Lesson number 14. Business development technology - logistics processes

Purpose of the lesson:
study business development technologies in the context of logistics processes

Key words: technology , Internet of Things, Innovation Map

Main questions:

1. StartUs Insights Discovery Platform
2. Internet of Things
3. Artificial Intelligence
4. Robotics
5. Last-Mile Delivery
6. Warehouse Automation
7. Big Data & Data Analytics
8. Cloud Computing
9. Autonomous Vehicles
10. Elastic Logistics

Innovation Map outlines Top 10 Logistics Industry Trends & 20 Promising Startups

For this in-depth research on the Top Logistics Industry Trends & Startups, we analyzed a sample of 901 global startups and scaleups. The result of this research is data-driven innovation intelligence that improves strategic decision making by giving you an overview of emerging technologies & startups in the logistics industry. These insights are derived by working with our Big Data & Artificial Intelligence-powered **StartUs Insights Discovery Platform**, covering 2.093.000+ startups & scaleups globally. The platform quickly delivers an exhaustive overview of emerging technologies within a specific field as well as identifies relevant startups & scaleups early-on.

In the Innovation Map below, you get an overview of the Top 10 Industry Trends & Innovations that impact logistics companies worldwide. Moreover, the Logistics Innovation Map reveals 20 hand-picked startups, all working on emerging technologies that advance their field. To explore custom insights, **get in touch**.

Tree Map reveals the Impact of the Top 10 Logistics Industry Trends

The Tree Map below illustrates the top 10 logistics industry trends that will impact companies in 2021. The internet of things (IoT) plays a major role in the sector from establishing automated warehouses to tracking couriers and packages. Artificial intelligence (AI)-enabled platforms and solutions continuously learn several tedious logistics processes in order to start automating traditionally manual tasks. The easing of regulations around drones, and their usage, is set to boost not only last-mile delivery but also robotic applications for the industry as a whole.

Curious to learn which technology will most impact your business?

Global Startup Heat Map covers 901 Logistics Startups & Scaleups

The Global Startup Heat Map below highlights the global distribution of the 901 exemplary startups & scaleups that we analyzed for this research. Created through the **StartUs Insights Discovery Platform**, the Heat Map reveals that the United States is home to most of these companies while we also observe increased activity in India as well Europe, particularly in the UK.

Below, you get to meet 20 out of these 900+ promising startups & scaleups as well as the solutions they develop. These 20 startups were hand-picked based on criteria such as founding year, location, funding raised, and more. Depending on your specific needs, your top picks might look entirely different.

Top 10 Logistics Industry Trends in 2021

1. Internet of Things

The Internet of Things is a connection of physical devices that monitor and transfer data via the internet and without human intervention. IoT in logistics enhances visibility in every step of the supply chain and improves the efficiency of inventory management. Integrating IoT technology into the logistics and supply chain industries improves and enables efficiency, transparency, real-time visibility of goods, condition monitoring, and fleet management.

Fleetroot – Fleet Management

United Arab Emirates-based startup **Fleetroot** offers an IoT platform for companies to control and manage their fleet. Fleetroot offers fuel management solutions to fleet managers by providing fuel consumption and wastage reports. The platform helps monitor the performance of a vehicle and sends critical alerts to the system using sensors and devices embedded in the vehicle. The data is then analyzed along with the historical data in order to predict and plan the maintenance of fleets. Fleetroot also offers route optimization and delivery solutions for the transportation of goods.

Ambrosus – Real-Time Supply Chain Visibility

Belizean startup **Ambrosus** builds a Blockchain-based end-to-end IoT network for the food and pharma supply chain sectors. The network provides tools to analyze the data transferred between the sensors, distributed ledgers, and databases for optimizing the supply chain. The platform offers accurate tracking of shipments throughout the supply chain, thus ensuring the quality and authenticity of products by leveraging blockchain technology.

