

AI in Supply Chain & Logistics Industry

A bitgrit industry case study

AI in Supply Chain & Logistics

INTRODUCTION

Artificial intelligence in the supply chain and logistics industry is rapidly picking up steam amongst stakeholders in various industries. Adoption of artificial intelligence allows companies to more accurately track their operations, increase supply chain management productivity, strengthen their business strategies, and engage with customers in the digital world. A recent study on supply chain operations demonstrated that supply chain disruptions have a significant impact on a company's business and its financial performance; causing a company's overall value to drop between 9% and 20% when significant supply chain problems occur. Such problems range from part shortages, excessive finished good inventories, underutilized plant capacity, unnecessary warehousing costs, and inefficient transportation of supplies and finished goods. But companies implementing AI into supply chains see tangible improvements to such issues; a recent study by McKinsey shows that early adopters with AI-forward strategies in the transportation and logistics sector enjoyed profit margins an average of 5% greater than those not implementing AI.

GENERAL CORPORATE USE CASES

Above, we touched briefly on how one can use AI in improving supply-chain processes. But AI and RPA may be more intuitive than you think – it's not all about high-tech programs and robots. They also play a role in business automation. A few notable use cases in the realm of Supply Chain & Logistics can be found below; implementing these can drastically improve efficiency and help decision-makers make data-backed decisions.

- Invoice Automation
- Data Digitization
- Data Visualization using Dashboards

- Generate Automated Reports
- Employment History Verification
- Bank Statement Reconciliation
- Financial Planning
- Daily P&L Preparation

SPECIFIC AI USE CASES IN THE SUPPLY CHAIN & LOGISTICS INDUSTRY

AI has the power to revolutionize supply chain management and deliver innumerable benefits to supply chain and logistics operations. Some include cost reductions, made possible through reduced redundancies, as well as risk mitigation, improved forecasting, optimizing routes for faster deliveries, improved customer service, and more.

We provide more detail on some major applications of AI in the Supply Chain & Logistics industry below:

1. Optimized demand-planning management & forecast algorithm selection

AI can make network planning and predictive demand more efficient and effective; it allows merchandisers to predict certain events and take appropriate action in response. For example, they can use predictions to adjust the number of dispatched vehicles and direct them to locations where demand is expected to peak. This decreases operational costs, stabilizes merchandisers' response to volatile demand changes, and gives a greater degree of certainty to decision making in spite of great volatility. While it has been a daunting task to develop accurate forecasting techniques and select a forecasting technique that is most suitable for particular business environments, AI provides a solution – along with these other

benefits.

- Accelerates data processing speeds
- Provides more accurate forecasts
- Automates forecast updates based on the recent data
- Allows for greater-scale data analysis
- Identifies hidden patterns in data
- Creates more robust systems
- Increases adaptability to changes

2. Predict delivery delays and minimize impact with AI-powered remediation

Companies can use AI to discover all delays and workload bottlenecks with end to end enterprise performance monitoring, to analyze and draw correlations between alerts/events, to prevent any customer dissatisfaction and disputes and undergo appropriate remediation techniques with artificially intelligent models, and more.

3. Design transportation networks

The central pillar of supply chain management is transportation. It links geographically separated partners and facilities in a company's supply. Transportation creates the best utilization of time and place in the supply chain. Using insights from AI allows companies to create more efficient and more effective transportation networks, including but not limited to the below modes of transportation:

- Trucks
- Railway
- Air
- Water
- Pipeline
- Intermodal

4. Predict market requirements for products and services, forecast demand, and set dynamic pricing

Companies can use business intelligence and analytics to more comprehensively understand different market patterns and market potential,

as well as predictive tools to respond to a variety of "What If" scenarios that supply-chain managers may face.

5. Use AI to make your warehouses more COVID-safe and more efficient

By deploying computer vision and automated guidance system and mobile enabled visibility, supply chain managers can make warehouses more intelligent and simplify tedious tasks – not only making operations more cost effective but keeping workers safe by help maintain social distancing rules.

6. Improve management of supply chain packaging services

One can use deep learning models to optimize human-centric checking processes or allow for no-human intervention process in providing real-time feedback to the leaders and employees – allowing for greater efficiency and productivity.

