



Technical Datasheet

By the end of our evaluation, my team was impressed with the capabilities anyLogistix (ALX) offers. We especially liked the overall flexibility, the ability to run multiple scenarios, and the presentation of results. ALX is a strong option for complex Supply Chain Design and Network Simulation analyses.



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anyLogistix Approaches and Features

anyLogistix™ (ALX™) by The AnyLogic Company is a supply chain analytics software for designing, optimizing, and analyzing a company's supply chain. ALX combines powerful analytical optimization approaches with innovative dynamic simulation technologies to offer a comprehensive set of tools for end-to-end supply chain analytics.

By leveraging both simulation and optimization, users have the best set of tools for tackling supply chain challenges, enabling them to gain deep insights into their company's supply chain, which was previously not possible with any other traditional solutions.



Integrate analytical optimization and dynamic simulation methods for precise end-to-end supply chain design and analysis.

- anyLogistix™ optimization is powered by CPLEX optimizer from IBM, while simulation is powered by AnyLogic, the industry-leading simulation software tool.
- Capture the uniqueness of your supply chain by analyzing and simulating every aspect and leaving nothing to chance.



Visualization

Observe how your supply chain works, validate the model, and make improvements while verifying assumptions.



Digital twin of your supply chain

Create a detailed dynamic simulation model, providing a true representation of reality for better decision support.



Measure your supply chain

- Dynamic simulation allows you to capture performance over time, enabling you to measure everything in your model.
- Use the plethora of out-of-the-box statistics or create your own.



Extensibility

- Address all behaviors in your supply chain by extending standard ALX functionality.
- anyLogistix supports user-defined extensions for customizing various aspects of the supply chain model (policies, supply chain elements, objects, and algorithms).
- anyLogistix offers custom constraints to specify additional conditions on existing constraints like product flow, storage capacity, or production levels.

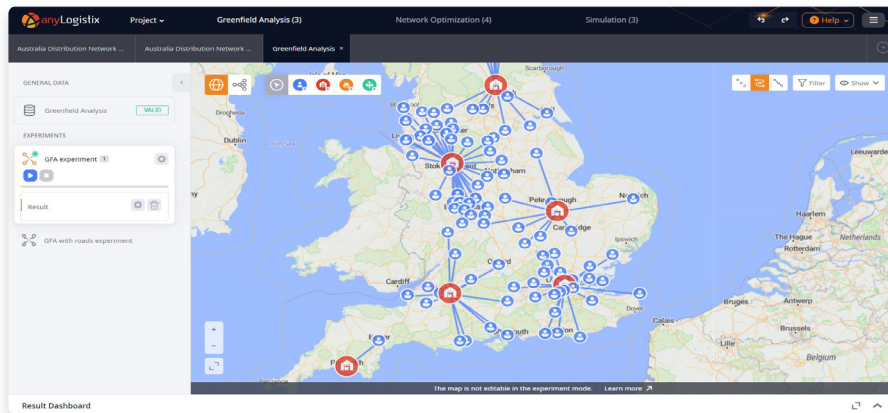


Cross-platform usage

Use any operating system, depending on the software version:

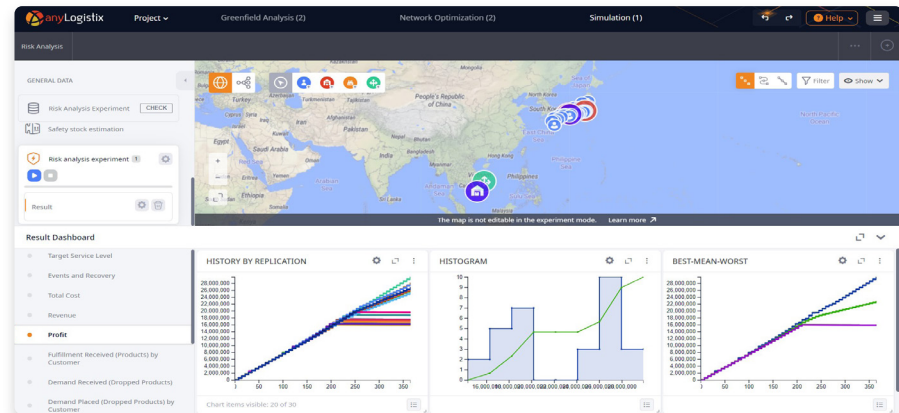
- The desktop version is a Java-based application and can be used on Windows or macOS.
- The server version, anyLogistix Professional Server, allows multiuser access. Install it on your Linux server and access it from any device with a web browser.

