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Siemens Digital Logistics
Intelligent Supply Chain
Version 1.0

www.siemens-digital-logistics.com

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"Applying state-of-the-art software and profound consulting expertise to make logistics the engine of our customers' success - generating added value along every link in the supply chain."

Beyond Your Supply Chain

- Supply Chain Planning
- Supply Chain Execution
- Supply Chain Visibility

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Siemens Digital Logistics

At a glance

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300 in-house digital logistics experts

Dedicated, broad-based **industry** savvy

Over **50** years of combined experience in logistics and supply chain management.

More than **750** customers from over **20** industries.

Global footprint in over **20** countries, part of a company with over **170** years of tradition

Customer

Audi, BASF, BAYER, BOSCH, Daimler, DB Cargo, DHL, dm-Drogeriemarkt

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Products & Services
Overview

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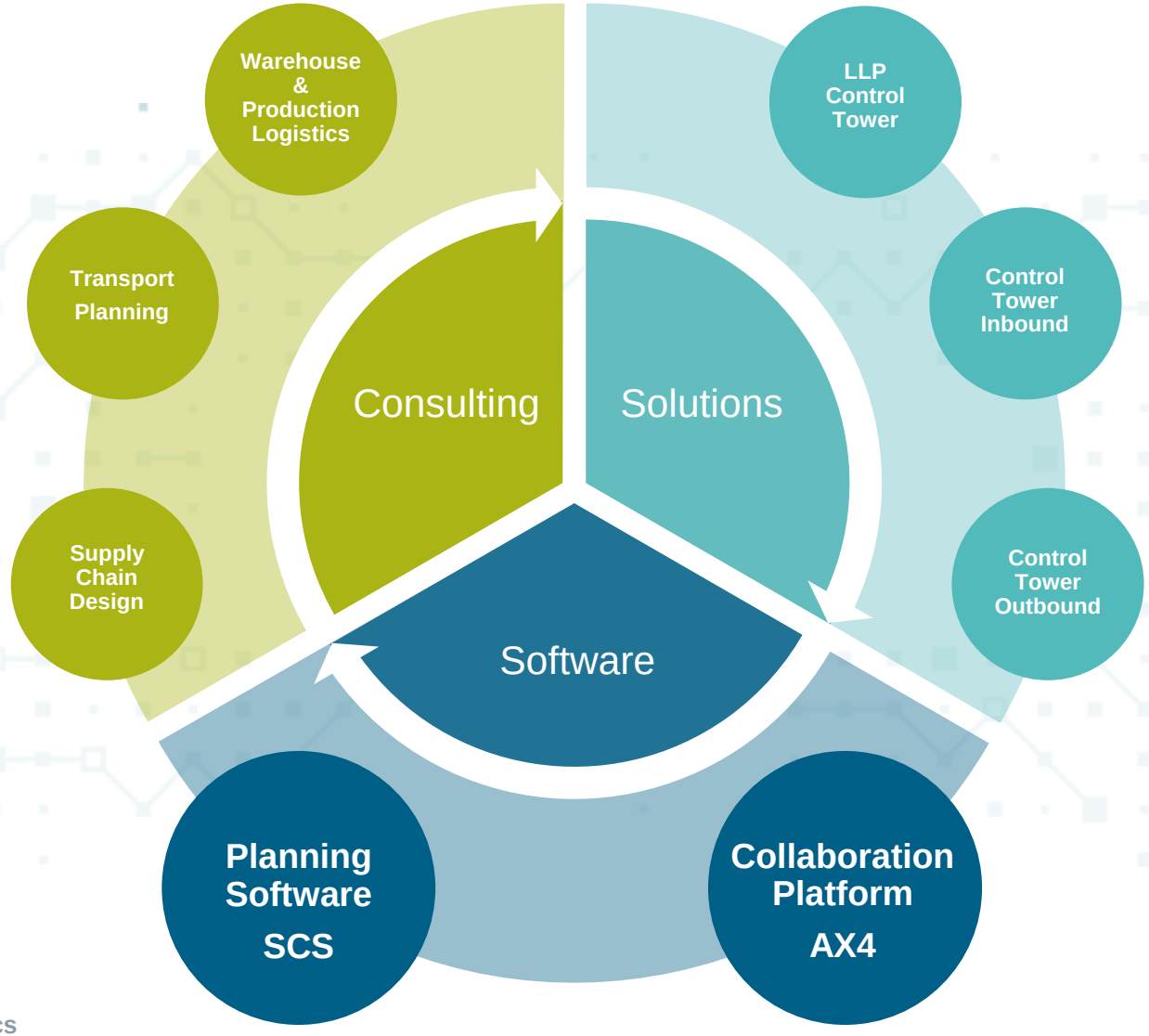

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Introduction

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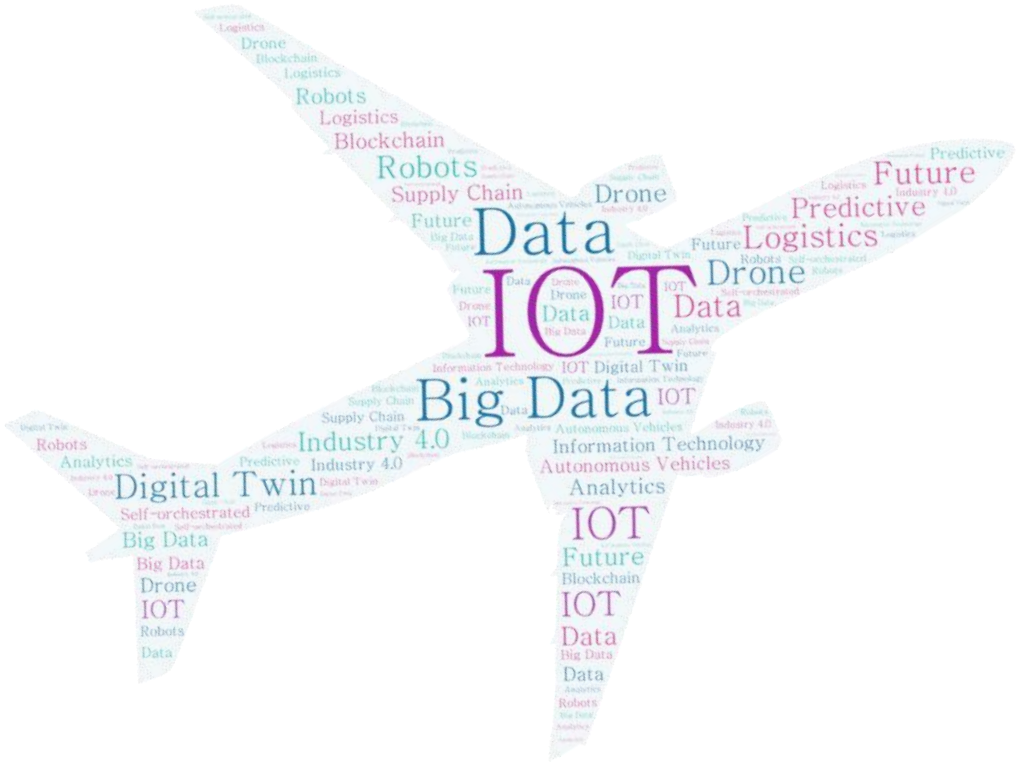
Your Supply Chain is becoming more complex, administrative and tailormade – against minimal margins

Gartner foresees reducing costs, improving internal productivity, and increasing visibility by tailormade workflows and direct communication between production and logistics (digital Supply Chain) driving the market through 2022

Source – Gartner “Magic Quadrant for Transportation Management Systems” March 2017

Intelligent Supply Chain



Major developments

- Industrial Internet of Things
- Big Data and Analytics
- Digital Twins
- (Block-Chain)

