The goal is to reach 100% by 2025. Eco commitments can be maintained by eliminating single-use plastics and focusing on entirely recycled options for drums, spill trays and spill control pallets.

To respect the 3R (Reuse, Reduce, Recycle), plastic packaging such as bags or boxes can be reused with double closure solutions that make shipment and returns less wasteful. In addition, plastic consumption can be reduced up to 60% - and therefore less CO2 - by using a [multi-layer stretch film](#), while plastic packaging and any protective filling made of one single material is more easily recycled.

## 3.3 EMPTY SPACE SOLUTIONS

Empty space and excess packaging material frustrate consumers and create a negative brand experience. It also drives up shipping costs and fuel consumed. A recent study (The Empty Space Economy by Forbes Insights, 2018) estimates that **eliminating empty space in packaging could save approximately \$46 billion annually worldwide in logistics costs.**

Products should be shipped in the right-sized boxes with biodegradable packing peanuts, sustainable loose-fill packaging or up-cycled corrugated cardboard to protect fragile items.

A sustainable packaging strategy that balances size, quantity and fill of each carton – respectfully of both environment and budget – has great value in the logistics chain. The time to go greener is now!

**57% OF CONSUMERS REPORTED THAT THEY ARE WILLING TO PAY MORE FOR ENVIRONMENTALLY FRIENDLY PACKAGING.**

**SUSTAINABLE PACKAGING SOLUTION : DOXA PLAST MAKES STRETCH FILM OUT OF CRUDE TALL OIL (CTO)**

The Swedish film manufacturer **Doxa** Plast has created a range of bio-based and high performance stretch films. It is an environmentally sustainable solution as it is carbon neutral and made from CTO.

Crude Tall Oil is a waste product from pine tree cutting, so it does not require to grow any new plants or use edible stocks to make it. This multilayer stretch film has the same abilities as fossil-based plastics, but is made from a completely sustainable source, making it a very interesting alternative to use in packaging.





# 4 SMART WAREHOUSES

## Big Data & Connectivity Optimize Modern Warehouses.

Successful warehouse management is critical to business productivity. It involves meeting a number of challenges from e-commerce, seasonal demand fluctuation, omnichannel sales, overstock or out-of-stock situations, back orders and returns. Plus, ever-shorter lead times are creating additional pressures for higher speed and accuracy.

Efficiency risks disruption because many warehousing activities and processes are still performed manually, causing wrong items to be picked and shipments to be delayed, both of which add extra costs.

The solution lies in the next wave of warehouses, which are optimized with the support of big data, predictive analytics, IoT and mobile devices to perform optimally.

## 4.1 BIG DATA AND PREDICTIVE ANALYTICS

The warehouse landscape of the future runs on the analysis of big data collected across the supply chain. This valuable source of insight lets managers make accurate predictions about potential demand so they can optimize warehouse performances, with benefits being less waste, more reliable deliveries and time saved.

Big data and predictive analytics process past historical trends and provide advice accordingly to identify the best time to re-order stock, optimize routing, streamline factory functions, schedule maintenance and more.

## 4.2 THE INTERNET OF THINGS (IOT)

With a new level of precision, IoT links the many moving parts of a supply chain so warehouse managers get a better look at operations in real-time. It syncs devices and systems while collecting, receiving and sending out important data, which is actionable and shareable to streamline processes. That is why many companies plan to automate their warehouse systems using IoT by 2025, according to a study from Zebra.

From a practical perspective, IoT improves:

- Inventory - RFID trackers follow inventory at every step so staff know where products are and can react if stock is running low.
- Delivery - sensors let trucks make use of all available space and alert of any risks or change in conditions so product loss or damage is minimized.
- Picking - collaborative robots connected with IoT work alongside humans to improve picking productivity; IoT also offers staff instant assistance, using connected devices to productively navigate the warehouse, prioritize tasks, and identify orders correctly.

### LINEAGE LOGISTICS: WAREHOUSE IOT CUTS ENERGY USE BY 34%

Food cold storage operator **Lineage Logistics** uses IoT to actively manage its cooling operations, which protect billions of pounds of warehoused food.

Vibration sensors help detect and prevent refrigeration system problems, while temperature sensors ensure that the warehouse remains at the desired temperature. These IoT solutions have helped warehouse managers cut annual energy use by 34% and energy costs by \$4 million.