Greenfield Analysis



- Considering both demand and supply sources, the experiment defines the approximate location(s) for supply chain facilities, considering customer locations (Simple GFA) or existing site locations (Multi-Echelon GFA).
- It determines the optimal number of supply chain sites, considering customer service distance (e.g., a maximum of 500 miles from a DC to any customer) as a constraint.
- It can consider both straight routes and actual road pathways between origin and destination nodes for precise analysis.
- It visualizes Greenfield solutions on the built-in GIS map within ALX to display flows from the newly defined sites to assigned demand locations or view only the concise network tree structure.

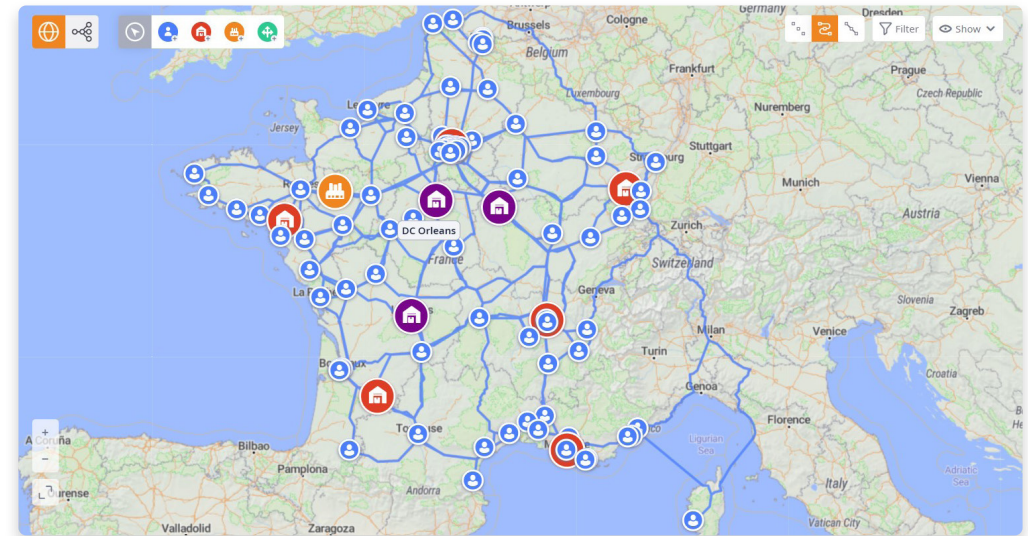
Risk Analysis



- The experiment allows users to analyze and experiment with risks and uncertainties, including lead times, demand fluctuations, resource availability, and other varying parameters.
- It uncovers how changing a parameter's value can impact a supply chain scenario. Instead of creating multiple scenarios for different parameter values, users can apply a Variation experiment to automatically vary the values and run a simulation for each one.
- It helps get ahead of the curve and plan for various supply chain uncertainties. The experiment measures the impact of operational risks and disruptions and determines the time needed to recover from them. It helps test the reliability of logistics networks and determine the measures needed to increase supply chain robustness.
- With this experiment, understand how variability influences the supply chain: ALX simulation models consider probabilities for operation timings and parameter values (e.g., random variable demand).