2. Artificial Intelligence

AI algorithms combined with machine learning support companies to be proactive in dealing with demand fluctuations. For example, AI-based forecasting solutions allow managers to plan supply chain processes and find ways to reduce operating costs. Self-driving AI and smart road technologies are affecting a positive shift towards delivery service automation. In addition, AI-based cognitive automation technology brings intelligence to automate administrative tasks and speeds up information-intensive operations.

Insite – Demand Forecasting

New Zealand-based startup **Insite** offers AI-based software solutions for price prediction, demand forecasting, and optimization of flows & processes,

catering mainly to the consumer packaged goods (CPG) and retail industries. The software provides modules for risk assessment and demand forecasting to automate process decisions and control operational conditions. The machine learning-enhanced platform provides tools to collect and integrate process data in real-time. As a result, managers are well equipped to provide actionable insights when it comes to product replenishment.

Adiona – Process Optimization

Australian startup **Adiona** develops AI-based Optimization Software-as-a-Service (OSaaS) that allows companies to improve their logistics processes and reduce costs. Adiona's *FlexpOps API* optimizes static and dynamic delivery routes by solving vehicle routing and related challenges. In addition, the software supports the decision making of fleets over time by predicting conditions such as demand, weather, and traffic by employing machine learning techniques. The solution also optimizes the workforce requirement and automates redeployment.

3. Robotics

Integrating robotics into logistics increases the speed and accuracy of supply chain processes and reduces human error. Robots offer more uptime and increase productivity when compared to human workers. Robots, however, do not take up the jobs of humans but rather work collaboratively alongside them to increase efficiency. Physical robots, such as collaborative robots ("co-bots") and autonomous mobile robots (AMR), are used to pick and transport goods in warehouses and storage facilities. Moreover, software robots perform repetitive and mundane tasks that free up time for human workers.

Canonical Robots – Collaborative Robots

Cobots work collaboratively with human workers, offer assistance, and enhance productivity in logistics operations. These robots pick, place, and pack goods in a brief span while eliminating potential human errors. Spanish startup **Canonical Robots** creates various collaborative robots to facilitate supply chain processes. These cobots have 6 axle joints that facilitate a wide range of flexibility and movement that mimic the human arm. Additionally, these robots assist human workers in picking & placing, palletizing, and packaging operations.

Actimai – Robotic Process Automation (RPA)

RPA offers automation of low-level repetitive tasks, eliminates human error, and reduces overhead costs. For example, RPA software performs operations including invoice processing, automatic storing of information in audit trails, and automates the input of a purchase order. Philippino startup **Actimai**, designs, deploys, manages, and optimizes RPA solutions by leveraging AI and big data. The startup's *Actimai* platform optimizes software robotic processes in order to deliver insights and analytics for process improvement.

4. Last-Mile Delivery

The last step of the supply chain, from the warehouse or distribution center to the customer, is often inefficient and also comprises a major portion of the total cost to move goods. Last-mile delivery is the most important part of logistics as it is directly related to customer satisfaction. However, last-mile delivery faces various

problems including delays due to traffic congestion, customer nuances, government regulation, and delivery density.

Manna – Drones

Delivery of goods by drones resolves the problem of traffic congestion in the last-mile. Drones have the capability to reach remote areas, thus reducing the delivery time and cost. Irish startup **Manna** offers drone delivery as a service to restaurant chains with its aviation-grade fleet of delivery drones. Manna's drones are capable of flying at an altitude of 80 meters with a speed of 80 km/h.

Pakpobo – Smart Lockers

Smart lockers provide flexibility for customers to receive parcels and reduce the last-mile challenges for returned deliveries due to customer unavailability. Italian startup **Pakpobox** offers smart lockers for both indoor and outdoor conditions. Pakpobox has a wide range of smart locker configurations that are customizable for various scenarios. These smart lockers offer parcel security by protecting them from adverse weather conditions as well. Moreover, Pakpobox provides temperature-controlled smart lockers for the storage of perishable goods.

5. Warehouse Automation

Warehouse automation increases efficiency, speed, and productivity by reducing human interventions. Pick and place technologies such as automated guided vehicles (AGVs), robotic picking, automated storage and retrieval (ASRS), and put-wall picking reduce error rates and increases warehouse productivity. Warehouses require a combination of efficient automation technologies in order to control their operational logistics costs.

