RuleX

Supply Chain

CASE STUDIES

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Rulex was recognized by Gartner® as a Sample Vendor for **Optimization Engines** in the Hype Cycle™ for *Supply Chain Execution and Logistics Technologies, 2025*

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Rulex Platform, the perfect fit for your supply chain

Rulex Platform is an **all-in-one software for data management and decision intelligence**, built to tackle even the most complex business challenges.

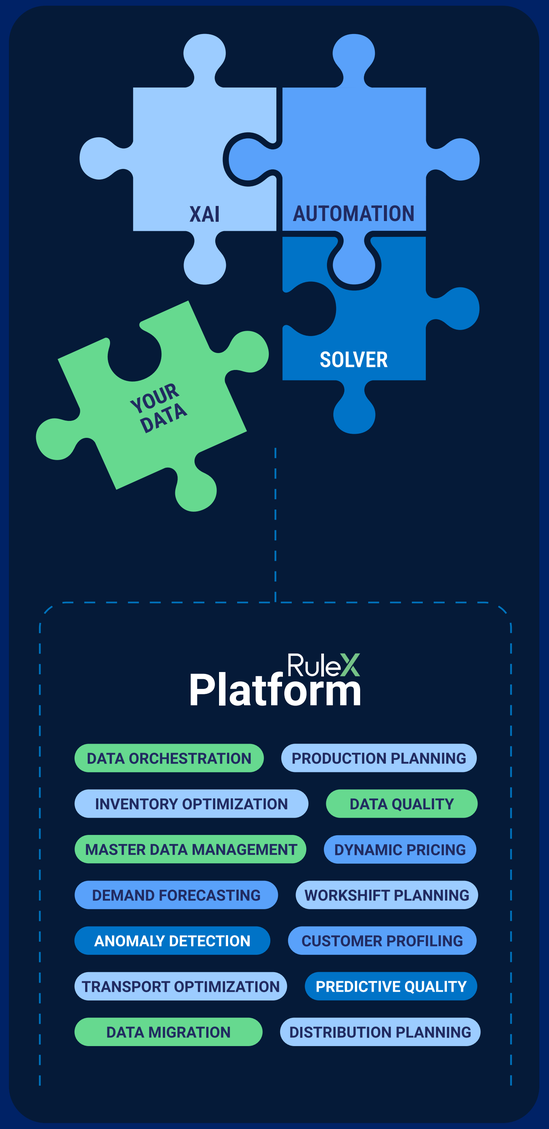
With its intuitive drag-and-drop interface, it empowers both technical and non-technical users to orchestrate data, improve decision making, and automate processes at unparalleled speed. Its flexible, composable toolkit makes it easy to **mix and match advanced technologies**, creating **tailored solutions** that integrate seamlessly into existing systems.

Since 2007, supply chains worldwide have trusted Rulex Platform as the missing piece in their strategy – enabling smart, fast, and resilient decisions.

LEARN MORE

Desktop, server, or cloud:

No matter where it is deployed, Rulex Platform provides the same intuitive, user-friendly user experience everywhere.

