

Oct 15, 2023

# Resilient and Optimized Supply Chains using Decision Intelligence

**ThermoFisher**  
SCIENTIFIC

 **Parkour**<sub>sc</sub>

# Today's Speakers



**Jitendra Kumar**  
Director of Digital Innovation



## BACKGROUND

Jitendra Kumar is a results-oriented, innovative global life science technology leader with a successful record of delivering values to both business and customers using IT solutions.

Jitendra has been working with Thermo Fisher Scientific for 20 years and is currently the Director of Digital Innovation in Basel, Switzerland.



**Vikram Matharoo**  
Director of Product Mgmt



## BACKGROUND

Vikram is a seasoned Product & Engineering Management executive with a strong passion for developing and launching market-leading products across diverse technical domains including digital Supply Chain Management.

As Product Mgmt leader at ParkourSC, Vikram is currently leveraging the power of Digital Twins and Real-Time Intelligence to transform Global Supply Chains.

# Agenda

- 1.** Thermo Fisher  
Business Situation &  
Challenges
- 2.** A New Approach  
with ParkourSC
- 3.** Solution in Action:  
Laying the  
foundation
- 4.** Beyond Visibility:  
Intelligence &  
Collaboration

## Mission:

We enable our customers to make the world healthier, cleaner and safer.

## Customer focus:

We help accelerate innovation and enhance productivity for our customers, underpinned by quality.