## 4.3 SMART MOBILE DEVICES

Mobile devices are modernizing the order fulfillment process with unmatched speed, efficiency and accuracy across the warehouse. A study by VDC shows that 56% of organizations plan on upgrading their existing fleet of mobile devices for warehousing.

Connected to the warehouse management system (WMS), smartphones and tablets make entering and receiving information for picklists and shipping labels in the warehouse easy. Meanwhile, handheld devices equipped with RFID scanners, cameras, touchscreens, and WiFi can send and receive data on order fulfillment and delivery tracking.



To best serve today's online consumer, smarter warehouses are leveraging technology to automate processes and reduce error for improved performance.

Able to connect with other technologies in the warehouse, these devices are ergonomically designed to help decrease workplace injuries.

A convenient no-hands solution, voice-picking systems let employees send and receive information via a hands-free headset. RFID and automatic identification and data capture technology save time for pickers, put-away teams and robotics, which means faster replenishment, higher pulling and more profitability.

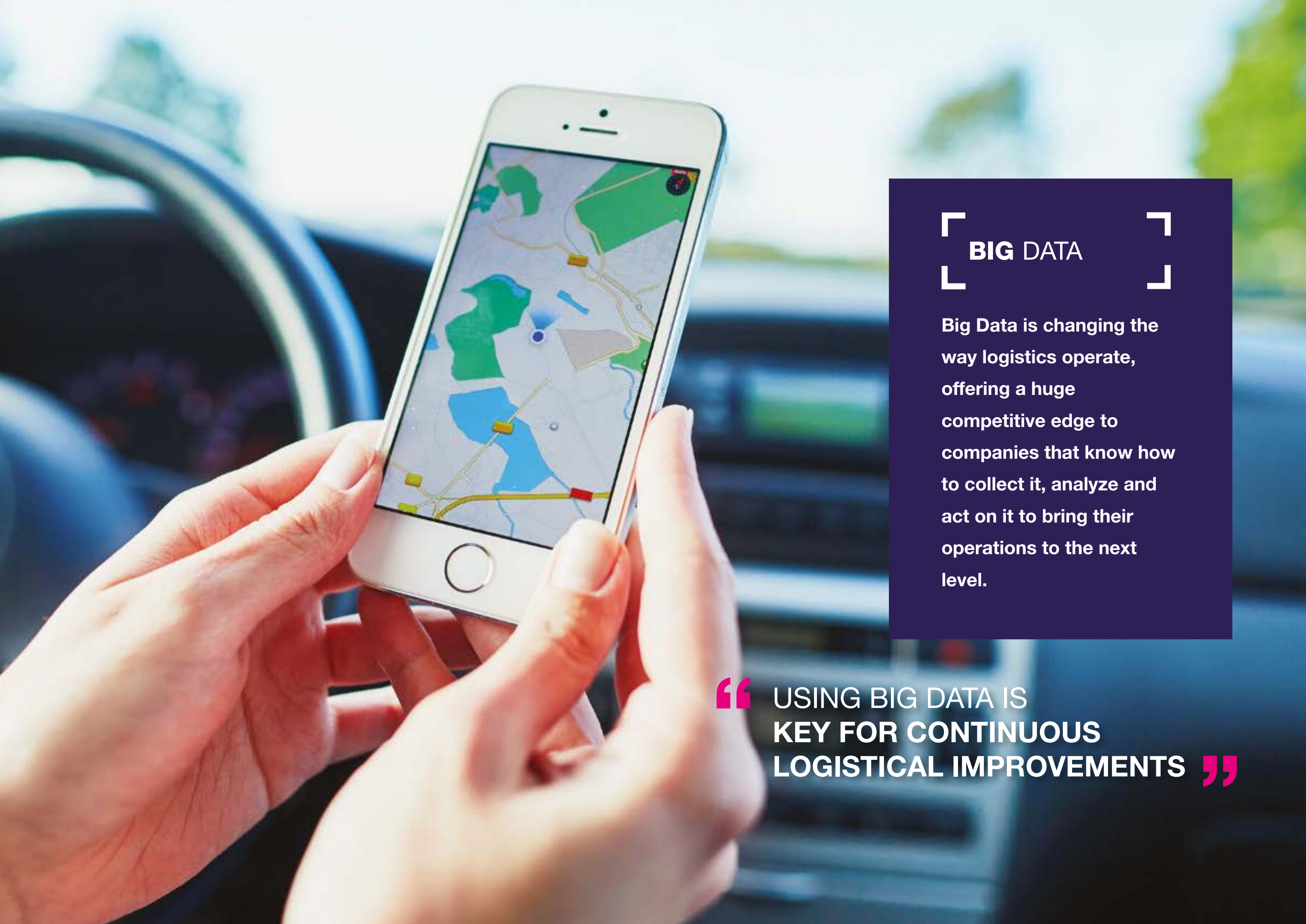
To best serve today's online consumer, smarter warehouse are leveraging technology to automate processes and reduce error for improved performance.