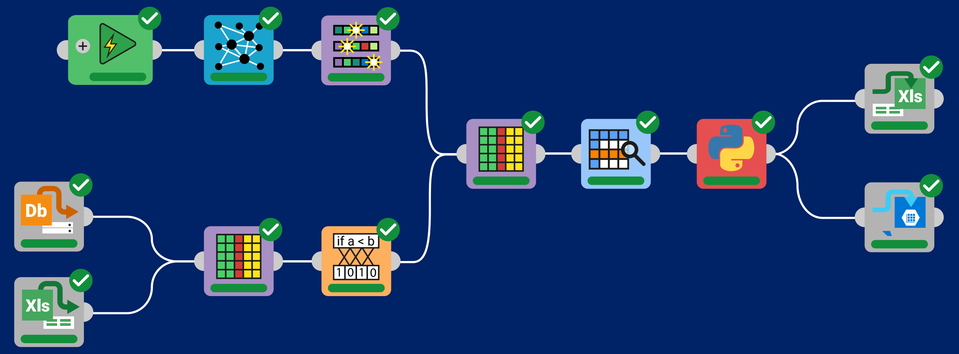


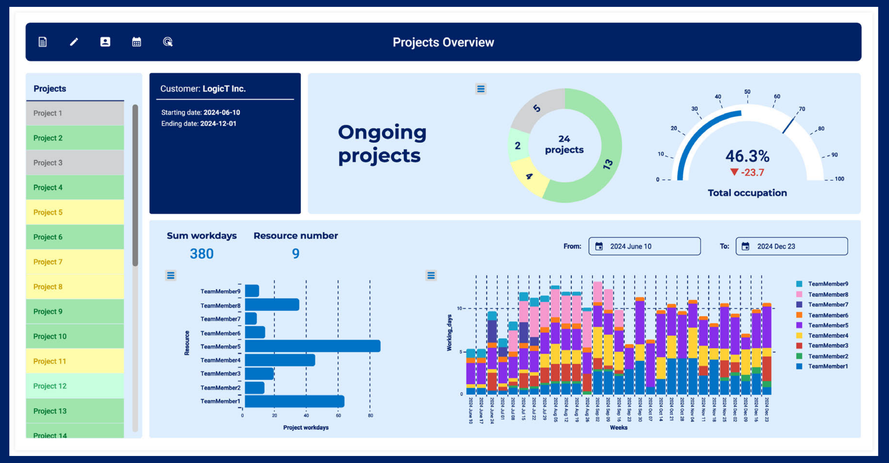
RULEX PLATFORM COMPONENTS

Rulex Factory

The heart of Rulex Platform, where **solutions are built** step-by-step in logical workflows by simply dragging tasks onto the canvas.

Rulex Factory allows users to aggregate data from multiple sources, improve its **quality**, and connect it to a wide range of **decision intelligence** and **automation** tools.





Rulex Studio

The creative hub of Rulex Platform, enabling users to design integrated **data visualization dashboards**. By dragging images, shapes, and widgets onto the canvas, users can share and interact with results from underlying Rulex Factory flows.

Beyond data visualization, Rulex Studio supports the entry, modification, and elaboration of new information within fully **tailored applications**, providing **custom interfaces** for end users.

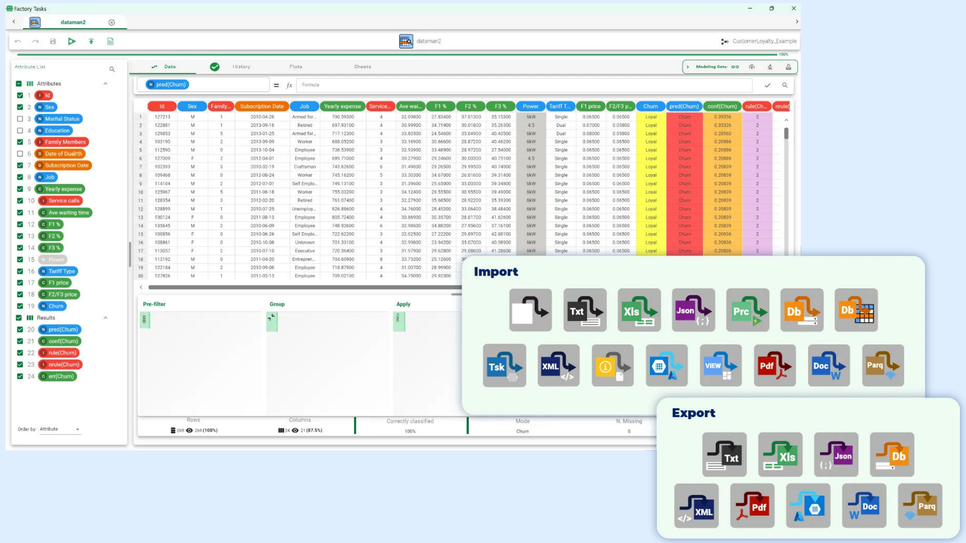
Data orchestration

Data agility

Wherever your data lives – laptop files, SAP tables, or cloud storage – Rulex Platform brings it together with **dedicated tasks**. Once imported, data is converted into a **unified table format**, making aggregation, reconciliation, and harmonization a breeze.
Analyze your data, refine your insights, then let Rulex Platform take over with **fast processing** that handles 50 million rows of data in under 10 seconds. When you're ready, export the results in any format you need, even as an email attachment.