7. E-synchronize supply chain management

Companies can use AI to more efficiently facilitate and integrate supply chain activities. AI also allows supply chain partners to share information with each other automatically regarding demand forecasting, joint production and distribution planning through electronic media such as websites and electronic data interchange.

8. AI-powered drop ship inventory management

Drop shipping is a supply chain management strategy that allows companies to drastically cut their inventory costs through essentially not holding any inventory. It is where – rather than holding inventory at a warehouse – an AI-powered drop ship inventory management system allows merchandisers to ship purchased

items straight from a third-party warehouse when a customer makes an order in a much more seamless way, reducing delivery time and costs.

9. Set more precise and timely deliver goals

AI powered systems can continuously keep track of your deliveries and update employees on any developments.

10. Increases accuracy while automate billing processes

This ensures for more exact pricing and higher precision in delivery, which improves customer satisfaction and helps companies respond to customers with greater speed and precision.

11. Boost return on investment with data to help support decision making, discover revenue-producing activity, and limit loss

12. Visualize the impact of future decisions, identify trends and interact with past datasets to answer corporate challenges

13. Visualize every actionable insight on every part of shipping operations, as well as any possible impacts

14. Integrate chat-bots or call-bots to enhance CRM processes

15. Optimize delivery processes

Manage delivery personnel, receive real-time updates for on-time delivery management, assign the task to the most optimal partner in a cost-effective way with good consumer experience

16. Use AI to determine packages sensitive to force or temperature

AI can help determine if a package requires special attention or handling, reducing possible risk.

ROBOT PROCESS AUTOMATION (RPA) USE CASES IN SUPPLY CHAIN & LOGISTICS

A recent study by Gartner reveals that implementing robotic process automation (RPA) to business processes provides businesses with cost savings of up to 60% across all industries. But RPA provides value that is unique to the field of Supply Chain and Logistics: helping businesses execute fundamental processes 5-10 times faster, with 37% less resources.

Find some specific use cases for RPA in the field of Supply Chain & Logistics below:

1. Inventory Management

RPA can help continuously monitor inventory, notifying you when levels are low. And when new shipments need to be ordered, RPA can order new shipments right when they are needed.

RPA also helps with tracking inventory as it moves throughout the warehouse. Manually tracking thousands of items as they move across service areas is time-consuming and subject to error. RPA can automate this process, deploying software robots to track inventory as it flows from receiving to shelves – to production to shipping. RPA makes inventory management easier by tracking inventory from the time it enters the warehouse to when it exits the warehouse.

2. Supply and Demand Planning

RPA makes data collection and analysis easier (historical sales data, market indicators, custom orders, etc.) through automation. It does this by gathering and merging information, preparing data for manual analysis, and sharing it with planners. According to a specific set of

predefined rules, RPA is then able to analyze and determine nuances and trends in large sets of data and customer purchasing activity that would be ordinarily easy to miss. The findings are then delivered in a detailed report to decision makers.

This enables managers to efficiently develop more accurate forecasts in less time and using less resources.

3. Purchase Order Management

With RPA in the supply chain sector, you can run purchase orders through automated criteria such as pricing, quantity, and regularity of purchase.

When an order matches criteria, it gets processed and sent through. When it doesn't, the software bot uses notifications to run the remaining purchase orders through procurement managers for a formal review. By utilizing automated approval workflows, RPA allows you to closely review a smaller number of more important orders.

4. Freight Management

RPA makes time-critical manual tasks more efficient while saving time and reducing errors. Software bots work 24/7, providing an efficient and scalable freight management workflow.

It does this by handling tasks such as transferring information during load matching, making it easier for brokers to match a load with a carrier to transport it. RPA in the supply chain can enhance other aspects of freight management, such as route optimization, freight accounting, and freight claim management.

5. Returns and Refunds Processing

By using rules-based task automation, RPA can reduce the need for human intervention in most cases, freeing up labor to focus on processing that relies solely on human decisions. By

reducing human intervention and automating processing, RPA accelerates resolution and reduces the risk of errors.

