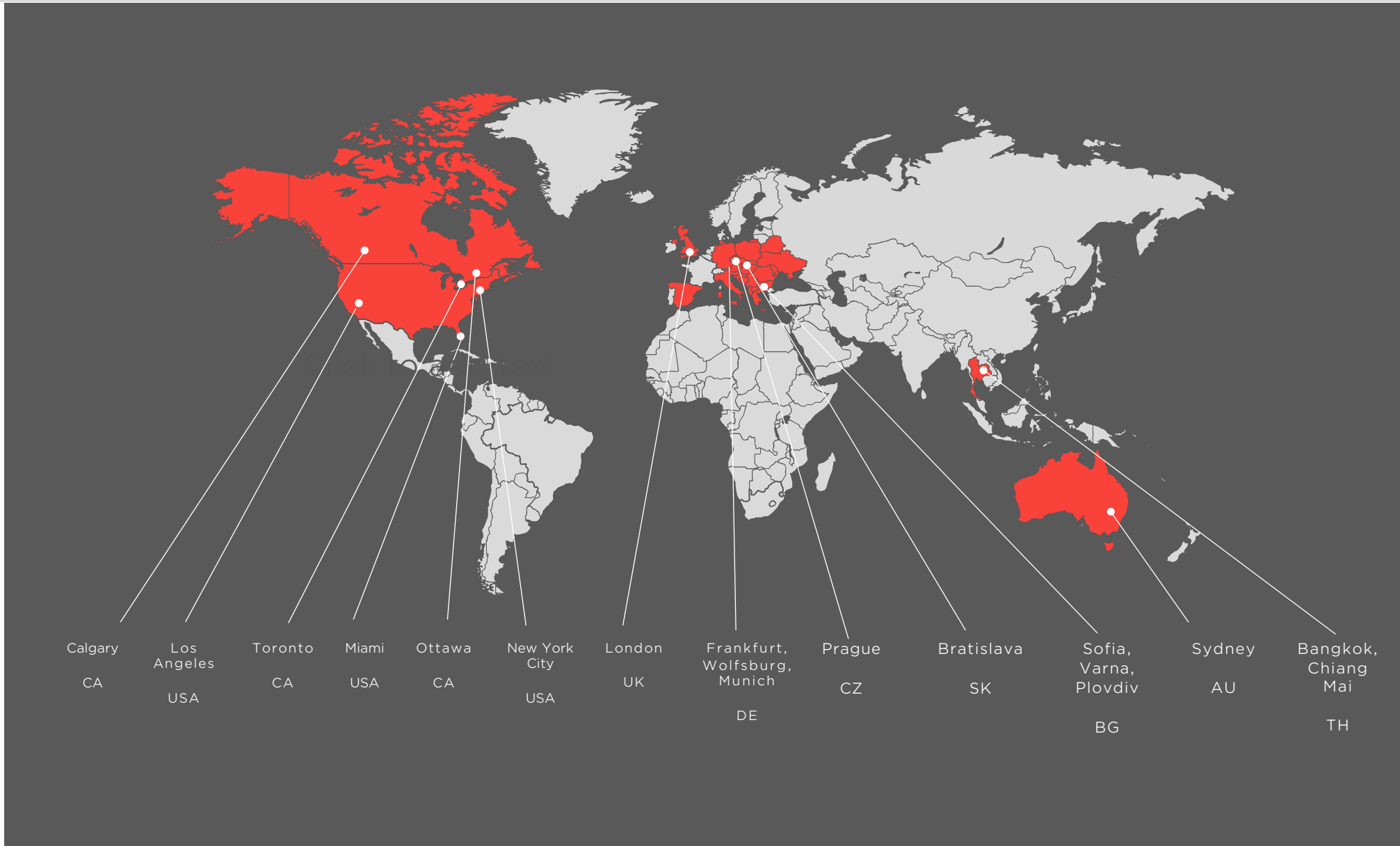
Adastra Worldwide

2100+

Data & Analytics Professionals

16

Offices in 9 countries



Adastra Microsoft Partnership

Microsoft Solutions Partner

Data & AI
Azure

Specialist
Windows Server and SQL Server Migration
Analytics

Microsoft Solutions Partner

Infrastructure
Azure

Specialist
Windows Server and SQL Server Migration

Microsoft Solutions Partner

Digital & App Innovation
Azure

Microsoft Solutions Partner

Business Applications

Adastra: Go-To Partner for Data & AI

- **10x** Impact Award Winner
- **12x** Impact Award Runner-Up
- **2x** Global Impact Award Runner-Up

- Azure Migration Partner
- Advanced Specialization for Analytics
- Advanced Specialization for Windows / SQL Server Migration to Azure

- Lead Canadian Partner for Synapse Migration / Implementation
- Product Team Collaboration for Azure Synapse / Azure Purview / Azure Databricks

Supply Chain Use Cases

OptiRoute

taiga building products
Barum

OptiFit

COTY BEAUTY, LIBERATED
ŠKODA

OptiPlan

cbi HEALTH
TÜV SÜD

Smart Picking

IKEA
Loblaws

Smart Ordering

taiga building products
SPIN MASTER

Smart Distribution

taiga building products
MAGNA

Smart Operation

Teck
VW

Smart Inventory

MAGNA
VW

Smart Shipping

COTY BEAUTY, LIBERATED
IMI Critical Engineering

Sustainability

Nutrien
VW

Key Supply Chain Clients

Supply Chain Optimization Goals

Cost Reduction

Identify inefficiencies and reduce costs associated with inventory management, transportation, and warehousing.

Improved Quality

New business models and revenue streams from products or machines sold as a service.