Data quality

Rulex Platform provides multiple data quality solutions designed to address unique business needs, from **traditional data cleansing** for handling missing values and outliers, syntax errors, duplicates, and fragmented data, to streamlined **rule-based validation**.
For the most elusive logical errors, Rulex applies **augmented data quality** powered by our proprietary eXplainable AI algorithm, which autonomously derives corrective rules from data and suggests corrections that business experts can review, ensuring a continuous improvement loop.



Import/export tasks and data visualization in Rulex Platform's Data Manager.

Decision intelligence

Native eXplainable AI

Rulex's proprietary eXplainable AI provides actionable results that are easy to understand and trust. Unlike black-box models, the algorithm supplies **clear rule-based explanations** for every insight and suggestion, improving decision making, ensuring compliance, and **reducing risk**. What's more, Rulex's XAI maintains high **accuracy** even with limited historical data.

Business rules engine

Rulex provides a powerful tool for **defining and applying business rules to data**. It is designed to allow users to write rules in an **external configuration file**, such as an Excel spreadsheet, using an intuitive syntax. This way, there is no need for business experts to change the workflow to test or modify the rules, keeping them in control of the entire management process.

```
if $"ShipDate" < $"ExpectedShipDate"
then "Early"
```

```
when $"ShipDate" is not None
if $"ShipDate" < date(2000,1,1)
then "INVALID"
```

Intuitive business rules defined in Rulex Platform.

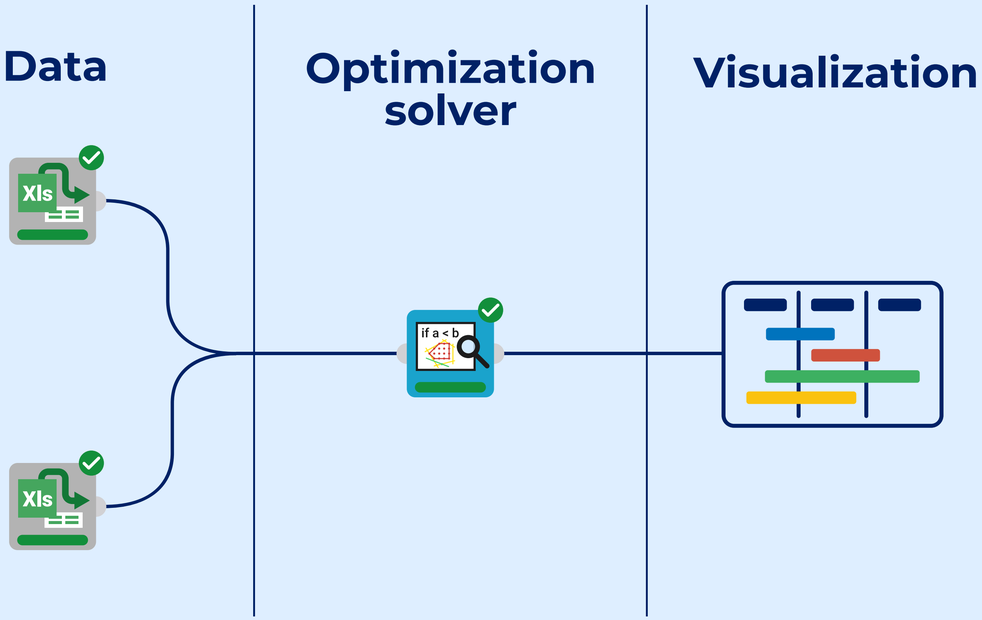
Decision intelligence

Optimization solver

Rulex's proprietary optimization tool delivers solutions to complex business challenges in a matter of minutes. While handling thousands of variables, the tool requires **no scripts or mathematical formulas**, with **hard and soft constraints** being defined in familiar **spreadsheets** by domain experts.