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There is still a lot of uncertainty about how Digital transformation will impact business

- **80%** of Execs believe that digital technologies will disrupt their business over the next 12 months
- **75%** say that digital technology has already disrupted their business
- **26%** of Execs say that their CEO sets a clear vision for digital in their business
- **25%** say that they fully understand the potential of digital to change i.e. how to create and deliver value to the customer
- **15%** feel they have the necessary people and skills to execute their digital strategy

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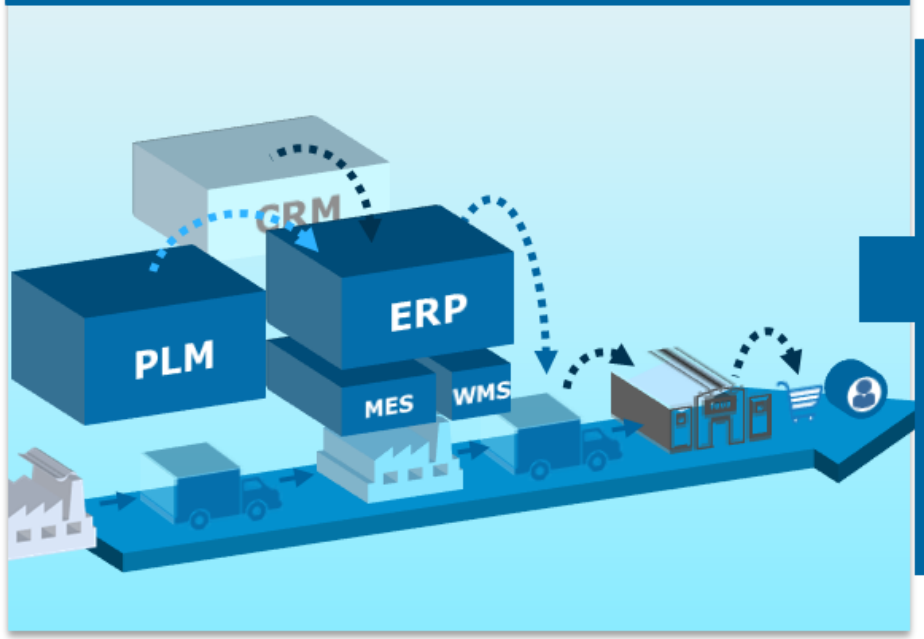
Organisations have to change from single, siloed systems….
…. to networks of capabilities

Today

While today's enterprises are linearly organized and optimized within the boundaries of organizational and system silos…



Drivers for Change

- Connectivity
- Internet of Everything
- New (Digital) Competition
- Cost Pressure
- Individualized Products
- Lot Size 1
- Shorter Time To Market
- Re-industrialization

Future

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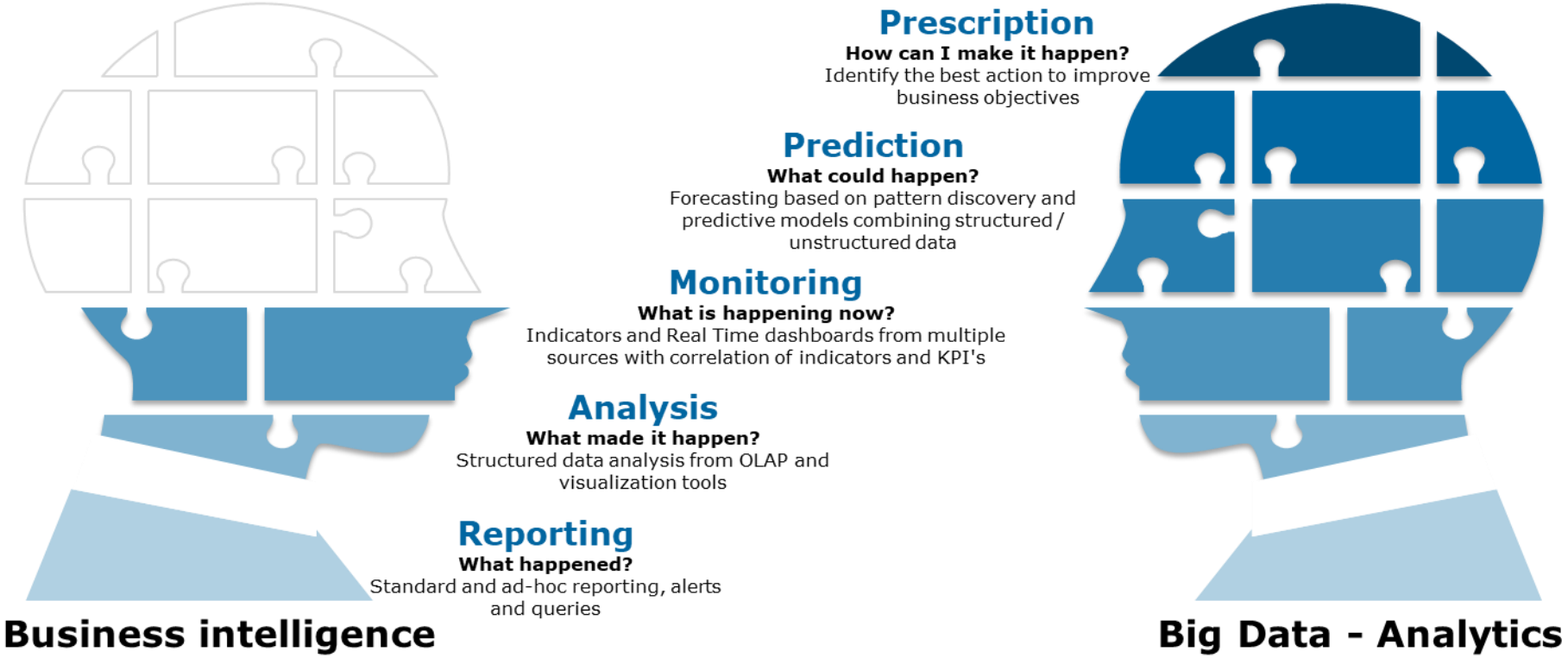
The path from Business Intelligence to Big Data