### SMART WAREHOUSE SOLUTION: GETVU INCREASES PRODUCTIVITY WITH SMARTGLASS

**GetVU**, an augmented reality and wearable device solution start-up in India, drives productivity in warehouses with its smartglass product **PikVu**.

Used to improve warehouse worker efficiency, **PikVu** lets pickers conveniently work hands-free without hand-held scanners, quickly reach items by following a 3D arrow, identify shelves easily with augmented reality display, and double check identification increasing accuracy to 99.99%.





## **BIG DATA**

Big Data is changing the way logistics operate, offering a huge competitive edge to companies that know how to collect it, analyze and act on it to bring their operations to the next level.

**“ USING BIG DATA IS  
KEY FOR CONTINUOUS  
LOGISTICAL IMPROVEMENTS ”**





# 5 — BIG DATA

## Smarter Forecasting for Continuous Logistical Improvements.

Today unprecedented amounts of data can be captured from various sources along the supply chain, and this data offers invaluable real-time visibility and predictive insight across all operations. **Some 93% of shippers and 98% of third-party logistics firms believe data-driven decision-making is crucial for a better supply chain**, while another 71% think big data improves performance and quality, according to a study from the Council of Supply Chain Management Professionals.

From optimizing routes and managing inventory more efficiently to enhancing customer experience, big data support smarter forecasting for continuous logistical improvement.

## 5.1 ROUTE OPTIMIZATION

Logistics experts can use big data for dynamic route planning to meet the challenge of changing weather, traffic and fuel prices.

Sensors on delivery trucks combined with GPS data plus information on road conditions, staff resources, fleet and weather can be integrated into a system that analyzes past trends and gives advice accordingly. The intelligent correlation of these data streams helps optimize load sequences, efficiently schedule shipments, save fuel costs and predict precise delivery times.

**This data can also be used to find new routes or solutions to streamline shipments; for example in helping avoid fees, penalties or delays related to international trade regulations.**



## 5.2 INVENTORY MANAGEMENT

Big data comes to the rescue in effectively maintaining inventory in the warehouse. Without the labor and error risks of manual work, big data tracks and monitors supplies in real-time to alert when stock is running low, and how much is needed, to prevent shortages.

Algorithms pinpoint patterns for unparalleled insight into product performance, consumer behavior, supplier relations, offline/online store sales, replenishment planning and more.

Warehouse managers can then strategically forecast demand for products, understanding which products are bestsellers and that don't sell as well. Resources and money are saved thanks to optimized inventory with smart use of warehouse space.

### UPS: BIG DATA SAVES MONEY AND FUEL

UPS gained big savings by using big data for logistics: Information on the speed, location, routes taken and idle times of delivery trucks was collected and analyzed, which allowed UPS to detect that turning left into oncoming traffic was causing delays, risking safety and wasting fuel.

A "no-left-turn policy" was implemented that saved 10 million gallons of fuel per year, increased package deliveries by 350,000, and reduced carbon dioxide emissions by 20,000 tons.

## 5.3 CUSTOMER EXPERIENCE

The shift in customer buying behavior prompted by e-commerce has created competition to attract consumers with various benefits along the supply chain such as very fast shipping, free last-mile deliveries, flexible returns, and more.

Big data lets logistical managers deliver these new advantages successfully by adding transparency to processes. Having all data throughout the order cycle improves the customer experience because it lets them be served faster – and track their order at any time.

Accurate, timely information also boosts effective collaboration with partners and helps identify where to improve processes so orders are dispatched in the most productive way possible.