Scenario simulator

Rulex's *what-if* simulator goes beyond forecasting – it **recommends precise actions** to achieve desired outcomes. Users can **fine-tune analyses** by weighting target attributes and selecting key variables. Results are delivered in plain English, providing clear, actionable recommendations that can be manually implemented or automatically executed for seamless decision making.



Scheduling problem solved in Rulex Platform.

Automation

Workflow automation

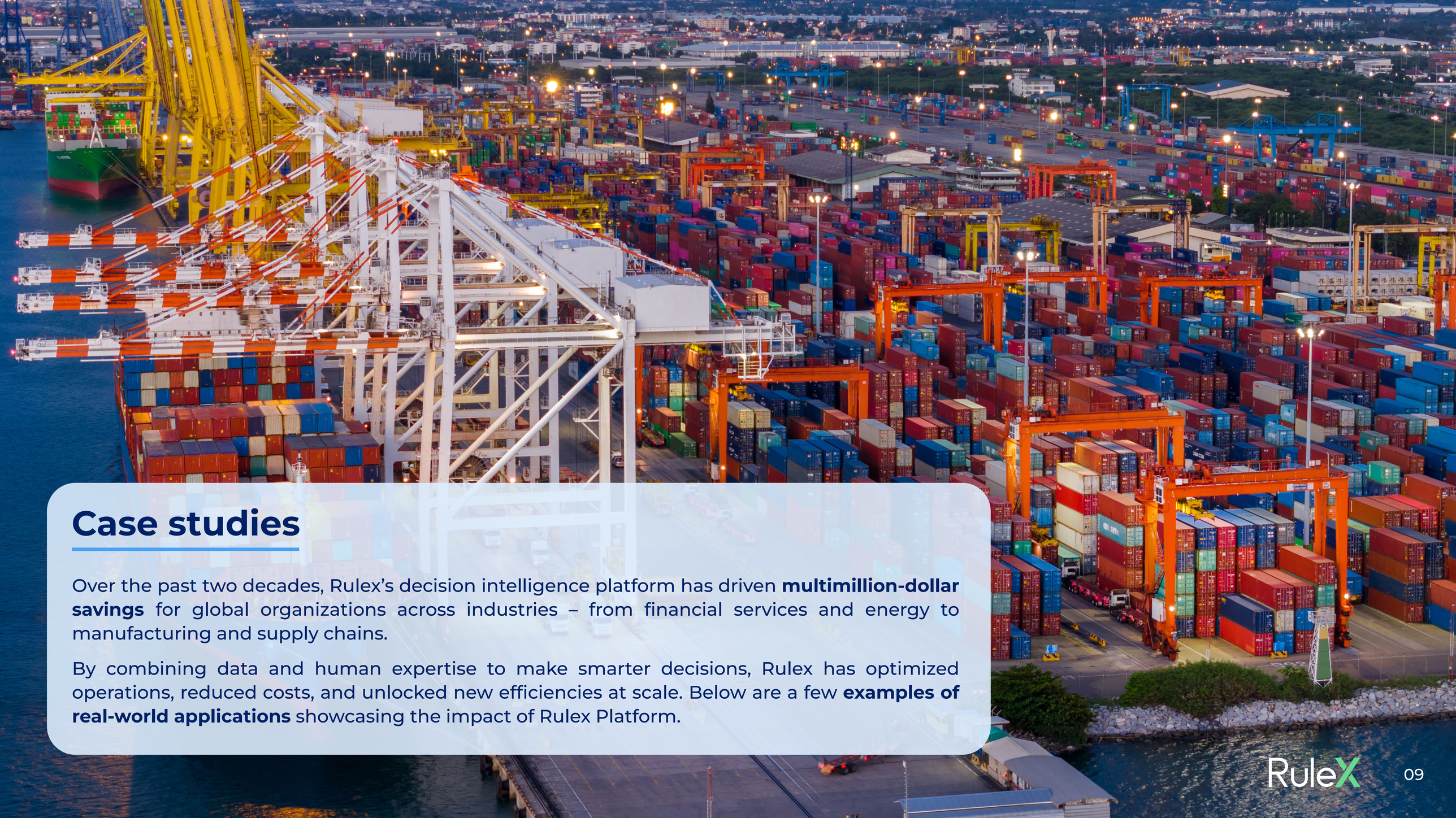
Built for versatility, Rulex Platform simplifies task and workflow automation across diverse environments, **integrating with pre-existing tools** such as Windows Task Scheduler and enterprise solutions. With powerful **APIs**, flexible scripting, and real-time **alerts**, users stay in control at every stage, ensuring workflows run smoothly and adapt as needs evolve.