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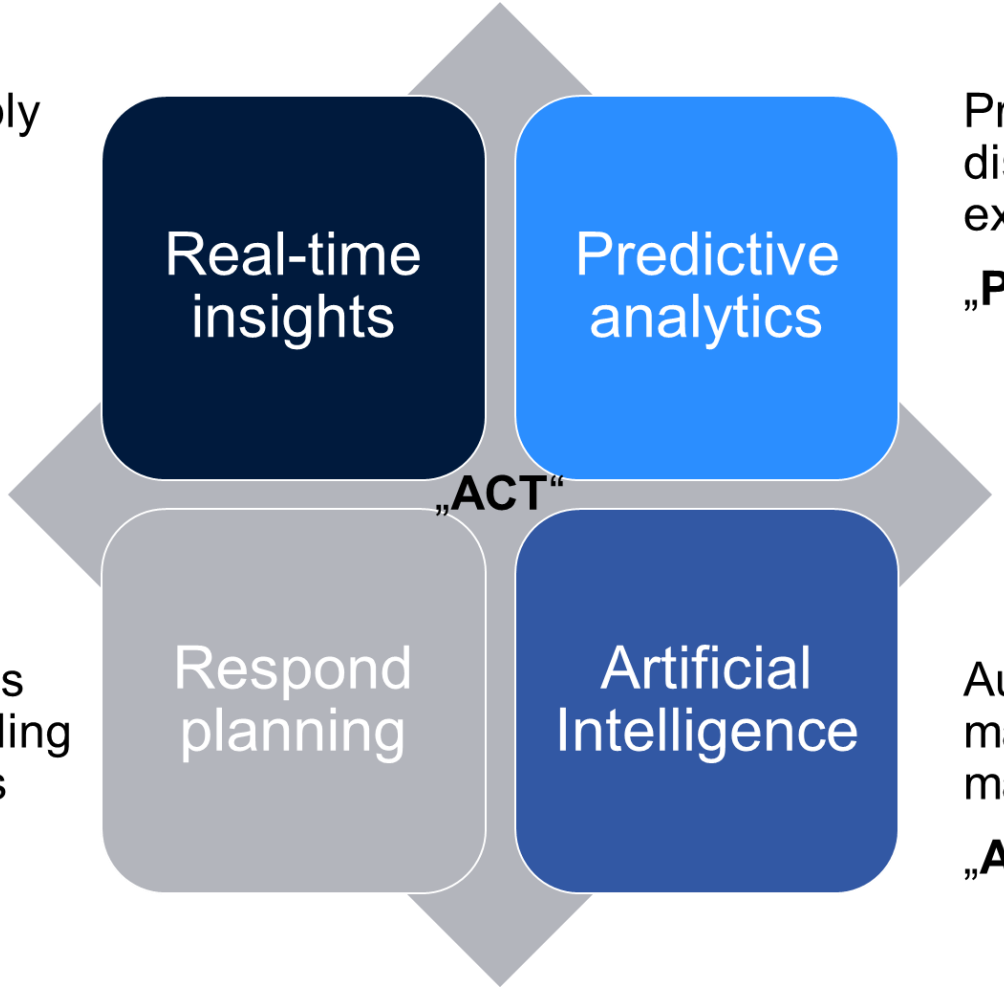
Building Blocks – Needed Capabilities

Monitoring the supply chain in real-time (close to real-time)

„SEE“

Predicting possible disruptions (history & external data sources)

„PREVENT“



Planning capabilities incl. scenario modeling and impact analysis

„OPTIMIZE“

Automated decision making through machine learning

„AUTOMATE“

Source: “Supply Chain Visibility: The Journey Has Just Begun”, Christian Tietze, Gartner Analyst

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Market
Gartner View on SC Visibility

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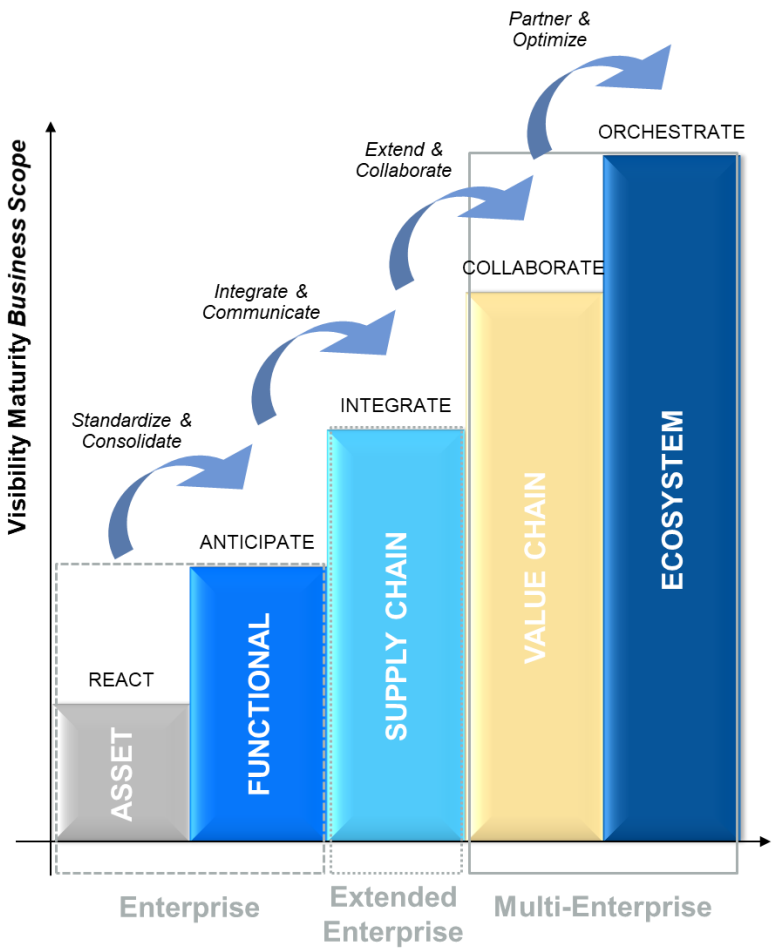

It is important to understand that the extent of visibility, depth of understanding and resolution capabilities vary considerably with supply chain organizational maturity

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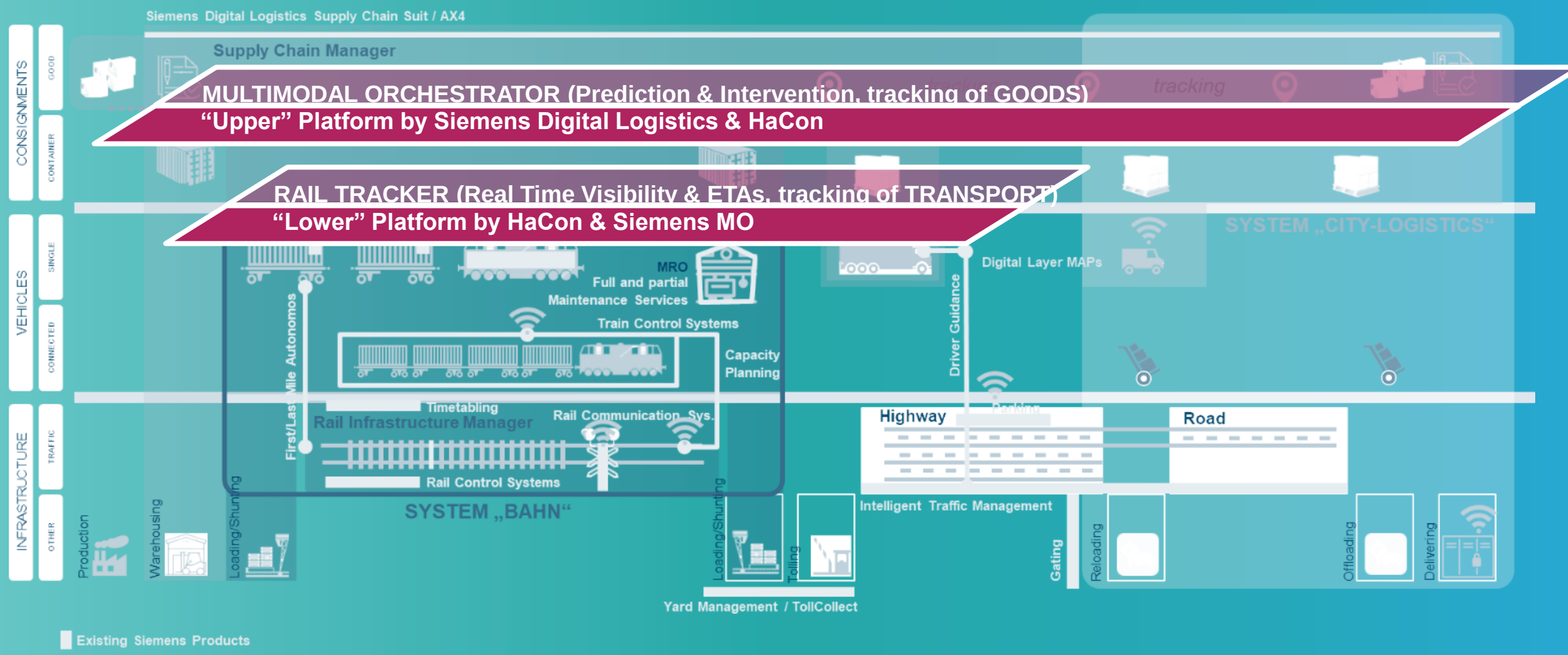
As Siemens family together with our „sister“ HaCon and the complete Siemens Mobility spectrum, we have the best capability to provide two open platforms for the key building blocks