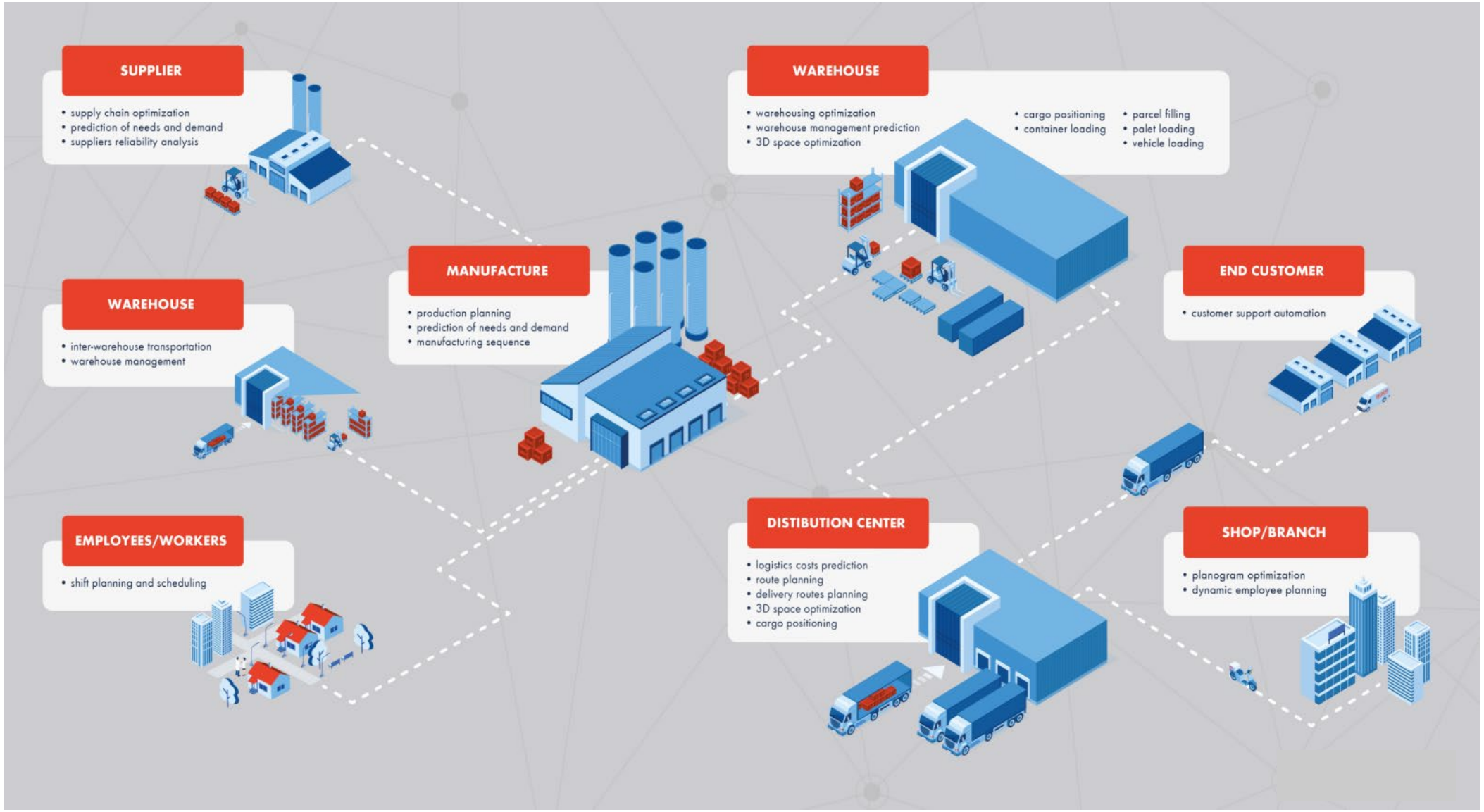
Enhanced Customer Experience

Reduce lead times and improve delivery times, increasing customer satisfaction.

Increased Flexibility & Risk Mitigation

Quickly respond to changes in demand or supply chain disruptions to minimize impact and risk.

Supply Chain Optimization Benefits



Supply Chain Optimization Journey

DATA COLLECTION

Collect data from various sources such as ERP systems, sensor networks, and third-party logistics providers. Data may include inventory levels, transportation routes, delivery times, and customer orders.

DATA PREPARATION

Clean and prepare data for analysis. This may include removing errors and duplicated in the data, as well as converting it into a format that can be easily leveraged by AI/ML algorithms.

MODELING

Leverage AI/ML algorithms & optimization techniques to identify patterns and insights and optimize processes, such as demand, inventory levels, and transportation routes.

OPTIMIZATION

Leverage insights gained to optimize supply chain operations, such as making changes to inventory management, transportation routes, or supplier relationships.

INTEGRATION

Integrate the optimized supply chain operations into technology systems , such as connecting ERP systems with warehouse management systems.

CONTINUOUS IMPROVEMENT

Monitor the performance of supply chain operations on an ongoing basis and use data analytics and AI to identify areas for improvement.

Optimus on Azure

APPLICABLE USE CASES

Production & Manufacturing

Cargo handling

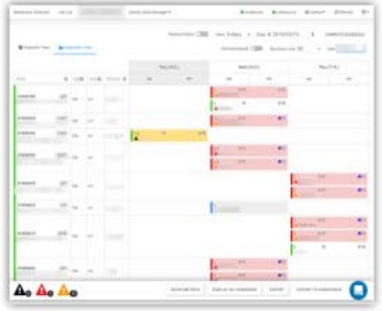
Resource Scheduling

Logistics & Supply Chain

Optimus.

OptiPlan.

- **Find the best plan** or schedule in seconds
- **Factor in** all constraints and needs
- **Adapt** to changes quickly and easily

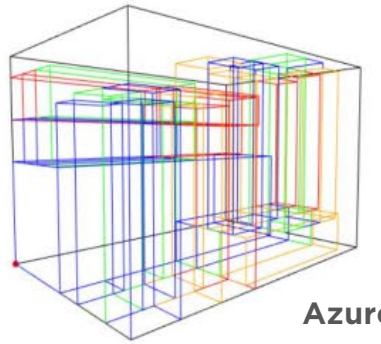


OptiRoute.

- **Create the best route** or logistics plan
- **Process changes** quickly
- **Minimize transport costs** and emissions

OptiFit.

- **Get the best loading sequence** and plan
- **Maximize parcel fill rate**
- **Minimize transport costs** and emissions



SMART SOLUTIONS

Azure Deployment:
Synapse
or Databricks
or Kubernetes
/w Data Lake and Power BI

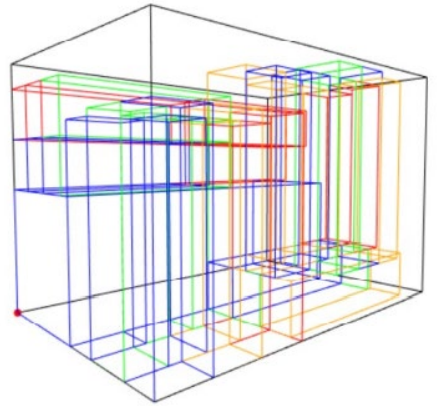
Supply Chain Optimization Offers

OPTIFIT	OPTIROUTE	OPTIPLAN
SMART PICKING	SMART ORDERING	SMART DISTRIBUTION
SMART OPERATION	SMART INVENTORY	SMART SHIPPING

OPTIFIT

OPTIMIZED AND MAXIMIZED LOADINGS, DESCREASED COSTS

Optimize cargo handling so that space in your trucks, containers and parcels is utilized in the best possible way. Minimize shameful boxes.



OptiFit is an intelligent software solution built on top of the Optimus 4.0 platform and searching through millions of loading plans. OptiFit maximizes loaded volume while considering cargo weight and dimensions, respecting legal safety constraints like longitudinal and vertical stability, and considering your business's specific needs.