DevOps

Rulex Platform provides all the necessary features for boosting collaboration and efficiency across development and operations teams. Equipped with native **containerization**, integrated **GIT support**, and other key capabilities such as an extensive **REST API** catalog, it automates every stage of the pipeline.

MLOps

Rulex Platform eliminates the heavy lifting from machine learning operations with capabilities like **AutoML**, automatically selecting the best features, tuning hyperparameters, and comparing algorithms to find the most suitable model for each challenge. It also offers performance monitoring and model tuning tools, incorporating **human expertise into feedback loops** that ensure continuous model refinement.



Case studies

Over the past two decades, Rulex's decision intelligence platform has driven **multimillion-dollar savings** for global organizations across industries – from financial services and energy to manufacturing and supply chains.

By combining data and human expertise to make smarter decisions, Rulex has optimized operations, reduced costs, and unlocked new efficiencies at scale. Below are a few **examples of real-world applications** showcasing the impact of Rulex Platform.

NATIVE EXPLAINABLE AI

Self-healing master data

Combining XAI with expert input for continuous rule refinement

100%
data accuracy

40%+
planning productivity improvement

THE CHALLENGE

Modern supply chains are complex ecosystems characterized by vast networks of factories, distribution centers, and materials. Managing the **immense volume of related master data** demands substantial time and effort, often becoming totally overwhelming for human planners without the right tools.

OUR SOLUTION

Rulex contributed to the planning transformation of an F50 company, by successfully helping them achieve pristine data quality and focus on more strategic work. Each planner had to deal with a network comprising up to 100 factories, 250 distribution centers, and 6000 materials/locations. The solution was **based on Rulex's eXplainable AI (XAI) technology**. Specifically:

- ✓ Rulex's XAI autonomously identified anomalies in the company's data, deriving corrective rules, and suggesting corrections for even the most elusive logical errors.
- ✓ Experts could review and either accept or reject corrections, thus staying in control of the whole process. These corrections were then used to fine-tune the rules, enabling continuous improvement and iterative data healing.
- ✓ Using the optimized ruleset, master data was efficiently corrected and populated, while the transparency inherent in Rulex's AI provided clear logic behind every decision and recommendation, fostering trust and adoption.
- ✓ The company achieved 100% data accuracy, up from a starting point of less than 80%, while improving planning productivity by over 40%, resulting in direct business benefits, such as optimal inventory levels.

LEARN MORE:

Rulex's data quality

Rulex's native eXplainable AI

AUTOML

Demand forecasting

Estimating demand to align supply with market needs

<10%
average MAPE

on monthly predictions of key products

THE CHALLENGE

Accurate demand forecasting requires **responding to fluctuating market conditions** and other factors like seasonal variations. When forecasts miss the mark, the impact can be severe – leading to shortages or surpluses that may disrupt operations and affect service quality.

OUR SOLUTION

Rulex supported a global pharmaceutical company in accurately forecasting sales for several flagship products through an all-in-one solution, which encompassed **data pre-processing, modeling, and forecasting within a single platform**. Specifically:

- ✓ The model incorporated sales data for different products, along with external variables, such as temporal trends, the spread of seasonal viruses, and geographic details. Rulex Platform simplified data import, integration, and cleansing through user-friendly tasks in a no-code interface.
- ✓ Rulex Platform automatically selected the best-fit model and enabled parallel testing and execution of different options. Autoregressive techniques were applied to capture periodic patterns.
- ✓ The solution delivered demand forecasts over a three-month forecasting horizon, both aggregated and month-by-month, with periodic re-runs to incorporate new data. The sliding window method captured the latest trends, improving performance accuracy, as reflected by low Mean Absolute Percentage Error (MAPE) scores.
- ✓ Thanks to Rulex Platform's comprehensive capabilities, the demand forecasts were seamlessly integrated into other operations, such as inventory replenishment and logistics, without the need to switch tools.