>125,000

colleagues



7,000

R&D scientists/engineers



\$1.5B

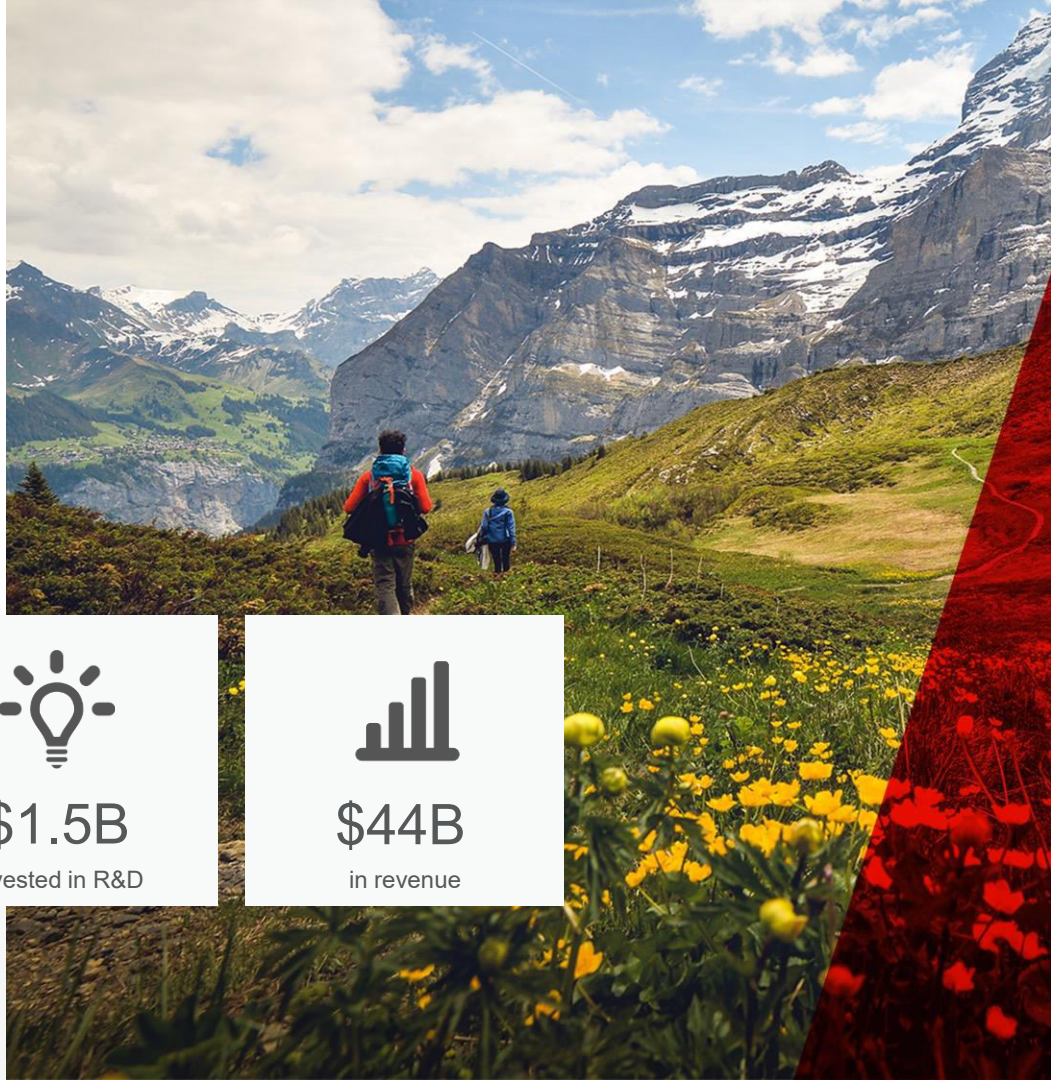
invested in R&D



\$44B

in revenue

 The world leader in serving science



# Clinical trials

Expansive global capacity and network to fit a range of clinical trial needs

**8,200+** clinical trials supported annually

**99%** clinical label services on-time project delivery



## Services

- Clinical supply chain
- Ancillary management
- Labeling, packaging and storage
- Cold chain management
- Direct-to-patient supply chain options
- Distribution and logistics
- Medication adherence packaging solutions
- Comparator sourcing
- Demand planning
- Import and export (Brexit) solutions
- Biobanking and biorepository logistics services



## Decentralized trials

- Direct to patient trials
  - Depot to patient
  - Pharmacy to patient
  - Site to Patient

## Unique global footprint with local expertise

- 30 purpose-built cGMP facilities
- >260 packaging rooms
- Qualified Person (QP) release

# Situation: Global Transportation Management team needs automated solution to manage 500K annual shipments

Team must ensure visibility, control, & compliance of clinical trial materials across a global supply chain