Addverb Technologies – Automated Guided Vehicles

AGV integration in the warehouse helps in the automation of moving goods. AGVs substitute human labor for addressing challenges regarding processing high-volume goods at scale. Indian startup **Addverb Technologies** works on *Dynamo*, an AGV for the transport of diverse loads in the warehouse. Addverb offers a custom Dynamo AGV with different guidance systems including laser, inertial, wire, and magnetic tape. Also, Dynamo requires minimum to no human interference in the execution of picking operations in the warehouse.

Exotec – Automated Storage & Retrieval System

ASRS assists in the management of product and material storage in automated warehouses and improves floor space utilization and does not require manual labor to operate, thus reducing the overall operational cost and increasing safety. French startup **Exotec** builds the automated robot *Skypod* to optimize eCommerce warehouses. The Skypod system optimizes storage space by employing vertical storage methods in order to increase the height in warehouses by up to 10 meters.

Curious to learn which technology will most impact your business?

6. Blockchain

Blockchain offers security through an irrefutable decentralized ledger system and addresses pressing traceability and related challenges. This brings transparency of transactions to the entire logistics process. Moreover, smart contracts based on blockchain technology allow for quicker approval and clearance by reducing the processing time at checkpoints.

Steamchain – Smart Contracts

The US-based startup **Steamchain** offers a blockchain platform that simplifies payment processes using its *World Trade Logistics (WTL)* smart contract system. WTL smart contracts enable B2B payments and prevent fraud by providing an immutable record of all transactions. WTL smart contracts help in minimizing currency fluctuation costs, in addition to eliminating the costs of currency conversion.

ShipChain – Freight Tracking

The US-based startup **ShipChain** builds a logistics platform that leverages blockchain technology to support the end-to-end shipping process. The platform allows all stakeholders to track shipment locations at every step of its journey. The platform also updates information regarding the estimated delivery times using encrypted public ledgers. The photocopies of documents are uploaded into the platform after the delivery is complete, thus increasing visibility and transparency of goods in transit.

7. Big Data & Data Analytics

Data analytics provide actionable insights for the improvement of warehouse productivity, performance management, and optimal utilization of logistical resources. The data obtained from monitoring position and weather along with fleet schedules help optimize routes and delivery planning. The analysis of market data supports the further optimization of supplier pricing, inventory levels, and generation of risk management reports. Moreover, advanced analytics provide insights that help identify anomalies and offer predictive maintenance solutions.

Nautilus – Performance Management

The US-based company **Nautilus Labs** offers AI solutions to help maritime companies reduce fuel consumption and increase their operational efficiency. Nautilus' software analyzes the historical voyage data and predicts the optimal speed and fuel consumption. The cloud-based platform also generates the vessel performance data that later helps in optimizing the fuel costs.

FACTIC – Prescriptive Analytics

The US-based startup **FACTIC** offers a SaaS platform that provides predictive analytics solutions for the food and beverage industries. FACTIC leverages data mining and AI techniques to analyze the data from internal and external sources to predict future sales. The platform predicts deviation in demand and makes data-driven decisions to automate procurement. The platform also provides tools for optimization of stock by employing auto-replenishment.

8. Cloud Computing

Cloud-based SaaS solutions for logistics companies allow for pay-per-use models that require low capital investment. This minimizes the risk and cost of maintaining the IT infrastructure. Cloud-based logistics solutions also address communication hurdles and allow companies to collaborate and share data in a secure way. In addition, cloud-integration allows data collection from management systems to analyze overall logistic processes. Finally, cloud-integrated logistics offers universal accessibility and is not confined to any physical space.

Linker – Cloud Platform

Polish startup **Linker** works on a B2B cloud fulfillment platform that provides logistics services for eCommerce companies and third-party logistics (3PLs) players. The platform offers tools to enhance product labeling and delivery services while digitizing shipping. Linker provides tools for fulfillment in warehouses and delivery facilities. This platform solution also employs a pay-as-you-go model.