Vision

Siemens Digital Logistics as Multimodal Orchestrator

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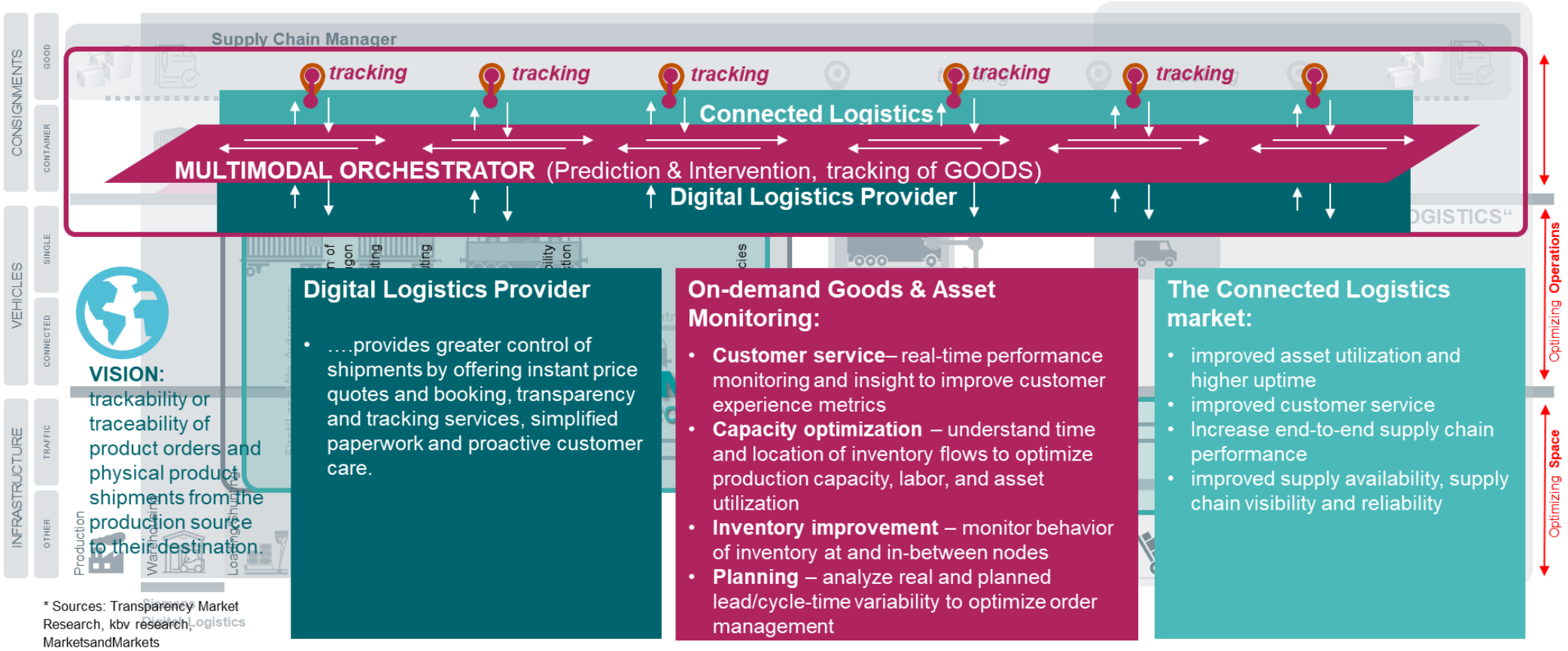
Siemens Digital Logistics (SDL) is already today with its various project implementation the data orchestrator between various collaboration partners in logistics (e.g. shipper customers, suppliers, logistic service providers) and various transport modes. In the future SDL aims to orchestrate all business partners in a network-of-network approach to enable with its offering intelligent decisions in Supply Chain Management based on Logistics IoT, Analytics & AI.



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Intelligent Supply Chain – Vision of Planning & Execution

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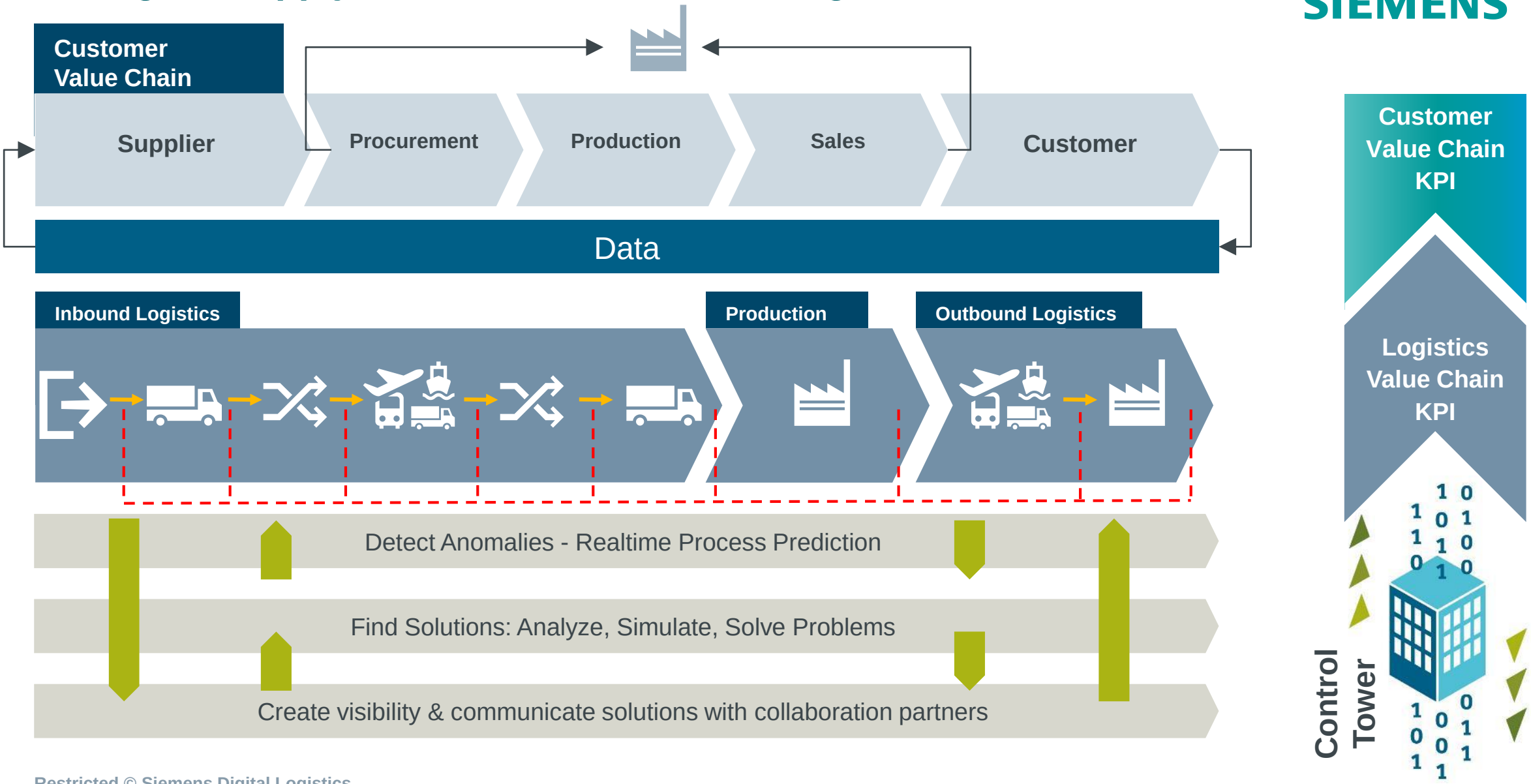

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Siemens – AtoS Collaboration

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Intelligent Supply Chain

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From data ...