LEARN MORE:

Rulex's AutoML

Rulex's data agility

The supply chain balancing act: Demand planning and forecasting in action – article

BUSINESS RULES ENGINE

Effective master data management (MDM)

Ensuring consistent and well-structured data across the entire organization

50M+
records analyzed

350K+
records corrected

For a single supply chain organization

THE CHALLENGE

Modern supply chains are shaped by multi-sourced networks and numerous constraints in materials, production, and distribution logistics.
Further complicating these issues is the reliance on **diverse planning systems**, both online and offline, which contribute to the prevalence of low-quality master data and consequently obstruct the efficient management of supply chain operations.

OUR SOLUTION

Rulex helped a major company achieve **optimum master data quality** and simplify its management process with an end-to-end, scalable solution. Specifically:

- ✓ Data tables from different categories (BOMs, transactions, SLs, PIRs, etc.) were extracted and aggregated from multiple SAP tables.
- ✓ Business rules were written by the business experts themselves in an Excel spreadsheet using a simple *if-then* syntax, requiring no coding skills. They were then imported into Rulex Platform along with the data to be analyzed.
- ✓ Master data quality checks were fully automated by leveraging the customer's existing scheduling tool, while also ensuring seamless compatibility with their data visualization systems.
- ✓ The solution was scalable, designed to support the company's long-term growth and digital transformation plans.

LEARN MORE:

Rulex's Rule Engine

Rulex's native eXplainable AI

Driving a winning MDM strategy with Rulex – guide

OPTIMIZATION SOLVER

Inventory optimization

Flexibly automating planning decisions, including exceptions

8%

reduction in under/over stocking

THE CHALLENGE

Strategic inventory management across warehouses and sites is key to consistently upholding optimal stock levels and guaranteeing **supply-demand balance**.
This entails a multifaceted approach combining historical sales data, demand forecasting, and market monitoring to manage future inventory needs. Nonetheless, even the most sophisticated APSs may not handle all scenarios, **leaving up to 20% of planning volume to corner cases** that require a labor-intensive and error-prone process for resolution.

OUR SOLUTION

Rulex efficiently handled inventory replenishment for a global supply chain company, satisfying demand, preventing stock shortages, and avoiding surplus inventory. Unlike more rigid vertical planning systems, Rulex **adapted to the customer scenario**, covering corner cases and exceptions, and could plan replenishment autonomously or via integration into the company's APS system. As a result:

- ✓ Rulex Platform's proprietary optimization algorithm efficiently handled over 130 priorities, constraints of plants and distribution centers, min/max quantities for transportation, costs, penalties, source quantities and destination requests. All in an intuitive drag-and-drop interface.
- ✓ Over 90% of previously unmanaged planning decisions were automated.
- ✓ The significant reduction in unplanned cases resulted in a 75% decrease in planner workload.
- ✓ An 8% reduction in both under and over stocking was observed across North America, leading to $100K saved daily in the region.

LEARN MORE:

Rulex's optimization

Rulex's AutoML

Supply chain inventory optimization: How to avoid the stockout and overstock nightmare – article

OPTIMIZATION SOLVER

Dock scheduling

Minimizing the risk of scheduling collisions

5-minute

plan generation time

THE CHALLENGE

Relying on manual or basic dock scheduling is both time-consuming and prone to collisions. Such issues often result in long queues of trucks waiting to load or unload, exacerbating inefficiencies that inevitably **lengthen lead times**. Bottlenecks **undermine the entire profitability of the supply chain**, from inventory levels to customer satisfaction, highlighting the need for scheduling techniques that can handle complexity within tight timeframes.