## Team responsibilities



Consignee pre-alerts and track and trace from collection to proof of delivery



Proactive issue resolution and escalation for over 500K shipments annually



Metrics: reporting and analysis of courier performance



Global contact center for all shipment related queries



Coordination of reverse logistics

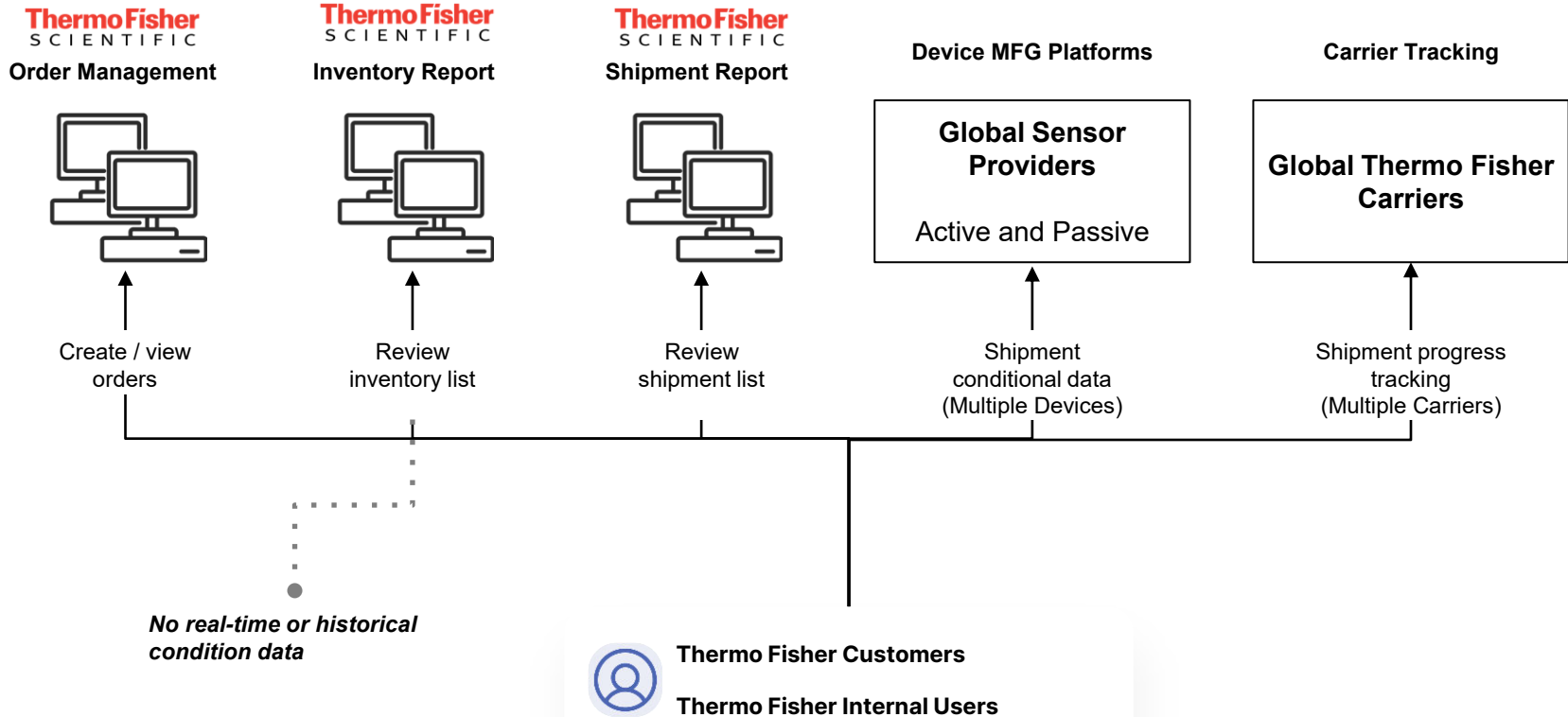


Real time temperature monitoring



Complete courier management

# Before ParkourSC



# Case Study: Project Tower

**Value Statement:** Provide Thermo Fisher with on-demand, real time temperature and location visibility solution for all shipments across their global supply chain improving operational efficiencies and value creation for customers and patients while proactively managing risk for deviations and excursions.

## Business Situation

Siloed and distributed Track and Trace platforms across geographies

Data blind spots for shipment milestones, devices, assets, and excursions

Critical and high-value shipments that have time and temperature sensitivity

Supply chain disruptions due to environmental or other events

## Business Impact

Operational inefficiencies resulting from slow and long response times

Revenue and cost impacts resulting from lack of real-time exception reporting, alerts and notifications

Potential stock out of supplies at the site resulting from supply chain disruptions and inefficiencies

## ParkourSC Benefit

Enhanced customer and internal stakeholder value and service

Improvement in operational efficiencies and system scalability

Protection of revenue and lower costs via proactive exception monitoring and ensuring corrective action

Near Real-time detailed visibility of assets moving through the supply chain network providing ability to mitigate associated risk



# Beyond Visibility

Continuously Improve your Digital Supply Chain Operations through integrated **Decision Intelligence Platform**

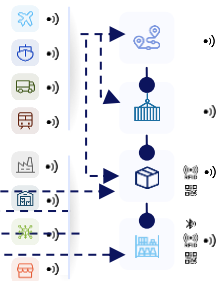
## Digitize Operations

### Measure

Monitor the end-to-end supply chain



Industry leading Supply Chain Digital Twin



## Orchestrate Intelligence

### Optimize

Embed intelligence into operations and models



Integrated Planning & Execution

### Planning Models

- SKU Allocation
- Lot Size Planning
- Carrier/Route Risk
- Asset Condition Risk

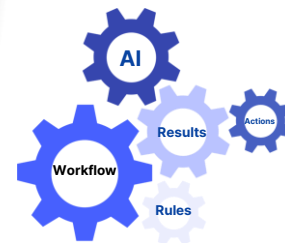
### Execution Models

- Thermal Efficiency Model
- Route Optimization Model
- Excursion Risk Management Model

## Collaboration & Automation

### Improve

Translate signals into automated decisions



Integrated Workflow and SOP Automation



# Logistics Operations Performance Use Cases

Improve Shipments, Carriers & Route Stability through Real-time Predictive Capabilities

## USE CASE 1

Track location and condition of In-transit products, packages, pallets and containers to determine OTIF Risk

KPI: **OTIF**

## USE CASE 2

Predict Real-Time Thermal Charge of a cold-chain enabled package and compare with projected ETA

KPI: **Condition Excursions**

## USE CASE 3

Project Route/Lane reliability and Carrier Performance to make better Shipping/Expedite decisions