... to value

Product Intelligence, Edge AI, Robotic Process Automation

Increase Supply Chain sustainability and performance

Data analysis and simulation

Reduction of transport and inventory costs

IoT fleet management
Cyber Security
Security Operation Centers

Improve delivery performance due to real-time information

Data collection 3rd party IoT Integration

Optimize resource utilization

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Intelligent Supply Chain

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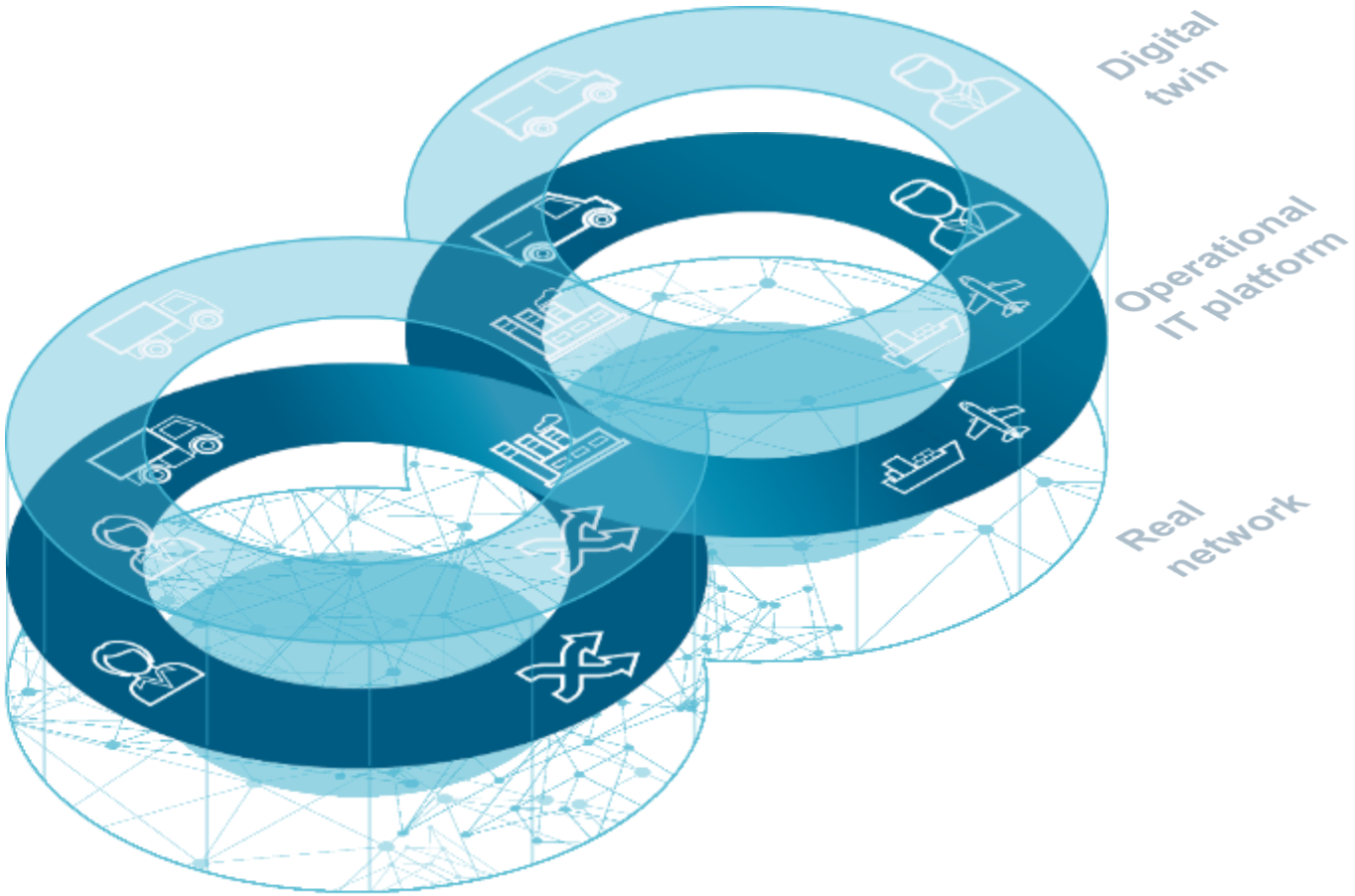
- Integrate all partners and systems in your supply chain network
- Deliver real-time data for transparent processes and effortless collaboration
- Offer a complete “digital twin” model of your supply chain for planning and simulation
- Identify potential for optimization based on innovative algorithms and consulting expertise
- Support planning and decision-making processes using both planning data and actual data
- Use of IoT technologies (Siemens MindSphere) for integrating machine and production data into logistics processes
- Development of predictive logistics through the use of artificial intelligence (here Atos Codex)



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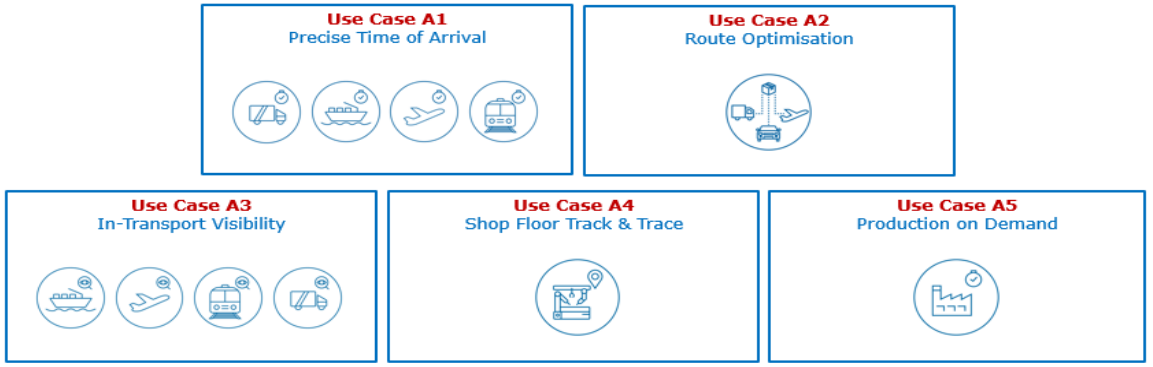
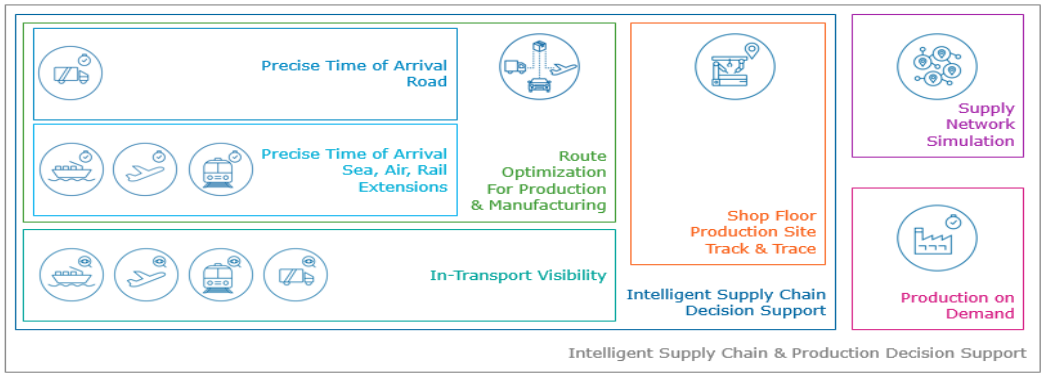
Intelligent Supply Chain
Product Overview