Addressable business needs

- **shamefull boxes reduction** - Utilize every inch of the space in boxes and packages. Fill every inch, so you save costs on the box sizes and the filling material and use every inch of space. OptiFit calculates the optimal combination of stacking items.
- **better parcel fill rate** - OptiFit optimizes the sizes of parcel types you use to minimize the parcel's void space and save the filling material and reduces so-called shamefull boxes. It also optimizes how larger orders are split into multiple parcels with the goal of minimal resulting parcel volume.
- **truck and container load maximization** - The system optimizes how to load items from your warehouse into a truck or a shipping container. OptiFit also ensures that the load will not get damaged during the transport by intelligent loading sequence.

OptiFit Success Story

CLIENT ŠKODA

GOAL Decrease the amount of "air" in shipping containers by loading them more efficiently.

ACTION We prepared an optimization model considering cargo weight and dimensions, developed a tablet UI for the cargo loading team. Today, Škoda Auto uses the OPTIKON application to handle cargo more efficiently.

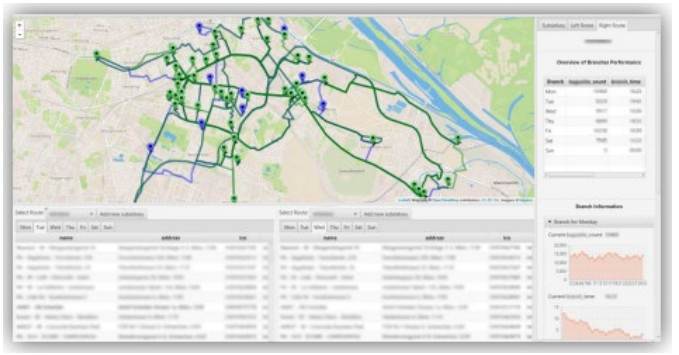
RESULTS Increased cargo volume loaded. Increased avg. volume loaded by 5%, translating into 151 containers (80 tons of CO_2 emissions) saved in the first half of the years in production.

CONTAINER LOADING OPTIMIZATION
CASE STUDY

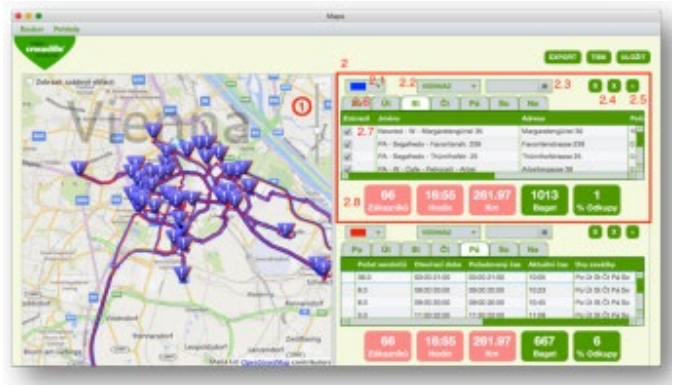
OPTIROUTE

GREENER AND OPTIMIZED LOGISTICS IN A MINUTE

Maximize the efficiency of your logistics through state-of-the-art algorithms. OptiRoute can handle standard transport optimization and beyond.



OptiRoute real-time optimized, flexible planning and scheduling system for logistics processes and routes. The system creates an optimized schedule in a minute while removing spreadsheets and time-consuming manual work to create a schedule. Sudden changes are processed in minutes when the new optimized schedule is recalculated with the Optimus 4.0 platform.



Addressable business needs

- **saving shipments and delivery costs** - OptiRoute saves your shipment costs by using optimal routes of your vehicles regarding where they stop for loading and unloading and how the goods are organized on the cargo space.
- **optimization of inter-warehouse transportation** - OptiRoute enables to minimize the inter-warehouse transports required to collect all ordered items
  of a particular order dispatching. Distribution algorithms suggest where to store to decrease the future need for inter-warehouse transportation.
- **better truck or container loading** - The system optimizes how to load items from your warehouse into a truck or a shipping container. OptiRoute also ensures that the load will not get damaged during the transport by intelligent loading sequence.
- **milk runs optimization** - Utilizing the-state-of-the-art algorithms, OptiRoute calculates optimal routes of pick-ups and deliveries. The system enables to deliver small lots in a
  very short leadtimes efficiently and thus lower average inventory levels.

OptiRoute Success Story

CLIENT Barum

GOAL Minimize the inter-warehouse transports required to collect all ordered items of a particular order dispatching

ACTION Develop a new tire distribution algorithm and a web-based application which suggests where to store the produced items such that the future need of inter-warehouse transportation is minimized.

RESULTS More orders can be dispatched from a single warehouse directly, limiting the inter-warehouse transportation to minimum. More than 60% reduction of inter-warehouse transportation costs.

INTER-WAREHOUSE TRANSPORTATION OPTIMIZATION CASE STUDY

OPTIPLAN

SCHEDULES OPTIMIZED IN A MINUTE

Maximize your service levels and meet your production targets by allocating the right people to right tasks and shifts with an automatically created plan reflecting all possible limitations.

OptiPlan is a real-time optimized, flexible planning and scheduling system for workforce allocation. System creates an optimized schedule in a minute while removing spreadsheets and time-consuming manual work to create a schedule. Sudden changes to production targets are processed in minutes when the new optimized schedule is recalculated with Optimus 4.0 platform.

Addressable business needs

- **optimal shift and personnel planning** - OptiPlan will help you to compute optimal schedules for your employees combining the right skillsets and the right location and time and considers even the most specific business rules your operations require.
- **scheduling in complex production operations** - OptiPlan embraces all conditions and constraints that the schedule needs to reflect. Our library covers 100+ ready to use business rules to schedule employees in complex production operations.
- **sales representative visits and shop assistants planning** - Minimize your employees' travel time and cost, optimize your branches' visits through intelligent automatic planning. OptiPlan considers your CRM data, predictions about routes and the necessary time to optimize your business plans.
- **big operations planning (branches, employees)** - You can plan processes and shifts at the management level of the entire branch network as well as in the granularity of their individual departments and positions in a matter of seconds.
- **prevention of the spread of diseases -** Minimize unnecessary contacts among employees to mitigate the risk of spread of covid-19 or other deseases. We understand that one size doesn't fit all, and we are ready to create a specific list of rules tailored to your operations.