6. Invoice Management

RPA in the supply chain can make it easier to process invoice documents from vendors and suppliers with less chance of error. RPA speeds up tasks such as extracting information from invoices and validating and verifying information, so you can free up labor while ensuring invoices are accurately handled.

7. Price Lookup and Comparison

RPA in the supply chain can routinely search for pricing data on specified materials and ingest this data in a way that makes conducting comparisons easier. This translates to getting better prices more efficiently.

8. ERP Integration

With RPA in the supply chain, data entry and migration can be handled automatically and at lightning speed, from invoice data entry to data validation and monitoring. RPA can enhance ERP utilities by increasing information accuracy and reducing costs related to manual data entry.

9. Shipment Scheduling and Tracking

When a pickup request arrives, RPA processes the request and loads the data, automatically picks the best load, and returns info to driver, TMS and customer.

We can develop many more use cases for both AI and RPA that are tempered more specifically the company's operations. Through numerous precedents, RPA has demonstrated its potential to improve cycle time, agility, capacity, asset efficiency, and goods, as well as maintaining high supplier, customer, and employee satisfaction.



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bitgrit: AI for All

The AI industry is projected to grow to **\$116 billion** by 2025. We at bitgrit can be your ticket to the field.

bitgrit provides a platform that levels the playing field for AI by bringing together a community of data scientists and connecting them to companies needing AI solutions.



AI COMPETITIONS

Affordable and novel AI solutions to complex business challenges



JOB BOARD

Access to top data scientists and AI engineers around the world



DATA VISUALIZATION

Utilization of big data and analytics that identifies market trends and increases productivity



AI CONSULTING

Adopt AI technology by conducting research and analysis, followed by development and implementation

STEPS TO HOSTING A COMPETITION

STEP 1

Determine what problem you want solved and provide the relevant datasets

STEP 2

bitgrit uploads the problem statement and datasets to the competition platform

STEP 3

Data Scientists in the community submit quality solutions from which top results are selected

STEP 4

Utilize the best model to fulfill your business needs

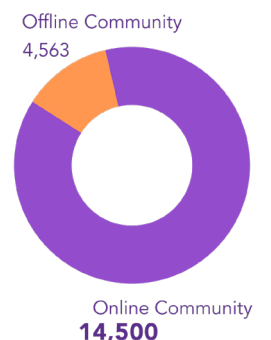
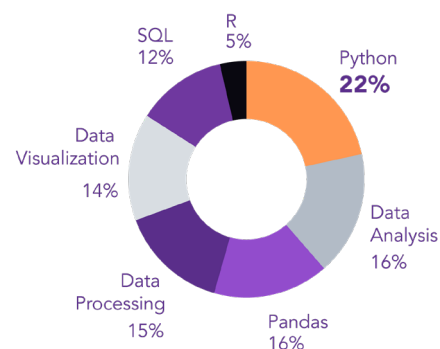
STEP 5

Top ranking competition member or team wins prize money

HOW WE HELP YOU TAP INTO AI

- 1 Determine possible use cases and value that can be extracted from existing data.
- 2 Pinpoint difficulties in translating business challenges into data science problems.
- 3 Overcome obstacles to develop, experiment and rank a variety of models rapidly.
- 4 Identify risks of providing people the access to confidential data.
- 5 Find the right talent to produce customized, extraordinary models.
- 6 Structure data and identification of relevant parameters.

20,000+ DATA SCIENTISTS - BITGRIT COMMUNITY OVERVIEW



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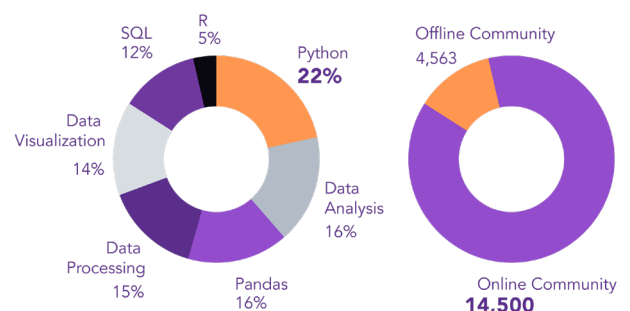
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