**Big Data is changing the way logistics operate, offering a huge competitive edge to companies that know how to collect it, analyze and act on it to bring their operations to the next level.**

**98% OF THIRD-PARTY LOGISTICS FIRMS BELIEVE DATA-DRIVEN DECISION-MAKING IS CRUCIAL FOR A BETTER SUPPLY CHAIN**



### BIG DATA SOLUTION: HEDYLA EMPOWERS LOGISTICS PROCESSES

Spanish start-up **Hedyla** offers a cloud platform solution driven by big data to empower logistics processes. Data is collected from warehouse and supply chain systems – such as warehouse management systems (WMS), enterprise resource planning (ERP) software, transport management systems (TMS) and external sources – then processed using big data analytics and AI to increase efficiency and value.

For warehouses, the platform uses big data to best plan activities, optimize routes, control operations and manage inventory. It can also maximize distribution by analyzing different scenarios to reduce the number of vehicles and improve delivery times.





# 6 WAREHOUSE ROBOTICS

**A Collaborative Workforce to Increase Safety and Reduce Errors.**

Warehouse managers are finding new ways to solve process challenges thanks to advances in robotics. Robots are an advantageous logistic solution because they operate autonomously guided by warehouse management software, sensors and AI, which helps cut labor costs by 70% says WMS platform Logiwa.

Useful for picking and transportation, robots can quickly and efficiently locate, track, sort and move inventory inside warehouses. They are built to lift heavy loads and manage huge volumes, while protecting products and workers.

These benefits are making way for wider adoption and acceptance, with **worldwide revenue for warehousing and logistics robots expected to rise to \$30.8 billion in 2022, up from \$8.3 billion in 2018**, according to research from Tractica.

What types of robots can logistics managers use to improve productivity in the warehouse?

## 6.1 AUTONOMOUS MOBILE ROBOTS

Autonomous Mobile Robots (AMRs) are small, agile robots that use computers, sensors and map technology to deliver inventory around the warehouse. They navigate the best routes depending on the task and are programmed to interpret and avoid obstacles.

AMRs carefully identify packaging information, then sort it accordingly with speed and accuracy. Working collaboratively alongside staff, they reduce stress by taking on repetitive tasks to free up employees, who can consequently be more productive by focusing on value-added activities.

AMRs can also be used to calculate inventory daily, replacing manual inventory checks done a few times per year, so warehouse managers have a more recent and precise count of stock.



## 6.2 AUTOMATED GUIDED VEHICLES

Automated Guided Vehicles (AGVs) transport inventory from one location to another within the warehouse, travelling on fixed routes by tracks or magnetic strips. Cameras or sensors help direct them so they don't run into any barriers.

In addition to reducing labor costs and being less expensive than conveyors, AGVs make the workplace safer because 1) they replace humans and 2) they can perform dangerous tasks (move heavy loads, handle hazardous products, work in extreme temperatures, etc) without putting personnel in harm's way. Growth should continue, with the **global AGV market expected to be worth \$2.9 billion by 2024** says a research report from Markets and Markets.

**FRAMEBRIDGE: AMRS INCREASE PRODUCTIVITY BY 70%**

Online custom framing company **Framebridge** boosted manufacturing workflow to meet customer demand using a Cloud Robotics Platform and AMRs.

Robotics deliver on-demand automation for the movement of frame components between different production stations, as well as track frames and art, with new precision across a 9 300 square meters facility. Productivity is up by 70% with a more seamless customer experience.

## 6.3 UNMANNED AERIAL VEHICLES

Commonly known as drones, Unmanned Aerial Vehicles (UAVs) give real-time inventory visibility within warehouses to optimize inventory processes.

**Drones can locate items much faster than humans by using optical sensors (cameras) and scanning RFID tags at a distance of tens of meters.** They travel quickly to hard-to-reach places, and don't take up precious floor space.

In bigger warehouses, a drone system is useful for measuring inventory levels, which it communicates to the WMS warehouse management system, so individual items can be found quickly and errors can be prevented.



## WAREHOUSE ROBOTICS SOLUTION: LOCUS AMRS OPTIMIZE PICKING

US robotics start-up **Locus**' innovative autonomous mobile robots work alongside staff to optimize warehouse productivity plus manage seasonal and e-commerce peaks, while helping cut labor costs.