Network Design and Optimization

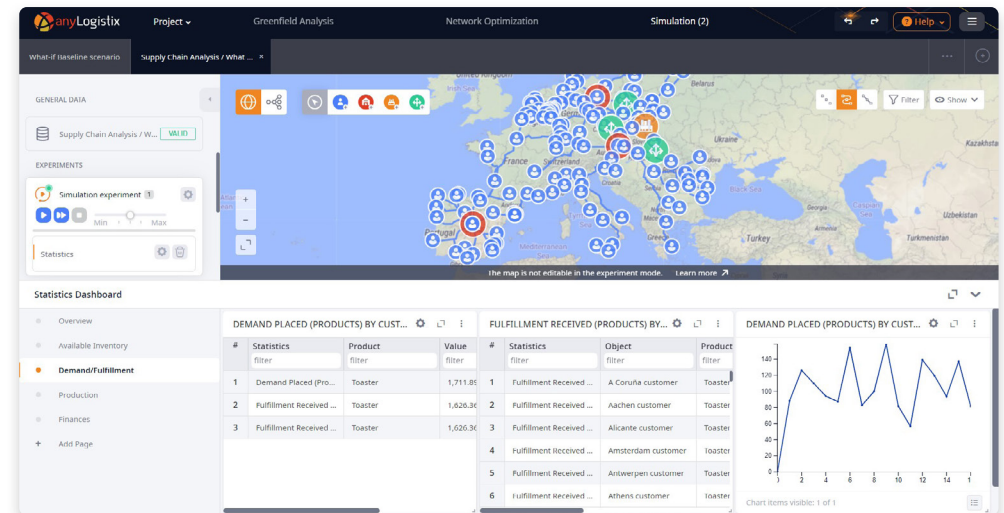
- anyLogistix utilizes the leading analytical solver CPLEX from IBM to uncover the most profitable supply chain network configuration and optimal flows.
- Users can conduct supply chain master planning by incorporating user-defined periods (e.g., month, week) into a model to optimize where and how much is needed to produce, store, and ship.
- Users can modify the predefined objective members or create custom expressions to solve for various outcomes (e.g., cost-minimizing vs profitmaximizing).
- Users can collect and optimize data on CO2 emissions within the various designed supply chains.
- The Custom Constraints function allows the application of user-defined mathematical expressions as constraints for product flows, warehouses, and production. These can be compared using specific methods, such as step functions or minimum and maximum values.
- Indicator Constraints allow the user to set conditions for inventory, product, and production flows by specifying various if/then statements (e.g., if flow > X, then store inventory of Y).
- Feasibility Checks within ALX can resolve issues with infeasible scenarios showing the root cause and suggesting changes to remedy scenario data.
- Product Flows (shipment lanes) in the supply chain can be limited by distance or travel time and linked to specific transportation modes that consider vehicle capacity.
- Users can determine the number of vehicles required to ship cargo from warehouses and distribution centers while considering both minimum and maximum load requirements.



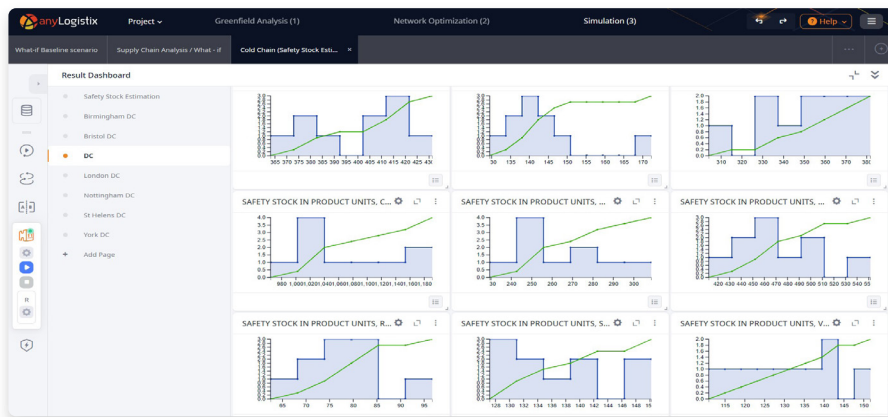
- The system supports two primary shipment methods: Full Truck Load (FTL) and Less than Truck Load (LTL).
- Users can consider international trade costs by applying tax tariffs on crossborder deliveries.
- The experiment allows users to choose where to locate production sites, specify which commodities they should manufacture, and determine the appropriate level of capacity to install.
- Users can translate findings into business decisions with the help of detailed experiment results and the in-depth analysis they enable.

Supply Chain Analysis / What - If

- Supply chain what-if analysis in anyLogistix provides a platform for users to create dynamic simulation models for analyzing time-dependent factors, random events, actual system behavior, and dynamic interactions between elements of the supply chain.
- It allows for testing various shipping policies, including cargo consolidation, delivery/dispatch schedule setting, and selection of vehicle type depending on delivery destination, product, or order size.
- It allows users to track cash flow with accounts and experiment with payment terms, considering loans with interest, delayed payments, and down payments.
- Live model animations allow users to see how the supply chain operates, while also enabling scenario visualization, so users can see how the model logically works.
- Users can analyze the results of several experiments in a common Comparison dashboard.
- Any metric can be captured and visualized over time in the supply chain model, for example, costs, revenue, inventory dynamics, service levels, bullwhip effect, capacity, utilization, incoming/outgoing orders, and products. Users can also create their own additional statistics.