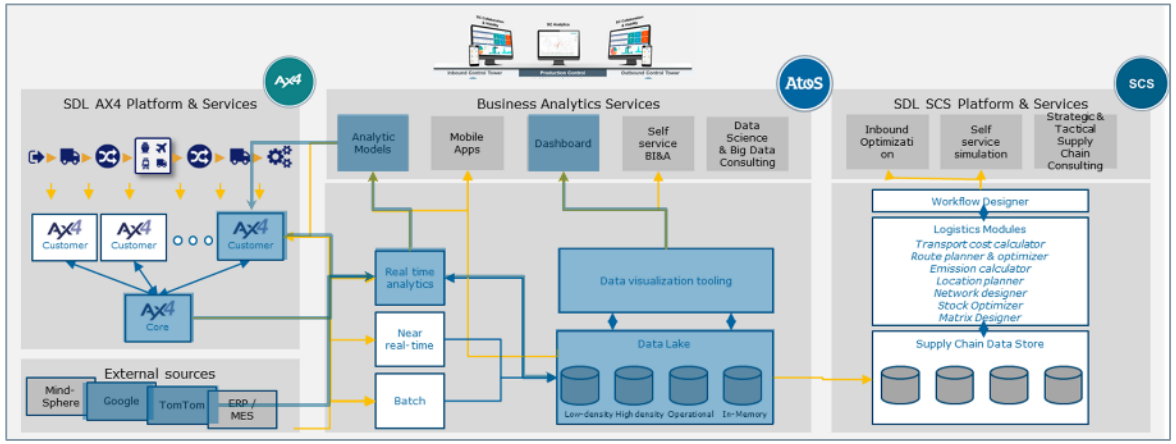
Use Cases



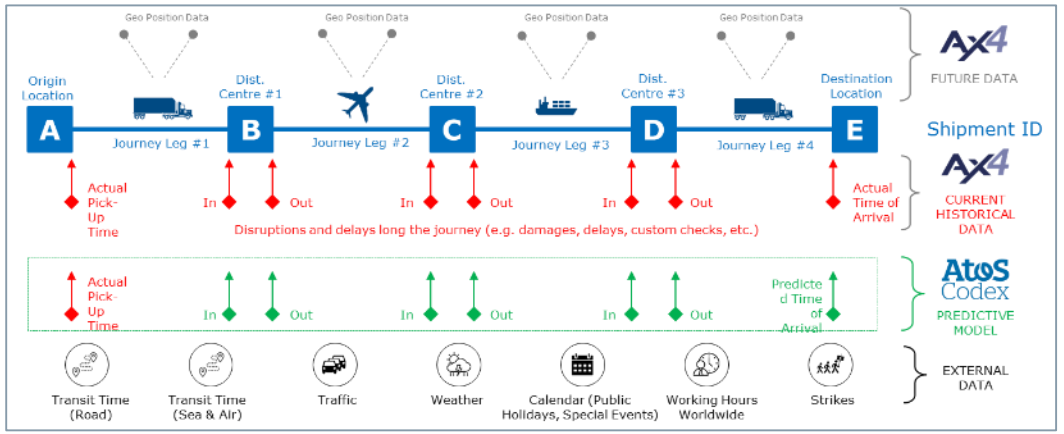
Integrated Analytics Packages



Integration with Siemens AX4 and SCS



Complex Logistic Equations into Analytics



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Use Case Inbound Automotive

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Inbound Logistics Automotive

The problem

- Mistrust in ordering times
- Behavior of pre-ordering
- Materials arriving too early
- Overstocking of warehouses
- Rise of OpEx

The solution

- Reach a decrease in OPEX
- Trusting ordering times
- Realtime prediction of arriving materials

Intelligent Supply Chain
PTA Model Training

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INPUTS

Logistics / Supply Chain Management Data

Enterprise Resource Planning / Warehouse Management Data

Manufacturing Execution System / Product Lifecycle Data

Maps / Traffic Data

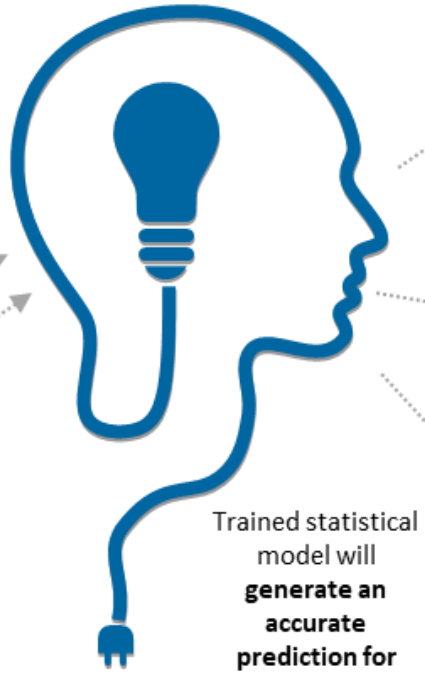
Weather Data

Internet of Things Data

Various **relevant datasets from internal and external sources**

PREDICTIVE MODEL

Designed, built and trained by a **team of Atos data scientists**



Trained statistical model will **generate an accurate prediction for each supply chain shipment**

OUTPUTS

#1

Latest Dispatch Date/Time = Tue 16/12/2018 12:40

Predicted date and time by when **shipment must be dispatched from** the origin location **in order to arrive to the required destination by certain date and time.**

#2

- **Leg 1 Time:** 37 hrs.
- **Leg 2 Time:** 14 hrs.
- **Leg 3 Time:** 4,5 hrs.

Predictions of travel time (with accuracy of days/hours) **between the origin and destination locations** for **each individual legs of the journey**

#3

Shipment Time: 55,5 hrs.

Overall **end-to-end travel time** for each shipment.

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Intelligent Supply Chain
PTA Model Training

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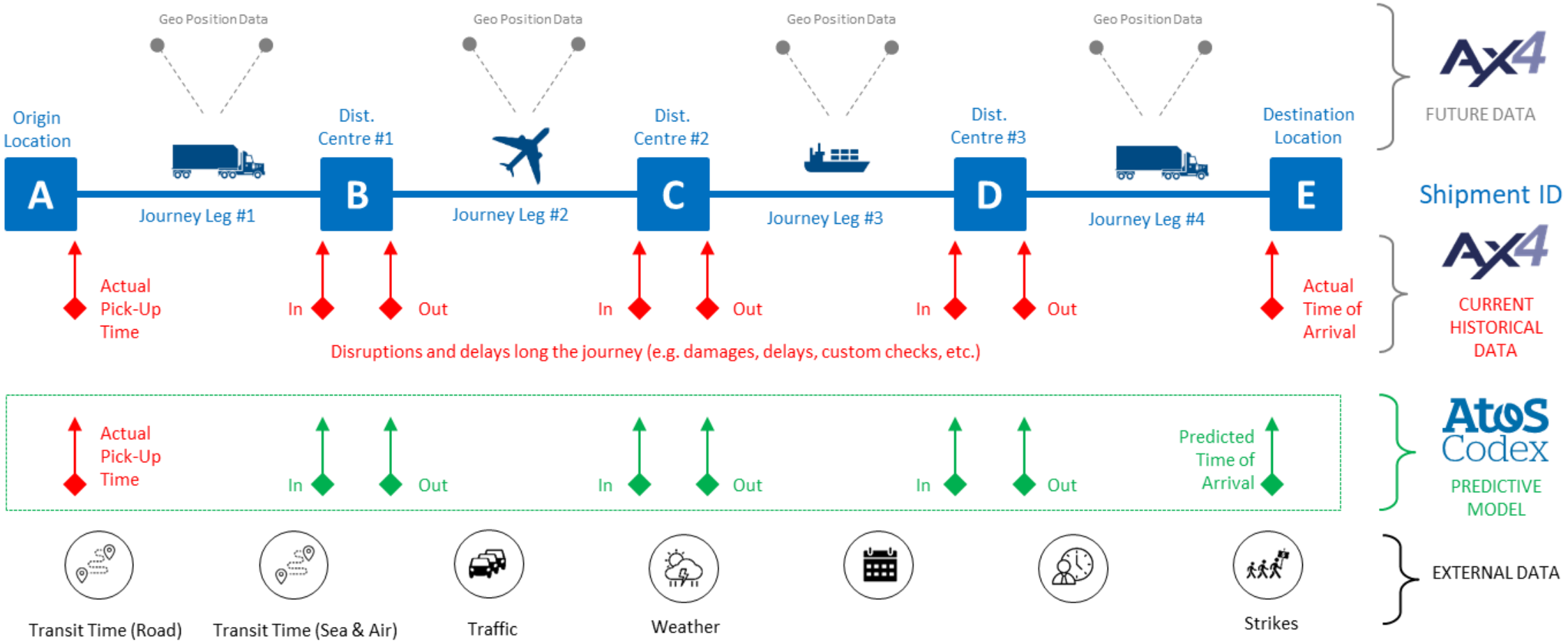