Acting as delivery vehicles in the warehouse, Locus robots safely and efficiently pick and carry merchandise using multi-bot picking methodology that helps workers pick twice to three times faster, with complete accuracy and significantly less labor compared to traditional picking systems.

The solution is flexible, scalable and easily integrated into warehouse management systems for a smooth transition.



## 6.4 AUTOMATED STORAGE AND RETRIEVAL SYSTEMS

Automated Storage and Retrieval Systems (AS/RS) retrieve goods for use or shipping and put items back in their storage place.

With a WMS that directs tasks, AS/RS solutions include cranes that can move and select items between aisles, and shuttles that move on a fixed track. Aisle climbing robots also retrieve customer orders.

AS/RSs perform efficiently using available floor space to reduce order picking time, minimize labor needs and enhance product security.

**Robots are an adaptable workforce that can meet increased capacity demands, working around the clock with low error to significantly improve supply chain efficiency.**





# 7 CIRCULAR SUPPLY CHAIN

## Recycling, Refurbishing and Reusing Materials to Save Money and Resources.

For more profitable logistics, a circular supply chain minimizes waste by reusing and reselling products, and this new strategy is said to generate potential global savings worth over \$1 trillion by 2025 reports the Logistics Bureau.

Unlike a traditional linear supply chain, a circular supply chain keeps going when a product reaches the end-customer. Moving in a circle, it continues to include the full product life cycle, starting from sourcing of supplies all the way to the return and reintroduction of recycled or refurbished materials into the production.

To fully capture the potential of a circular supply chain, some rethinking of operations plus an initial investment to adapt manufacturing processes is required, but the financial – and environmental – benefits are significant in the long run.



## 7.1 GENERATING NEW OPPORTUNITIES WITH WASTE

As natural resources become scarcer and world population continues to rise, corporations have a responsibility to use and reuse materials intelligently. In the US alone, a shocking 5 billion tons of returned merchandise end up in landfills every year, Optoro estimates, with an annual 15 million metric tons of carbon emissions to ship it.

**Circular supply chains help business professionals actively transform waste into new opportunities: sources of revenue can be created by recovering by-products in the manufacturing process that were previously thrown away.**

This circularity transforms waste into business because it keeps products in use by continuously maintaining the value of supplies, components and products at all times. It also reinforces relationships between suppliers, companies and customers.

## 7.2 RESPECTING ENVIRONMENTAL REGULATIONS

Logistical managers face challenges regarding how to respect budgets, productivity and customer satisfaction, while juggling new rigid regulations on the recycling and disposal of production waste.

Adopting a circular supply chain helps meet these restrictions by recycling raw materials indefinitely and can even attract incentives allotted to green manufacturing processes and zero waste initiatives. It also boosts brand reputation and makes environmentally conscious consumers happier.

**Future success in logistics includes a circular supply chain, with the benefits of sustainability and wise end-of-life cycle processes helping save money and grow business value.**

IN THE US ALONE, A SHOCKING **5** BILLION TONS OF RETURNED MERCHANDISE END UP IN LANDFILLS EVERY YEAR



## CIRCULAR SUPPLY CHAIN SOLUTION: CIRCULAR IQ HELPS LEVERAGE PURCHASING POWER

To empower circular change, Dutch start-up **Circular IQ** helps logistics experts optimize procurement processes through smart data-gathering and analysis. Being a finalist in The European Supply Chain Start-up Contest, the platform collects and analyzes verifiable data from suppliers and third parties so purchasing power can be leveraged to optimize the entire supply chain.

### ADIDAS: MAKING FOOTWEAR OUT OF REPURPOSED PLASTIC FROM THE OCEAN

Adidas is harnessing the power of a circular supply chain by partnering with Parley for the Oceans to repurpose plastic trash found in the ocean into high-performance sportswear.

The running shoe giant pledged to produce 11 million sneakers out of recycled plastics, and its line of recycled shoes is seeing big success with revenue estimated to reach \$1 billion.





## MOVING FORWARD

In light of all the exciting trends transforming the field of logistics, the future is promising. Many opportunities exist, and more are coming, to build better, greener and flexible supply chains that support the ever-changing dynamics of our world.

Innovation will be the driving force that takes logistical operations to the next level of excellence.