OptiPlan Success Story

CLIENT

GOAL

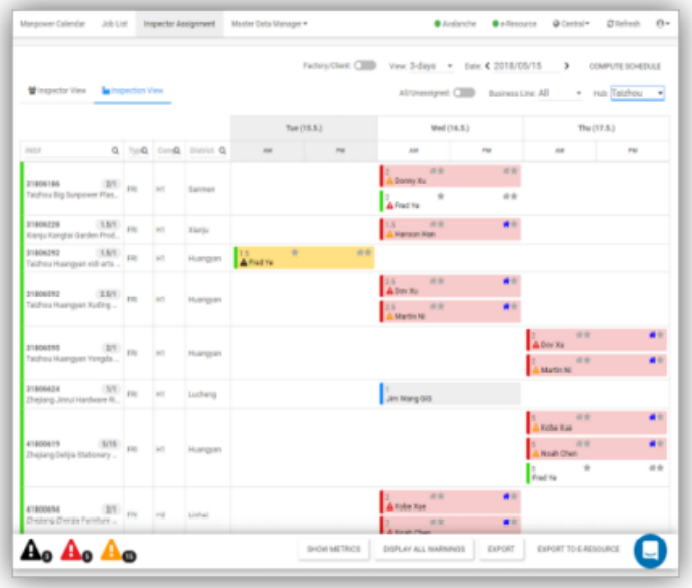
Automation of complex inspector scheduling process in greater China subject to complex business rules. Optimization of resource utilization including dynamic replanning and team re-assembly.

ACTION

Customization and integration of our optimization algorithms enabled scheduling of hundreds of inspectors across Greater China area in minutes.

RESULTS

Scheduling process done by 1 person in 10 minutes instead of 12 operators in 6 hours. TÜV SÜD is now able to scale up the business and offer premium services in peak season. Scheduling costs decreased by 80%. Operational costs decreased by 10%.



AUTOMATED SCHEDULING OF INSPECTORS IN CHINA

CASE STUDY

Smart Picking

VIDEO link: https://www.youtube.com/w atch?v=Sr0RsIOdUvk

SMART PICKING SUCCESS STORY

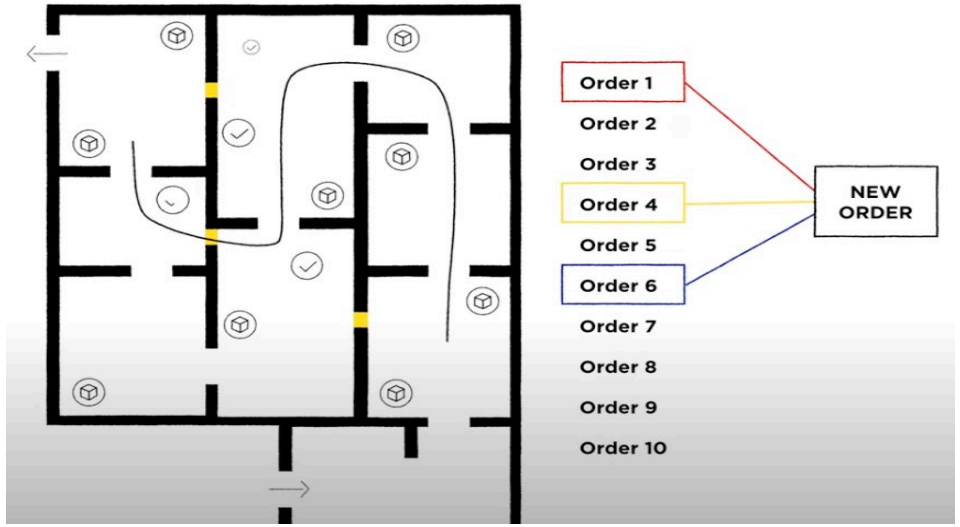
- **Picking more orders per hour and walking less km during the day**
- **Navigation to specific stock position increasing efficiency for new co-workers**
- **AI based routing improving multiple logistic operations**

Preparing customer orders is a hard job, especially when each order is prepared individually. During regular working hours, pickers walked up to 20km. Reducing the number of km walked every day, picking multiple orders simultaneously instead of one by one, and optimizing the pickers' routes through the store will drive efficiency and increase customer/coworker satisfaction.

Where does the magic come from?
OPTIMUS is ADASTRA optimalization tool powered by Artificial intelligence. It's task is to consolidate a logical combination of multiple orders into a single list, and then optimize the picker's route to gather all the items.

Picking process is visualized on mobile device or smart glasses with navigation, scanning and voice command functionality.
Precise indoor navigation is secured by Ultra wide band technology, and is shown on a map.

Case study:
Global Home furnishing seller has streamlined the preparation of customer orders for home accessories.
One of the leading Home furnishing company has chosen Smart picking platform powered by AI to improve store operation. By optimizing the routes, we were able to reduce route length by 25% and prepare 14% more orders per hour overall.



Benefits of the solution
- Preparing more customer orders per co-worker and hour
- Walking less km during shift, co-worker motivation and satisfaction.
- Faster prepared orders increase customer satisfaction
- Optimizing logistics efficiency
- Scalability of solution
- Platform with the possibility of extending and solving other processes

One platform improving more retail operations.
- Daily inventory management
- Goods replenishment
- Customer returns to the shopfloor
- Layout efficiency proposal
- Customer flow analyse measurement
- Navigation for customers
- Staff planning
- Gamification of picking

IKEA

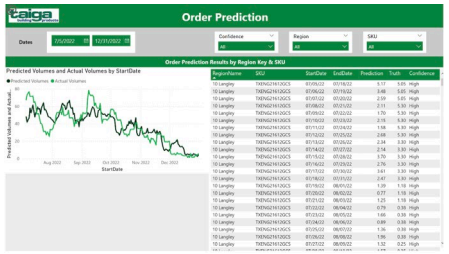
Smart Ordering / Smart Distribution

A supply chain system which integrates the entire ecosystem of manufacturers, distributors, retailers, and transporters.

taiga building products

SCALE AI

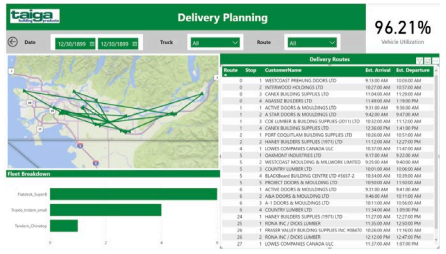
ADASTRA



Predictive Inventory Forecasting with high accuracy leveraged by retailers to make intelligent product purchasing decisions

$1.8M Funding provided by Canadian government program to improve AI/ML capabilities in Canadian ecosystem

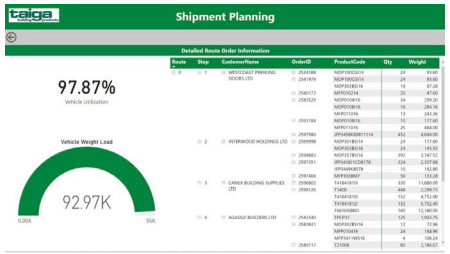
Implemented Azure Data Platform + Power BI packaged AI/ML solution. Team of Architect, data engineers, data scientists, MLOps engineer, and BI Developers (Global team)