KPI: **OTD, Expedite Costs**

## Business Outcomes



Improve ATP Confidence



Improve Schedule Optimization



Improve Route/Lane Reliability



Improve Carrier Performance



Optimize Freight Pay & Audit



Lower OTIF Risk

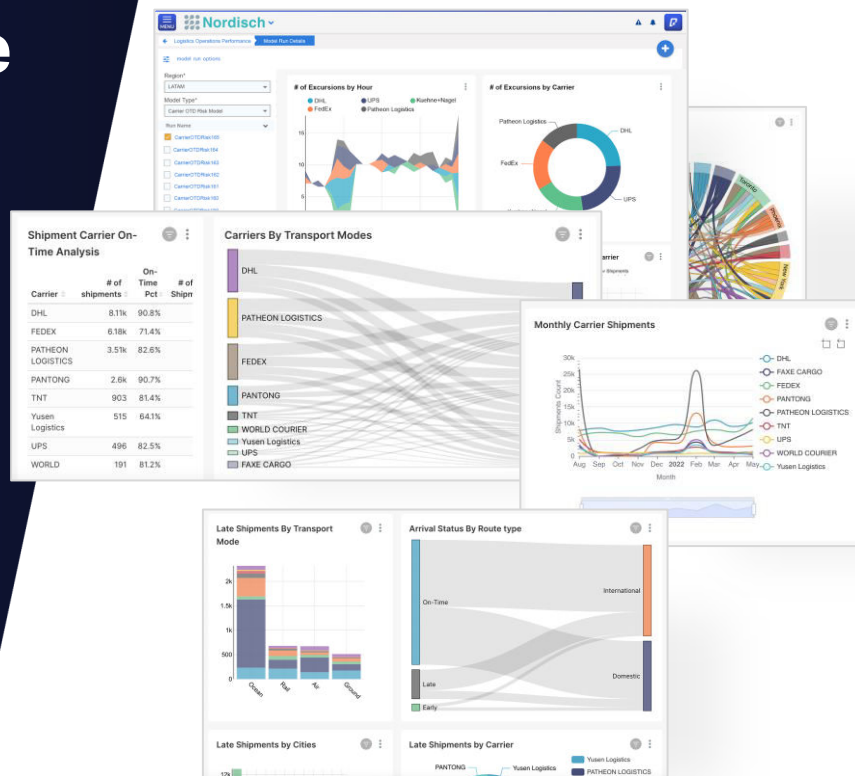


Lower Product Condition Risk



Lower Expedited Shipping Costs

Improve Shipments, Carriers & Route Stability



✓  
Improve  
ATP Variance  
by **20%**

✓  
Lower OTIF  
Risk by  
**8%**

✓  
Improve Freight  
Cost  
Optimization by  
**15%**

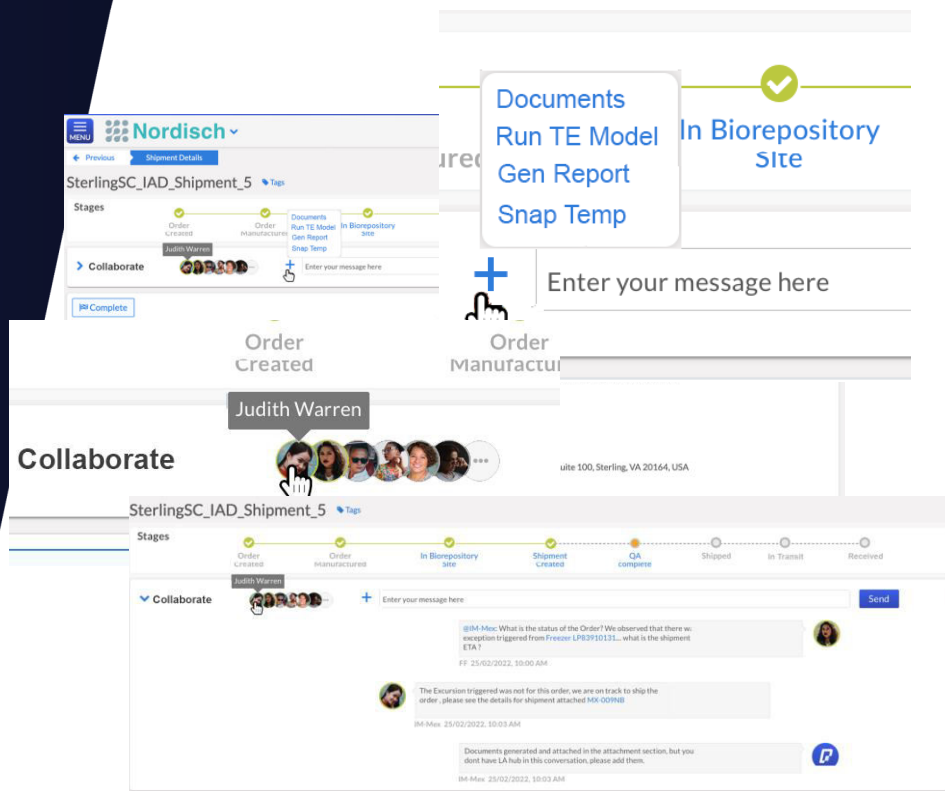
Product Condition Predictability  
**>99 %**