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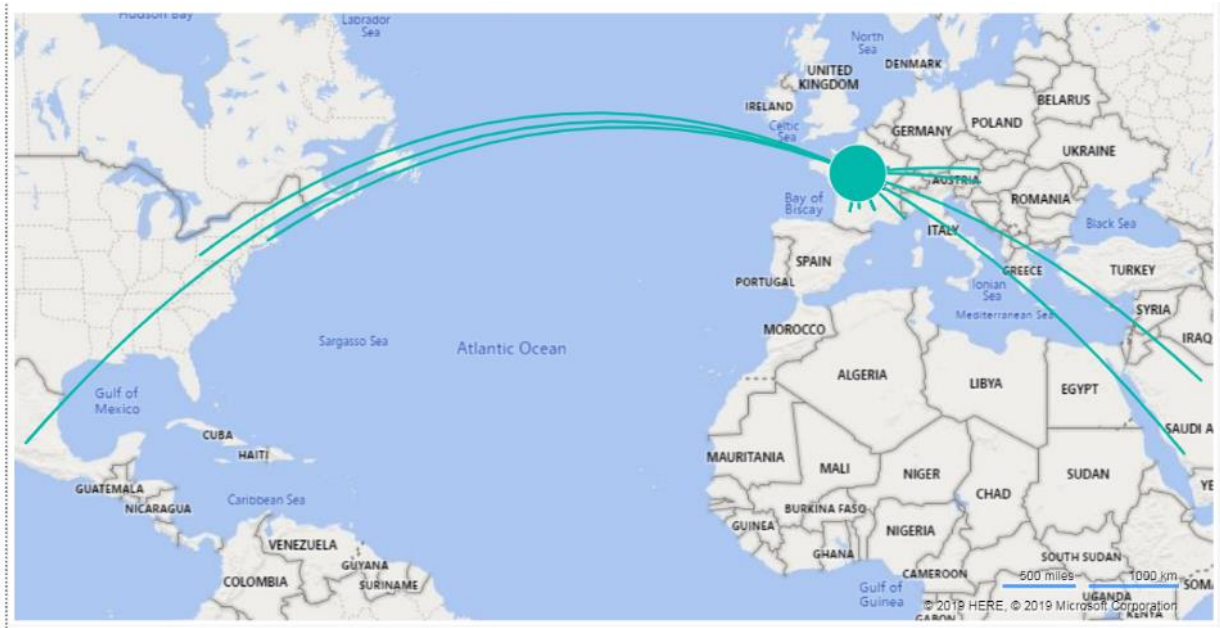
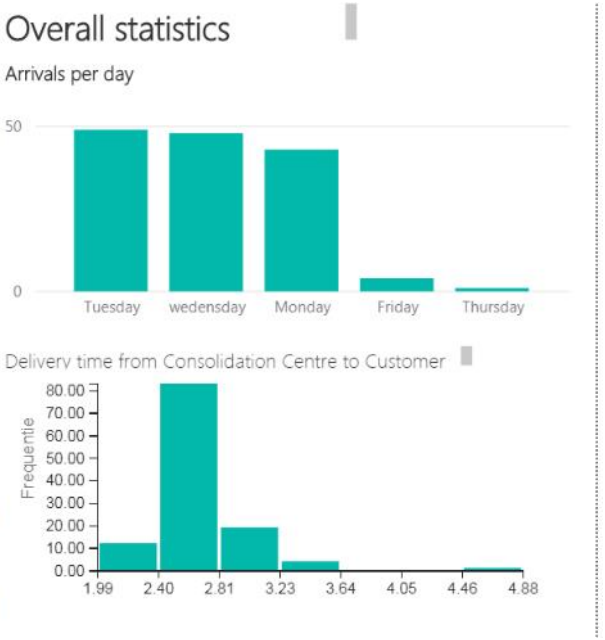
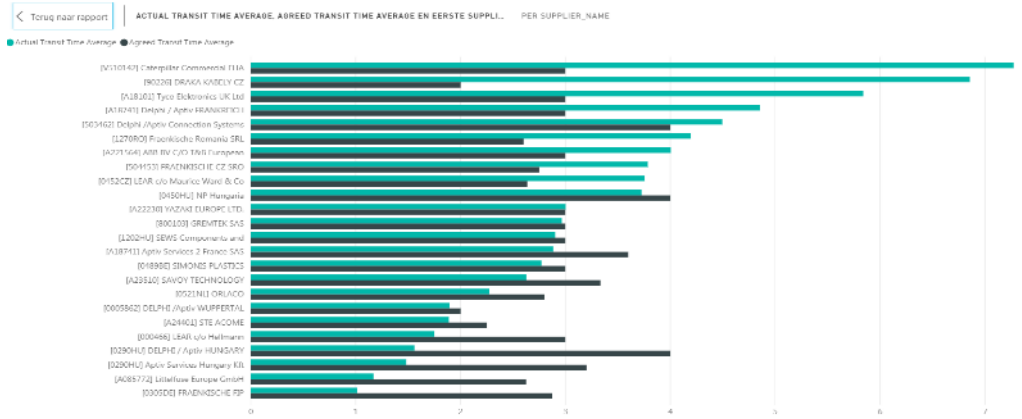
Intelligent Supply Chain Dashboard







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Intelligent Supply Chain

Smart App: Improve Insights via Mobile App (under development)

- Forecast **Precise Time of Arrival** that can be used to plan inbound, warehouse and production processes
- Calculate **Latest Departure Time** of shipment to save warehouse costs, but assure production is not hindered
- **Track Part Numbers** on shipments to support last minute decisions like changeover or maintenance