Alpega – Cloud TMS

Belgian startup **Alpega** creates a cloud-based SaaS Inet transportation management systems for end-to-end transportation needs. The software solution enables communication in real-time between manufacturers and a broad network of logistics providers. The *Inet TMS* automates logistics processes and consolidates transport demands into a single system. The software solution also provides the tracking of the shipments through a mobile application. The cloud platform allows Alpega to release upgraded software to the customers on a quarterly basis, in contrast to on-premise software that follows a yearly upgrade cycle.

9. Autonomous Vehicles

Autonomous vehicles improve vehicle safety and deliver goods safely by eliminating human errors while driving. They increase the efficiency in the first and last-mile delivery as they are designed to work all day and all night. Moreover, autonomous vehicles improve fuel efficiency by using platooning techniques for long haul routes, reduce traffic jams, and optimize travel routes by taking advantage of AI-enhanced technology.

Spring – Autonomous Vehicle Fleet

German startup **Spring** offers *Spring X1*, an autonomous utility vehicle fleet for transporting goods with predictable, intelligent systems. Spring's autonomous vehicles are equipped with modular trailers designed for multiple applications. These modules are customizable depending on their applications such as mobile lockers, food, and cargo delivery.

Mars Auto – Autonomous Vehicle Software

South Korean startup **Mars Auto** develops self-driving vehicle software to provide driverless shipment transport. AI-based software offers tools to map the surroundings, control, and guide vehicles to the correct cargo bay. The software helps shipping companies deliver cargo in an efficient, reliable, and safe manner without the intervention of a human driver.

10. Elastic Logistics

Elastic logistics enables companies to handle supply chain operations with more efficiency during periods of fluctuation in demand. It helps upscale or downscale the supply chain operations, as required, according to the market demand. Elastic logistics thereby tackle the challenges facing supply chain companies including underutilization of vessels, constraints on warehousing, and overstocking.

Shorages – On-Demand Warehousing

United Arab Emirates-based startup **Shorages** is a B2B on-demand warehousing marketplace serving small and medium enterprises (SMEs). Shorages helps companies find short-term warehousing requirements from a wide network.

On one hand, the platform allows owners to rent out unused space in their warehouses to meet short-term needs. On the other, they offer pay-per-use and on-demand storage and fulfillment services for their customers.

GlassWing – On-Demand Delivery Vehicles

Indian startup **GlassWing** offers a wide range of commercial vehicles for on-demand freight transport. The *GlassWing* platform forms a logistics service network connecting the freight owners with transporters. The startup also provides solutions such as real-time tracking, route optimization, freight security customized reporting, real-time alerts, and help reduce freight costs by leveraging AI-enabled technology.

Discover all Logistics Technologies & Startups

With customer expectations continuously on the rise and as interests shift towards product variety and personalized services, the logistics and supply chain sectors face mounting pressures. Rapid advancements in emerging technologies such as the internet of things, advanced mobile robots, and artificial intelligence- and blockchain-enabled solutions result in companies face a dilemma while choosing the most suitable technologies to invest in. As technology progress continues, it is important for emerging companies to be proactive and identify potentially disruptive changes at an early stage.

The Logistics Industry Trends & Startups outlined in this report only scratch the surface of trends that we identified during our in-depth research. Among others, hyperlocal solutions, drones, and sustainable technologies will transform the sector as we know it today. Identifying new opportunities and emerging technologies to implement into your business early on goes a long way in gaining a competitive advantage. **Get in touch** to easily and exhaustively scout relevant technologies & startups that matter to you.

Questions

1. How the StartUs Insights Discovery platform is used
2. What is the internet of things
3. How artificial intelligence is used in logistics
4. Do you need robotics supply chain
5. What does last mile delivery mean?
6. How you can automate warehouses
7. How big data and data analytics are used
8. How useful is cloud computing
9. Describe the application of autonomous vehicles
10. What is elastic logistics

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