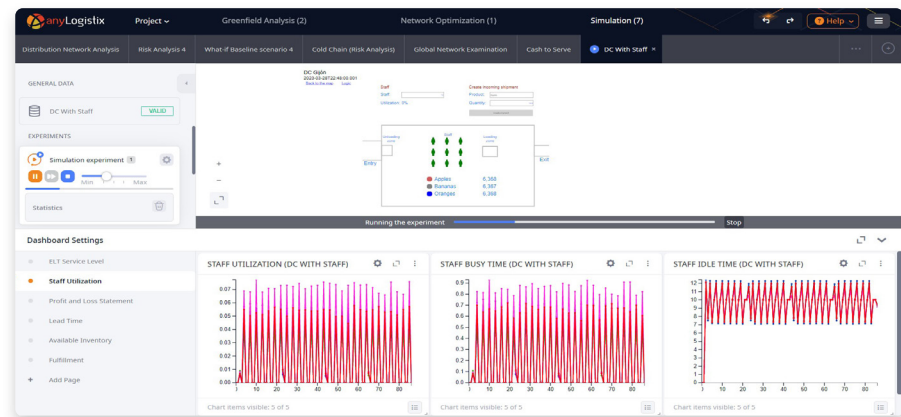


Multi-Echelon Inventory Optimization



- Safety Stock Estimation allows the user to determine the optimal amount of safety stock, by SKU and location, to hold in warehouses based on a defined customer service level target.
- Users can estimate the bullwhip effect (variability) in the network, identify the root cause, and test different scenarios to find out the best mitigation policies.
- Users can leverage Material Requirements Planning (MRP) within ALX to provide a daily generation of replenishment and demand orders to be filled based on demand forecast requirements and safety stock levels.

Supply Chain Digital Twins



- Users can create a supply chain digital twin – a virtual copy of a supply chain network at a specific time that can be used as a starting point for simulation experiments.
- A digital twin of a supply chain can be created from supply chain data held in various databases (e.g., DC, Customer, Inventory, etc.).
- It is possible to configure the current warehouse workload, order processing stages, stock levels, and other details to create a snapshot of a supply chain's state.
- A supply chain digital twin model can predict the status of the supply chain over time.

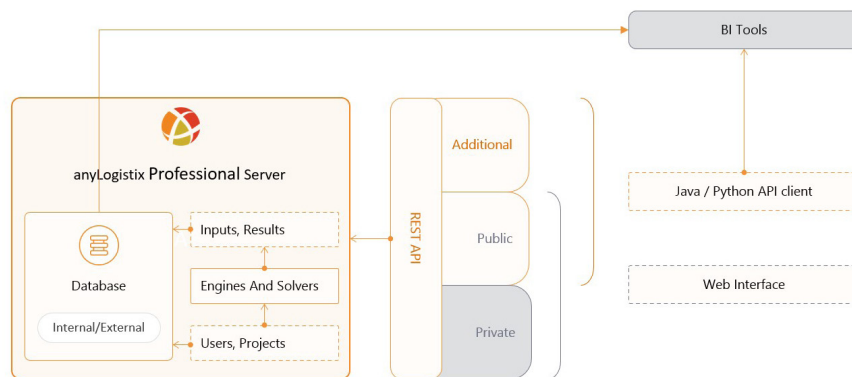
anyLogistix Extensibility and Flexibility

anyLogistix Professional Server is a multi-user application designed for collaborative supply chain modeling, simulation, and optimization. It runs on the user's Linux server, allowing team members to access and work on projects simultaneously from any device using a web browser.

Server Installation and Multi-User Access

Features of the anyLogistix Professional Server:

- Every user has a personal profile (registered by this user or the product administrator).
- Users can share projects and assign specific roles to different team members.
- Multiple users can access anyLogistix Professional Server at the same time.
- The server supports an external PostgreSQL database for project data storage, ensuring increased integration capabilities and flexibility.
- The user licenses are handled by the Team License Server. Installing Team License Server is mandatory for anyLogistix Professional Server usage.
- A Control Panel is available for every user to manage and control access to your projects and the scenarios they contain.
- Supports APIs in Java and Python. This enables automation tasks such as experiment definition, execution, data import/export, and result export for further analysis.