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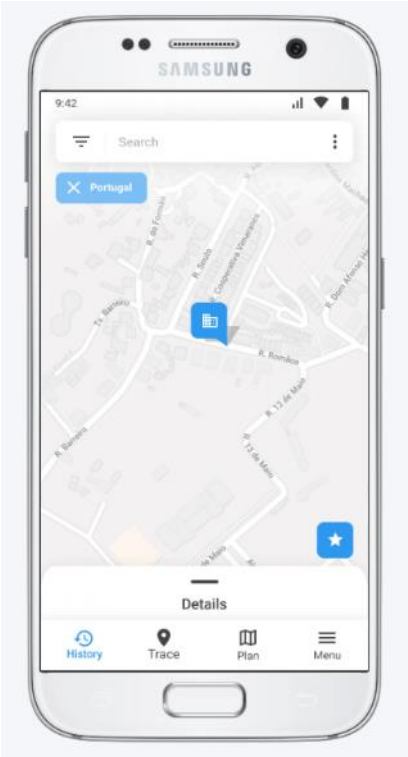
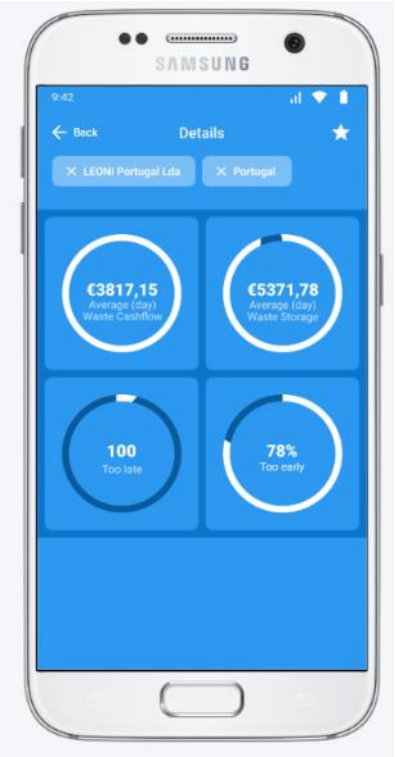
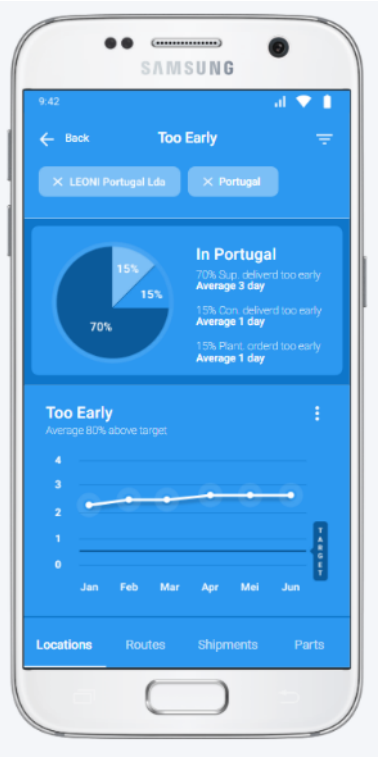
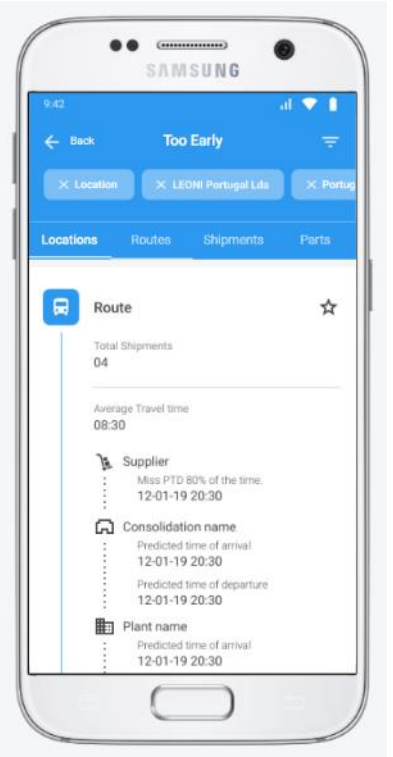
Intelligent Supply Chain Mobile Apps (based on AX4 LEONI PoV)









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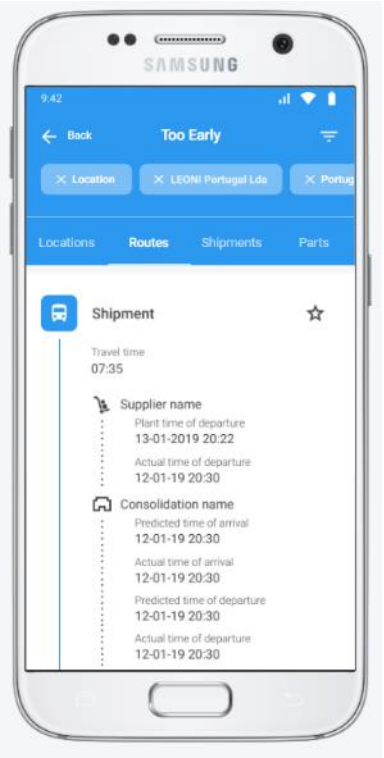

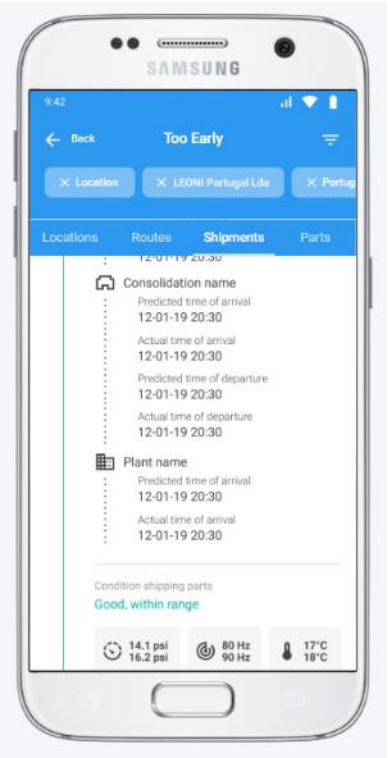

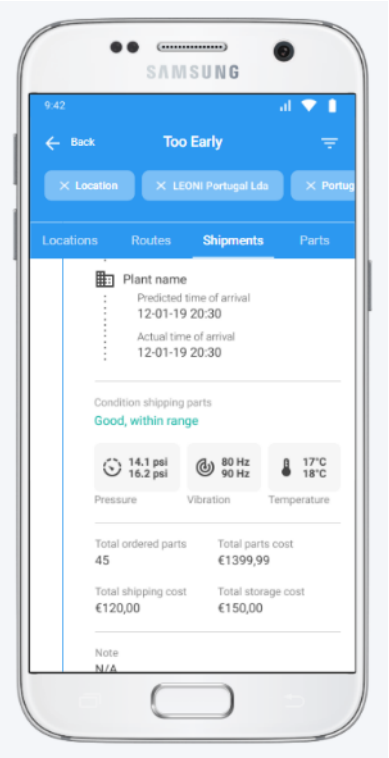

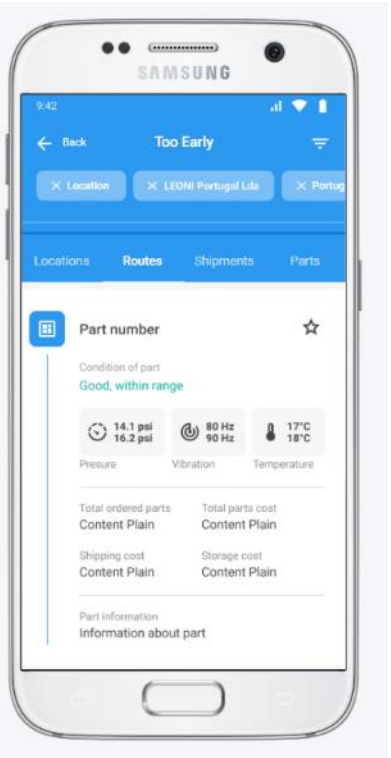

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Thanks for your attention!

Uwe Schumacher, VP Business Development, Siemens Digital Logistics