✓  
Improve Route Reliability by  
**10%**

✓ Lower Expedited Shipments by **12%**

# Logistics Intelligence

Reduce friction in workflows and increase SOP automation through Advanced Collaboration



- Pan-Organization Collaboration
- Programmable Stages
- Programmable Actions
- Single source of truth
- Flexible workflows

# Customer Experience with ParkourSC Platform Adoption

## Coverage in Numbers

**1.2M+**  
shipments on platform

grew from volume of **400,000 at start**

**100+**  
Global Thermo Fisher sites

mapped on platform

## Global Shipments

**98% Carrier Coverage**

all major integrators and all major specialty couriers have been integrated to provide milestone tracking updates

**6 active sensor devices**

have been onboarded

## Key Service Focus Areas:

- ✓ Direct to Patient Trials
  - Depot to patient
  - Pharmacy to patient
  - Clinical Site to Patient

APRIL 26, 2023

# Thank You

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# Advanced analytics and predictive modeling in pharma supply chain

Global Pharma Supply Chain & Logistics Forum

19-20<sup>th</sup> Oct 2023, Berlin

**Aliz Cser**

Supply Chain Performance Management Analyst

Global Supply Chain Excellence





# Our History 1781 – 1979



**1781**

## COMPANY FOUNDED

Chobei Takeda I sets up his business in Osaka

**1871**

## INTERNATIONAL TRADE

Takeda pioneers in the importation of western medicines

**1895**

## PRODUCTION

Pharmaceutical manufacturing begins in Takeda's factory

**1915**

## OSAKA FACTORY

Opens as "Takeda Pharmaceutical Manufacturing Plant"

**1946**

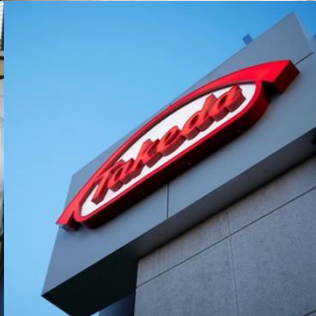
## HIKARI FACTORY

Opens in Yamaguchi prefecture

**1951**

## INTERNATIONAL BUSINESS

Starts with North and Central America and Asia



**2008**

## MILLENNIUM PHARMACEUTICALS

acquisition enhances innovation in oncology

**2011**

## NYCOMED AQUISITION

expands Takeda's global footprint into more than 70 countries worldwide

**2018**

## NEW YORK STOCK EXCHANGE LISTING

The only pharmaceutical company listed on both the TSE and the NYSE

## SHONAN HEALTH INNOVATION PARK

opens as the first pharma-led open innovation ecosystem in Japan

## TAKEDA GLOBAL HEADQUARTERS

opens in Tokyo, providing an environment that supports diverse workstyles

**2019**

## SHIRE ACQUISITION

makes Takeda a global biopharmaceutical leader with a presence in approximately 80 countries



# Takeda's Corporate Philosophy



PURPOSE	Better Health for People, Brighter Future for the World
VISION	Discover and deliver life-transforming treatments, guided by our commitment to patients, our people and the planet
VALUES	Patient-Trust-Reputation-Business, in that order Our values of Takeda-ism incorporate Integrity, Fairness, Honesty, and Perseverance, with Integrity at the core. We bring our values of Takeda-ism to life through actions based on Patient-Trust-Reputation-Business, in that order, symbolized by the four waterfalls.

IMPERATIVES		
<b>PATIENT</b> Responsibly translate science into highly innovative, life-changing medicines and vaccines. Accelerate access to improve lives worldwide.	<b>PEOPLE</b> Create an exceptional people experience.	<b>PLANET</b> Protect our planet.
<b>DATA AND DIGITAL</b> Unleash the power of data and digital.		