OUR SOLUTION

Rulex delivered a customized, end-to-end workflow solution to a **global supply chain**, enabling it to determine optimal dock scheduling for all shipments with extremely short computation times. Specifically:

- ✓ All constraints related to dock operating hours and reservations, product loads, carrier types and tolerance, overbooking, and priorities were factored into the analysis.
- ✓ Rulex's optimization task pinpointed the best shipping plan for each cargo ID, addressing all previously-mentioned constraints and costs.
- ✓ The number scheduling conflicts saw a dramatic decrease, streamlining the coordination of resources and activities.
- ✓ By leveraging loose scheduling slots to avoid costly delays and fines, the company achieved an 85% reduction in penalties.
- ✓ The required planning time was reduced by over 78%, freeing up valuable human resources for more strategic decision-making tasks.

LEARN MORE:

Rulex Axellerate

Rulex's optimization

Mathematical optimization: How to avoid getting stuck in rabbit holes – article

OPTIMIZATION SOLVER

Transport optimization

Generating end-to-end, long-term transport plans in under one hour

70%

reduction in expedited shipments

THE CHALLENGE

Manual firefighting with **limited temporal visibility** often results in **costly expedited shipments**, straining resources and impacting companies' ability to scale operations and meet market demands efficiently. Traditional Transport Management (TMS) struggle to cover all the peculiarities and exceptions of individual logistics networks, leaving the resolution of corner cases to human planners.

OUR SOLUTION

Rulex implemented a transport optimization workflow (Rulex Axellerate) that **gathered and aggregated all relevant data**, including priorities, shipment details, distribution center capacities and operating hours, carrier calendars and costs, and penalties, to identify the optimum transportation schedule. Unlike other TMS, it enabled the management of multiple logistic constraints by adopting a linear programming approach. Specifically:

- ✓ One single Rulex Platform task, called Transport Optimizer, devised the optimum transportation plan based on the dataset generated in the initial data preparation phase.
- ✓ The task could be managed by simply dragging and dropping parameters related to priorities, minimum/maximum quantities to send, and loading and unloading capacities. It also offered the flexibility to split shipments across different trucks and configure their optimal loading percentage.
- ✓ The solution provided flexible planning across a horizon of up to three months, enabling early detection of potential bottlenecks.
- ✓ The end-to-end plan was scheduled to run daily, computing in under an hour.
- ✓ Spot shipments decreased by 18%; streamlining manual tasks freed planners' time by 66%; and overall, the solution led to projected cost savings of $80 million within the company's European market.

LEARN MORE:

Rulex Axellerate

The logistics' green challenge – article

The logistics' green challenge – webinar

OPTIMIZATION SOLVER

Production planning

Managing multiple constraints and preferences with no formulas or scripts

3x

faster production planning

THE CHALLENGE

The manufacturing process faces multiple and diverse constraints, such as the need to manage **batches of different sizes** and orders that require multiple machines for completion. In addition, **production and packing machines might not always be compatible** to operate in tandem, and each of them is limited by a maximum production capacity.
Simultaneously addressing production and packaging increases complexity, surpassing the capabilities of traditional management tools.

OUR SOLUTION

Rulex developed a solution for a Fortune 50 company to simultaneously streamline the production and packing of a product with a **general optimization solution**, maximizing efficiency. Specifically:

- ✓ The task enabled the definition of inviolable ‘hard’ constraints, such as the requirement for all batches to be assigned in the scheduling plan, while also handling ‘soft’ constraints, such as the preference for certain products to be manufactured by more suitable machines. The task aimed to adhere as closely as possible to the initial scheduling plan, with minimum adjustments.
- ✓ Unlike standard optimization techniques, Rulex empowered citizen developers to outline constraints in an intuitive rule syntax rather than via complex mathematical formulas. The task then automatically constructed the problem, and the solution was production-ready in under a month.
- ✓ Rulex Platform delivered automated synchronized planning in under 10 minutes, outperforming traditional manual methods both in time and accuracy, significantly enhancing overall productivity.

LEARN MORE:

Rulex’s optimization

Mathematical optimization: How to avoid getting stuck in rabbit holes – article

OPTIMIZATION SOLVER

Synchronized production & work shift planning

Hassle-free problem solving with no formulas or scripts

75%

reduction in time required for planning

THE CHALLENGE

Efficiently optimizing any single process in a supply chain is a challenge on its own. However, **simultaneously addressing two or more interconnected areas** elevates the complexity beyond the reach of conventional tools. For example, work shift scheduling must balance **production needs with employee rest periods, technical skills, and availability**.