### IN SHORT: WHAT DOES THE FUTURE LOOK LIKE?

From smart mobility powered by real-time data to autonomous or energy-efficient electric vehicles plus crowdsourced last-mile deliveries, **TRANSPORT** shines using IoT and AI for faster and cheaper delivery.

Meanwhile, **ECO-FRIENDLY PACKAGING** adds value and efficiency by using sustainable materials, rethinking the use of plastic and designing solutions for empty space.

**SMART WAREHOUSES** best serve online consumers using mobile devices to modernize order fulfillment, big data to enhance processes, and IoT to offer visibility in real-time for improved inventory management, delivery and picking.

Adding **ROBOTICS** to the mix boosts warehouse productivity: a collaborative, adaptable workforce that can work non-stop with high accuracy, robots reduce labor costs, make the workplace safer and meet increased capacity demands.

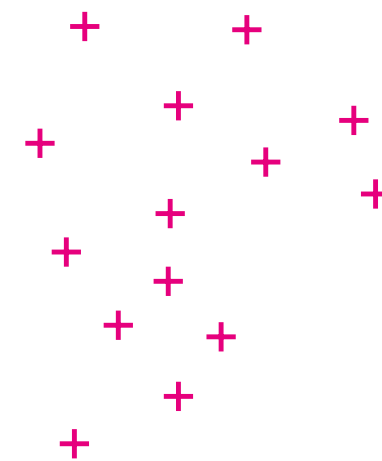
Next, supply chains shift from reactive to proactive with **ARTIFICIAL INTELLIGENCE** for more precise demand prediction, warehouse automation, transparency across processes and efficient customer assistance around the clock.

**BIG DATA** provides invaluable real-time visibility and predictive insight to optimize routes by evaluating changing weather, traffic and fuel prices; and enhancing management of inventory supplies to prevent shortages.

**A CIRCULAR SUPPLY CHAIN** then comes into play to minimize waste by reusing and reselling products, creating wise end-of-life cycle processes for savings.

### A POSITIVE NEW LANDSCAPE

All of these trends form a positive new landscape for limitless efficiency and success. Innovative logistics managers are pushing forward now to transform the way they operate, anticipating and adopting emerging technologies to gain significant advantages and stay ahead of logistical departments in competitor companies.



# ABOUT ANTALIS

## SMART PACKAGING LEADER IN EUROPE

Antalis Packaging is the European leader in industrial packaging with operations in 28 countries.

As a trustworthy and effective logistics partner, Antalis offers a diverse range of value added services and can supply packaging with short delivery times all over Europe.

## INNOVATIVE PRODUCTS ADAPTABLE FOR EVERY NEED

Antalis Packaging has expertise in industrial, logistical, e-business and operational processes. We provide high-quality, reliable and effective products and work closely with customers to develop dedicated solutions that address their specific challenges.

Antalis' multi-material designer experts help evaluate the needs of the customer to develop the best suited product for the job. We have a wide range of over 53,000 products that are adaptable for every need from cardboard boxes, stretch films and adhesive tapes to cushioning and strapping materials combined with high-performance packaging systems.

On the service side, Antalis accompanies clients to find ways to optimize internal processes, product protection and total cost of ownership.

We offer flexibility for customers of all sizes, from SMEs to large multinationals around the world.

## SPECIALIZED PACKAGING DESIGN CENTRES

Strengthening our know-how in customization, innovation is put in motion at Antalis' 6 Packaging Design Centres in Germany, Poland, Denmark and the UK. Here, talented Packaging Engineers and Designers have created over 10,000 bespoke packaging solutions.

In Germany, Antalis has 3 design centres specialized in the automotive sector that are equipped with state-of-the-art technology, including 3D design programs to visualize products or pieces that are in development.

## SUSTAINABILITY IS ESSENTIAL

Sustainability is an essential part of our strategy. Antalis Packaging works to actively minimize our environmental footprint by focusing on the 3Rs: reducing the quantity of packaging waste as well as reusing and recycling packaging.

We are increasing the use of recyclable supplies and one-material packaging.

# WE CREATE SMART PACKAGING SOLUTIONS!



# WE TAKE YOU FURTHER

Join us on our **LinkedIn Page**  
**Antalis Packaging** to find news  
and trends on logistical performance!



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