Route optimization model leveraged by manufacturers, distributors, and retailers to meet SLAs, reduce delay penalties, improve inventory turnover ratio

8 FTE roles created. Revenue generated for consortium

Designed AI based model for truck load product placement combining 3D bin packing and scheduling optimization



Distribution Center Product placement system which is used to optimize truck loads and shipping times, reducing lead time requirements

Social economic benefit across Canada through Knowledge sharing with community members

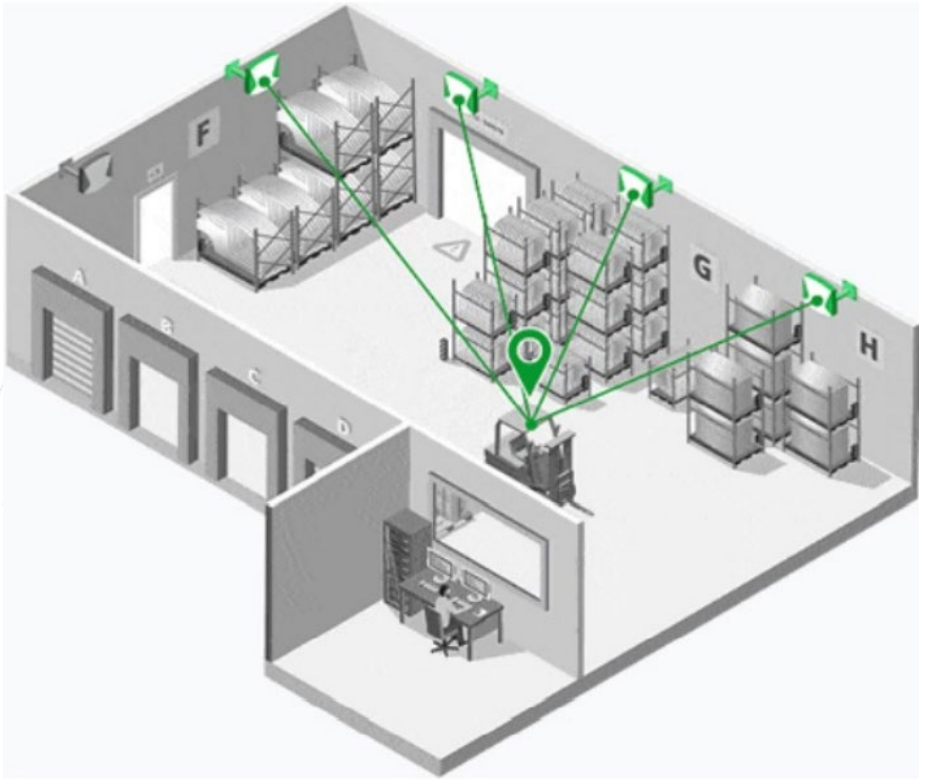
Modernized Purchaser's FT role into a strategic decision maker

Smart Operation

- Objectives:
  - Localization of any objects in the monitored area (e.g. people, assets, …)
  - Maximize asset utilization, prevent asset misuse and optimize their role in all processes
  - Improve safety, reduce the time necessary for mustering and rescue operations, increase security and streamline location workhours reconciliation
  - Improve area topology, understand behaviour of employees / customers

- Typical use cases:
  - Tracking of assets (e.g. forklifts, trolleys, equipments, materials / products, …)
  - Tracking of people (e.g. employees, visitors, …)

- Typically used in:
  - Industry, Logistic, Retail, any building / area



Smart Operation Success Story

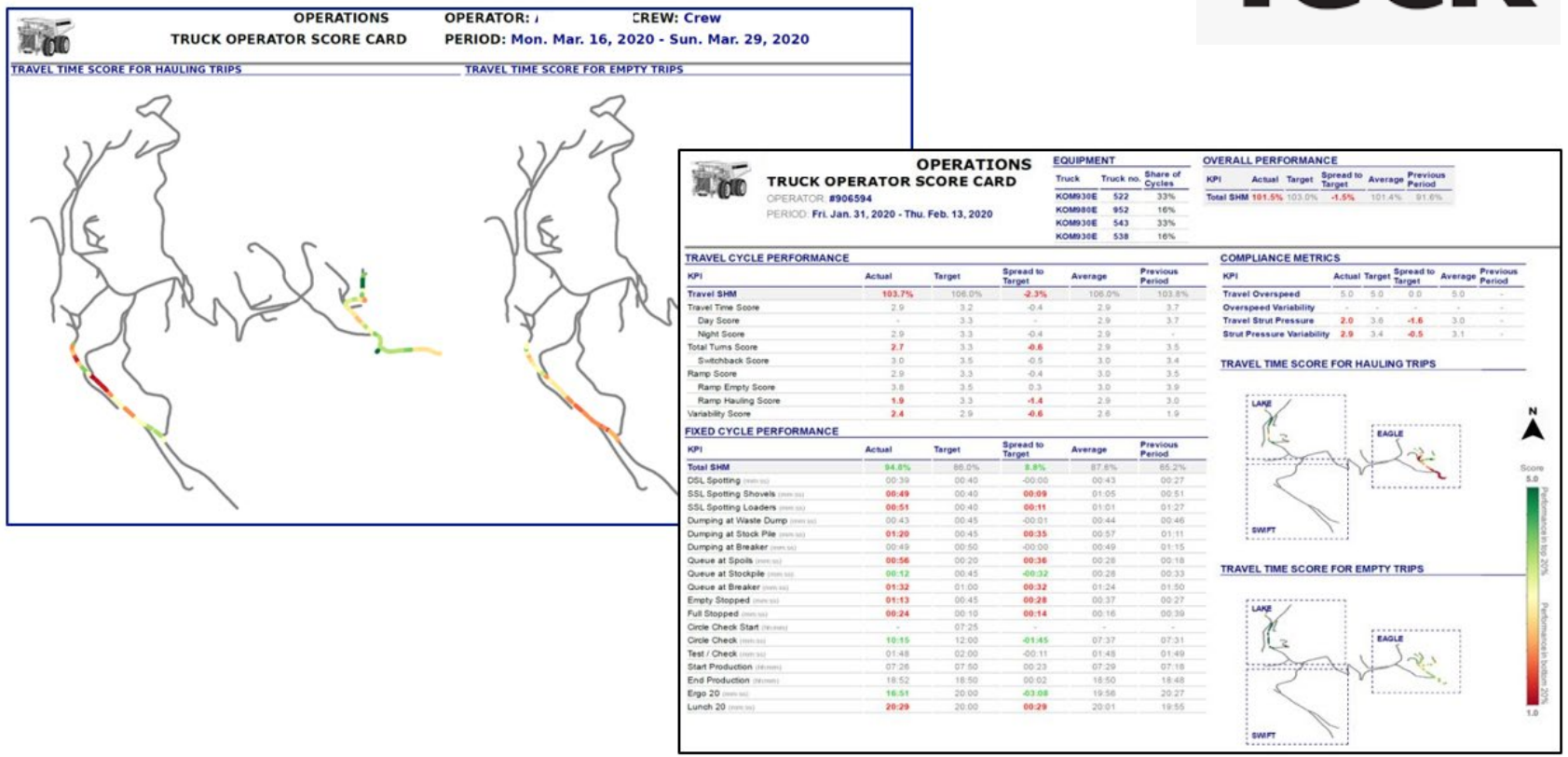
Use Case: Monitor effectiveness of truck operators at a mine site, to improve truck operator performance.