OUR SOLUTION

Rulex developed an easy-to-handle and policy-compliant workflow for a Fortune 50 company that synchronized production and work shift planning. The solution proposed a new, **efficient, and scalable approach** to optimization within a single Rulex Platform task. Specifically:

- ✓ Unlike conventional optimization solutions, Rulex empowered citizen developers to define multiple values and constraints through an intuitive, plain English rule syntax instead of writing complex mathematical formulas.
- ✓ There was no need to build the optimization model using scripts, as the rules and data could be dragged onto the canvas for automatic model construction.
- ✓ Rulex outperformed competitors in the speed of solution creation during the optimization process.

LEARN MORE:

Rulex's optimization

Mathematical optimization: How to avoid getting stuck in rabbit holes – article

SCENARIO SIMULATOR

Predictive product quality

Ensuring high solar panel efficiency by tweaking production machines

100

identified parameters linked to product performance

THE CHALLENGE

Solar panel production is a complex, **multi-stage process** involving **diverse machinery**. Even slight miscalibrations can cause significant deviations in electrical output, lifespan, and overall efficiency of the solar panels, highlighting the need for robust quality control throughout the production process.

OUR SOLUTION

Rulex provided an international energy company with an efficient predictive quality solution for solar panels, which integrated **information from various types of production machines**. Specifically:

- ✓ Heterogeneous data from diverse sources was seamlessly imported, aggregated, and reconciled into a simple spreadsheet within Rulex Platform to enable in-depth analysis for further operations.
- ✓ Temporal attributes were managed and filtered using parametric thresholds. A filter also prioritized data by assigning weights based on its correlation with key outputs, integrating correlations from Energy Transfer Analysis (ETA) and other specific components. By the end of the pre-processing phase, overly correlated and redundant attributes were eliminated.
- ✓ Rulex's native eXplainable AI (XAI) technology extracted intelligible *if-then* rules from the redefined dataset, making it possible to identify 100 key parameter values critical for solar panel quality and performance. Experts could select which attributes to include or exclude from the analysis.
- ✓ Successively, Rulex's Rule-Based Control task provided precise instructions on which modifiable parameters to adjust and how to adjust them to improve product quality.
- ✓ Recommendations were presented in plain English, making it easy to understand the correlations between actions and outcomes.

LEARN MORE:

Rulex's Rule-Based Control

Rulex's native eXplainable AI

Rulex's data agility

TRAINING & SUPPORT

Thanks to its intuitive graphical interface and online training platform, Rulex enables citizen developers to autonomously develop and maintain solutions, without writing a single line of code. And if support is needed, Rulex data scientists and solution architects are ready to help, alongside enterprise-grade 24/7 customer service.

RuleX Services

Find **support for every project**, from installation and billing to flow development, on our customer portal.

Rulex Services operates around the clock, providing **dedicated assistance** while constantly working to enhance Rulex Platform with **innovative new features**, ensuring an up-to-date and efficient user experience.

RuleX Community

Join a vibrant, **totally free space** where everyone is welcome to share ideas, get support, and find inspiration.

Rulex Community offers **forums** for sparking **new discussions** with peers, as well as a **variety of resources**, including videos and webinars, ready-to-use flows, basic courses, and insightful articles written by our experts.

RuleX Academy

Explore over **100 interactive, self-paced certified courses** designed to help everyone quickly get up to speed with Rulex Platform.

Start from **learning paths** covering essential operations such as importing and pre-processing data, then move on to hands-on AI and optimization scenarios to put your knowledge into action.

WHAT THEY SAY ABOUT US

GPI reviews are anonymous

Manager, Supply Chain in the Miscellaneous Industry gives Rulex Platform 5/5 Rating in Gartner Peer Insights™ Decision Intelligence Platforms Market.
Read the full review here: https://gtnr.io/Mk3Si0m8K

TRUSTED BY LEADING ORGANIZATIONS

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