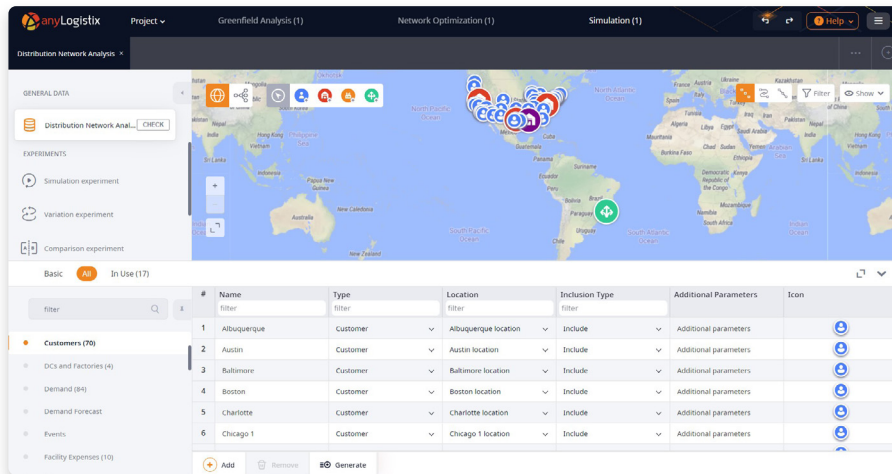
Integration with IT Infrastructure

anyLogistix enables data integration with the following software:

- Supply chain management
- ERP
- Business intelligence
- Transportation management
- Demand forecasting
- Production planning
- Inventory management

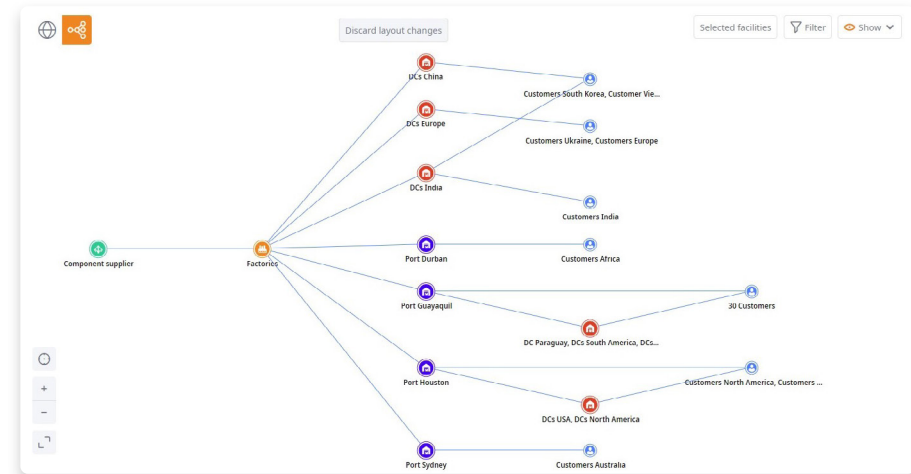
While anyLogistix does not interface directly with these systems, it can import data extracted to SQL Server, PostgreSQL, MySQL databases, or Excel files, with both desktop and server versions.

anyLogistix Data Management



Data Integration, Editing & Validation

- Standard MS Excel import and export.
- Users can integrate their existing data with anyLogistix by importing from supported databases: SQL Server, PostgreSQL, and MySQL.
- Scenario interconversion allows users to streamline data management by allowing outputs of one scenario to be fed as inputs to another (e.g., Network Optimization experiment to Simulation experiment).
- Data filtering is available in the user interface.
- The input data validation function reviews the model for data integrity prior to execution to check for errors and discrepancies automatically.



Visualization

- Built-in GIS provides a global map of the supply chain along with actual road pathways between nodes.
- Supply chain objects (e.g., DC, Factory, Customer) and the links between them can be represented in an end-to-end (E2E) supply chain structure visualization to provide a logical network overview and simplified analysis.
- Supply chain objects and the connections between them can be disabled to aid in visualization without impacting the function of the model.
- The software automatically geocodes locations with the built-in GIS system to produce latitude and longitude based on location information (zip code, city, etc.).

Additional Resources

- [White papers](#)
- [anyLogistix webinars](#)
- [anyLogistix demo video](#) – tutorials
- [anyLogistix PLE](#) – free version for self-study and education
- [Tutorial book](#)
- [Case studies](#)



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