# R&D Focus & Engine



We are a patient driven, science first R&D organization. We combine our focus on core therapeutic areas with cutting edge technology. We work across four innovative biopharma areas and two business priorities.

## Innovative Biopharma



ONCOLOGY



RARE DISEASES



NEUROSCIENCE



GASTROINTESTINAL  
& INFLAMMATION



PLASMA-DERIVED  
THERAPIES  
IMMUNOLOGY



VACCINES



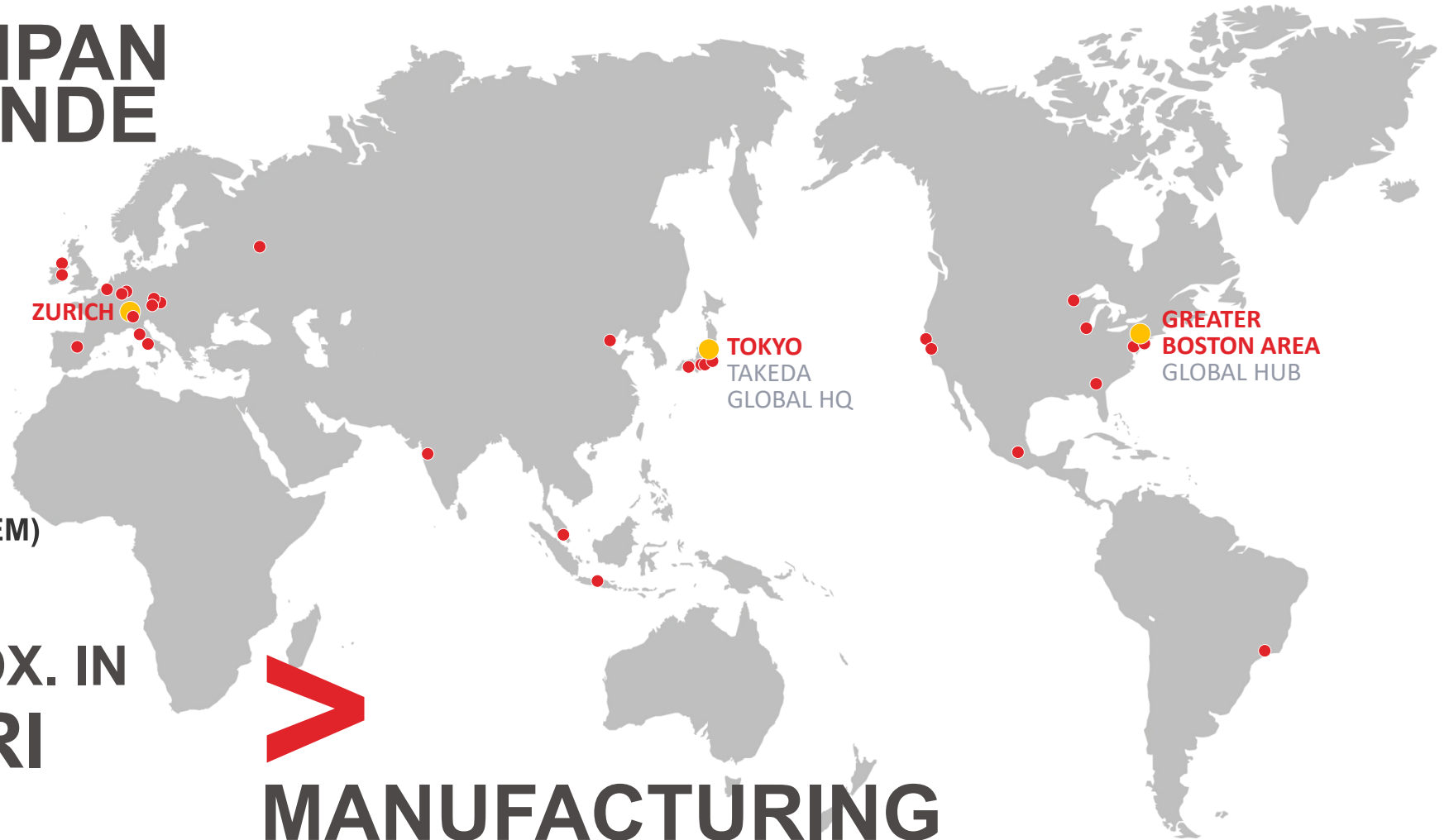
**1781** COMPANIES  
FOUNDED

OPERATE FROM  
**5** REGIONS

- Japan
- U.S.A.
- Europe & Canada (EUCAN)
- Growth & Emerging Markets (GEM)
- China