Problem: Lack of visibility of truck operator performance at the mine site, meant truck assets were not being leveraged to their full extent.

Solution: Collect IoT data in real time, from trucks at the mine, to track how they are performing on mine roads / load delivery within the mine site. Compare truck operator performance against other truck operators, to determine where additional training can help improve poorly performing operators. Implement Azure IoT Hub, Azure Synapse, Power BI reporting, and Azure web application report delivery, to deliver the solution.

Outcome: Improved truck operator performance at the mine sites by 5%, optimizing truck assets more effectively and reducing overall truck costs.

Teck

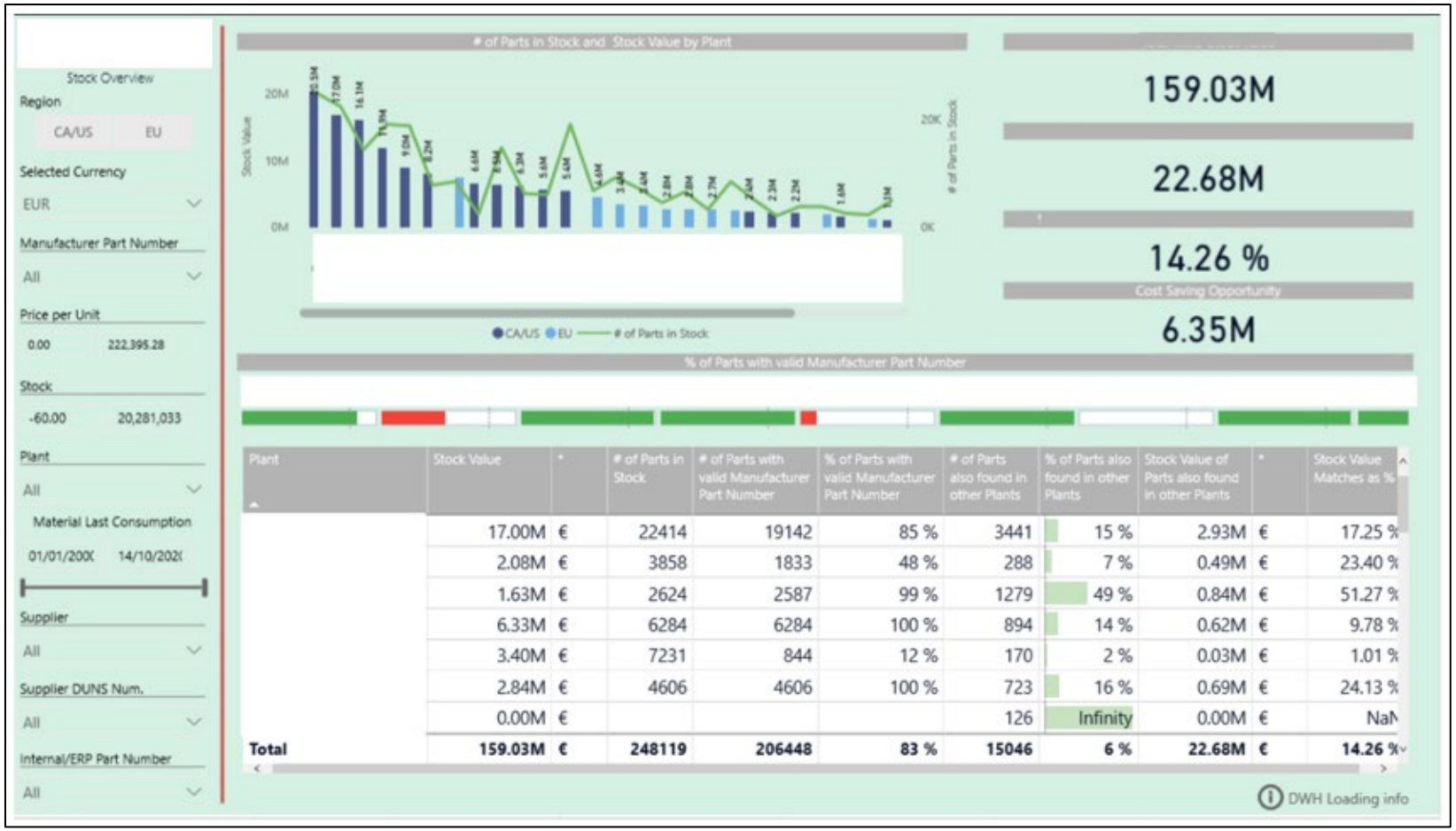


Smart Inventory

Spare Parts Solution:

Optimize Logistics / Manage Inventory:

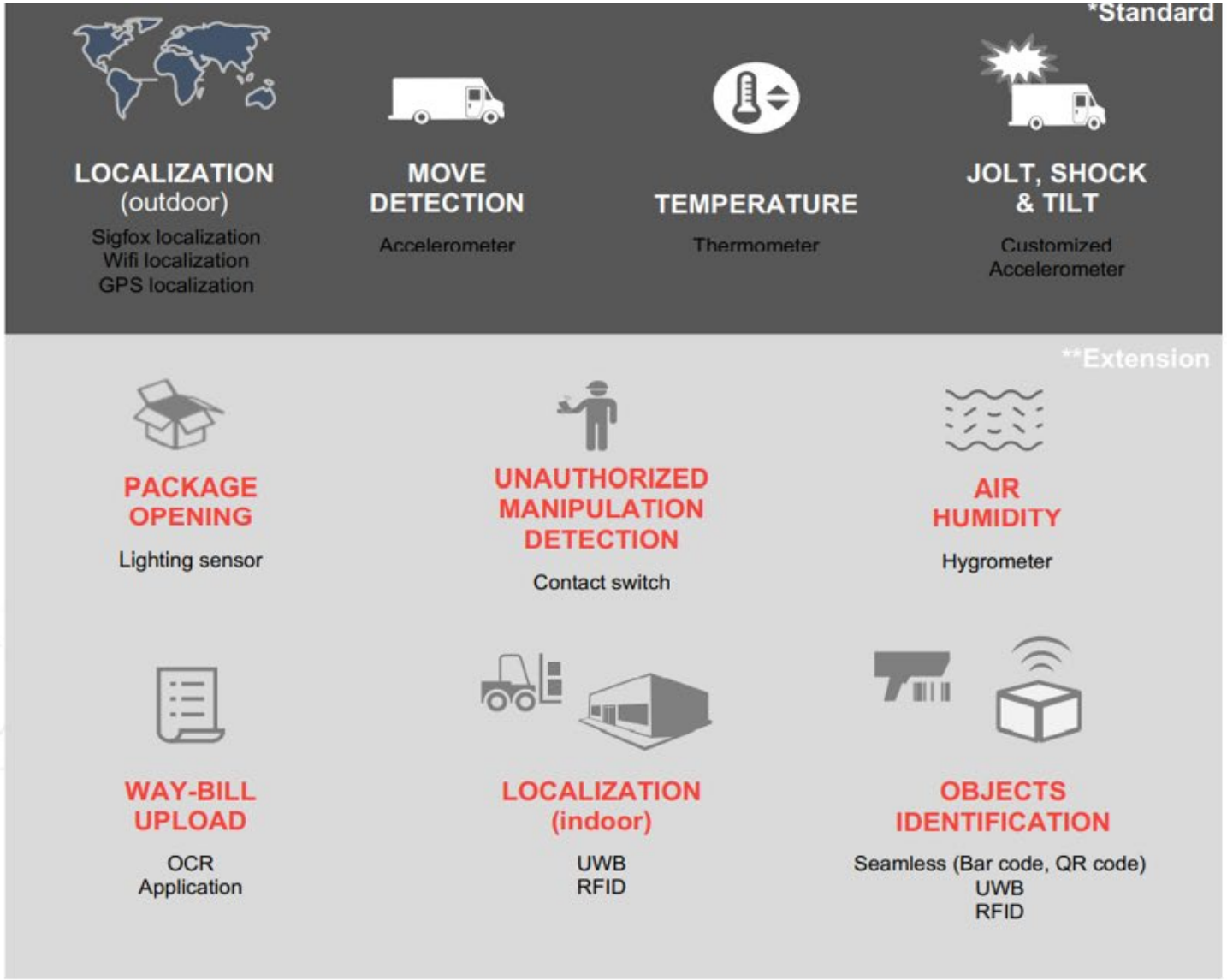
- Improved inventory control: cost reductions by providing unified view of inventory, increasing accuracy and preventing over-investment
- Operational efficiency at plant level: savings by preventing run-outs, enabling parts-sharing
- Better negotiation with suppliers
- Rationalizing part pricing across region
- Deeper insights into top cost spare parts, key suppliers, allowing for better optimization
- ***ML driven sourcing***
- Projecting $5M / year in value



Smart Shipping

1GUARD
Overview of sensors and functionalities

- Objectives:
  - Monitoring of goods delivery
- Typical use cases:
  - Localization and tracking
  - Temperature monitoring
  - Improper handling detection (shock, tilt)
- Typically used in:
  - Industry, Logistic, Retail, Supply chain



Smart Shipping

Shipment monitoring

Adastra 1Guard & IoT platform

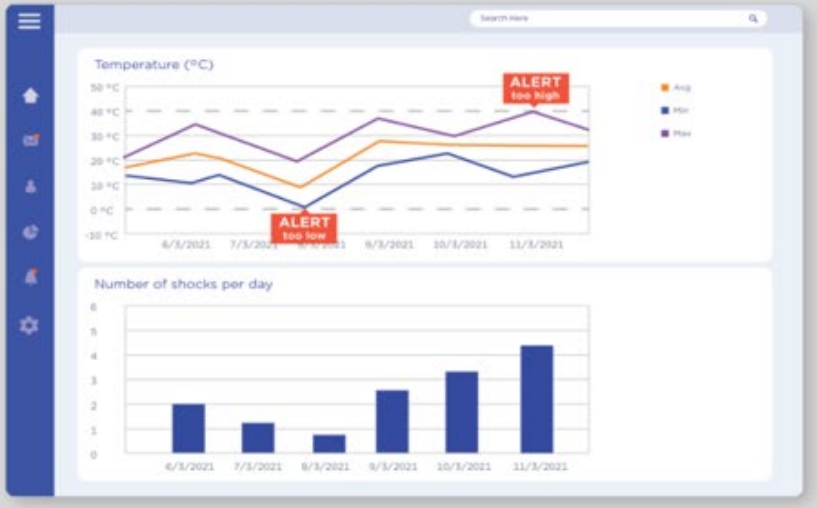
Process optimization and cost savings

100% shipment overview and visibility

up to **50%** reduction of future asset investment

10% loss rate reduction

Shipment monitoring solution provides full control over your goods and reusable packaging transport and manipulation. We can track circular pallets, boxes, cages, containers or the goods itself.



Key 1Guard functionalities:

- Localization and move detection
- Inappropriate handling and manipulation (tilt, shock, jolt etc.)
- Ambient temperature monitoring
- Light sensor (i.e. box opening notification)
- Wireless device
- Customizable design & functionality

Key IoT platform functionalities:

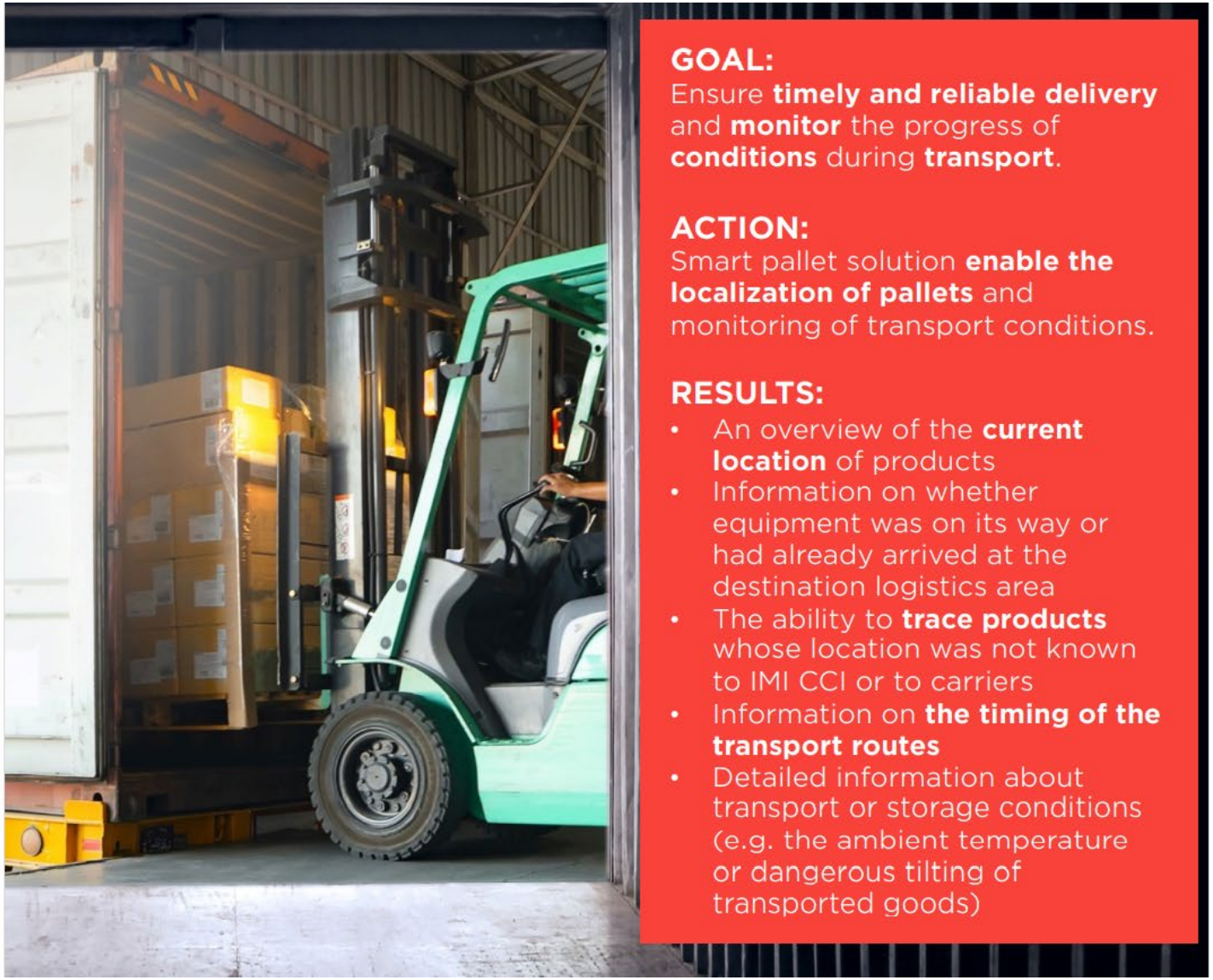
- Integration with existing tools and processes
- Customizations for individual use cases
- Cloud based platform
- Web app, dashboards, notifications for users

Smart Shipping Success Story

IMI Critical Engineering

TECHNOLOGICAL & ECOLOGICAL INNOVATION WITH SMART PALLET SOLUTION

Client reference project

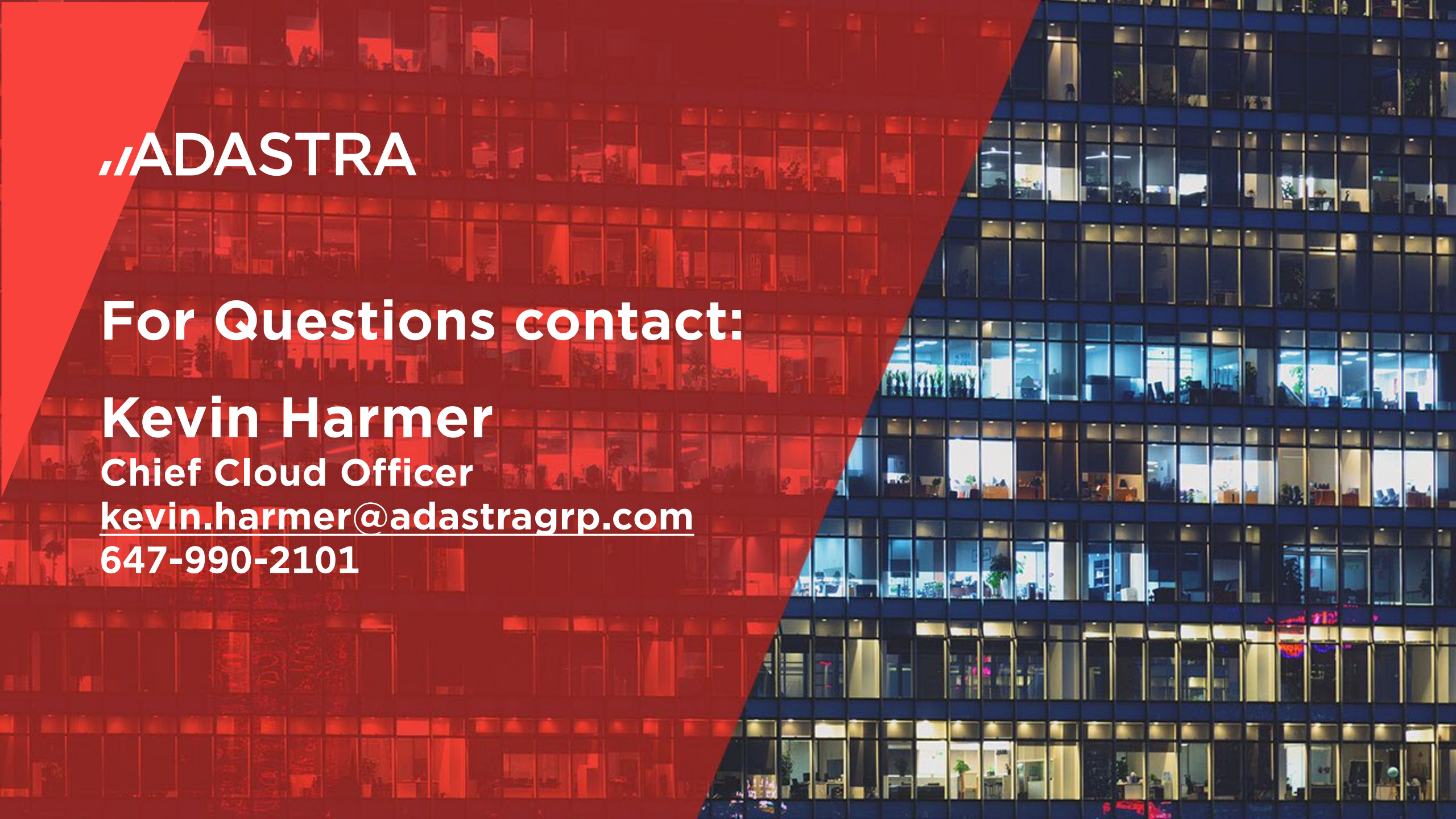


GOAL:
Ensure **timely and reliable delivery** and **monitor** the progress of **conditions** during **transport**.

ACTION:
Smart pallet solution **enable the localization of pallets** and monitoring of transport conditions.

RESULTS:

- An overview of the **current location** of products
- Information on whether equipment was on its way or had already arrived at the destination logistics area
- The ability to **trace products** whose location was not known to IMI CCI or to carriers
- Information on **the timing of the transport routes**
- Detailed information about transport or storage conditions (e.g. the ambient temperature or dangerous tilting of transported goods)



ADASTRA

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