PRESENCE: APPROX. IN  
**80** COUNTRIES

**>**  
MANUFACTURING  
SITES

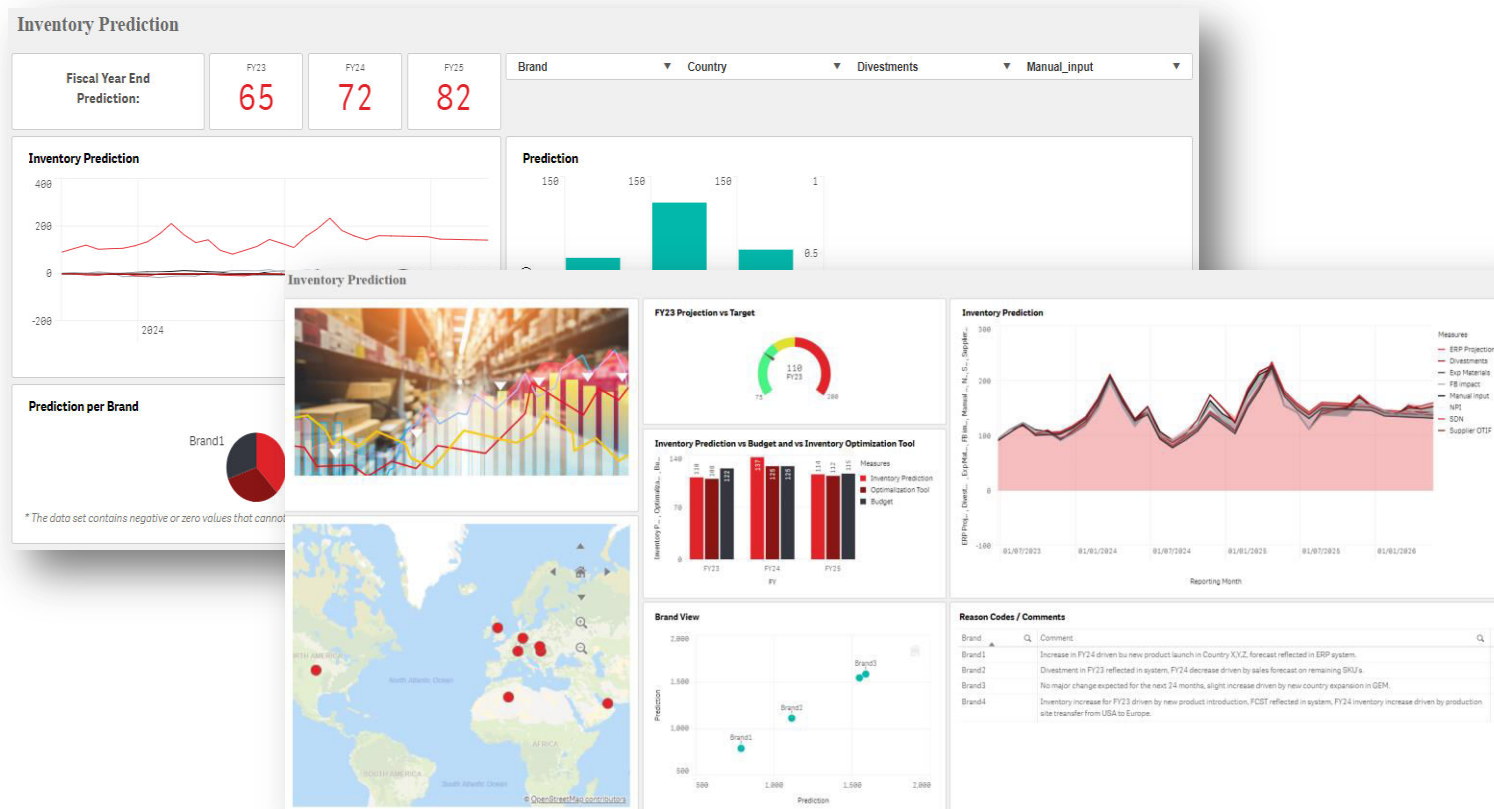


# Global Takeda Inventory Performance Management journey



\*KPI – Key Performance Indicator  
ERP – Enterprise Resource Planning  
OPU – Operating Unit (e.g. Division)

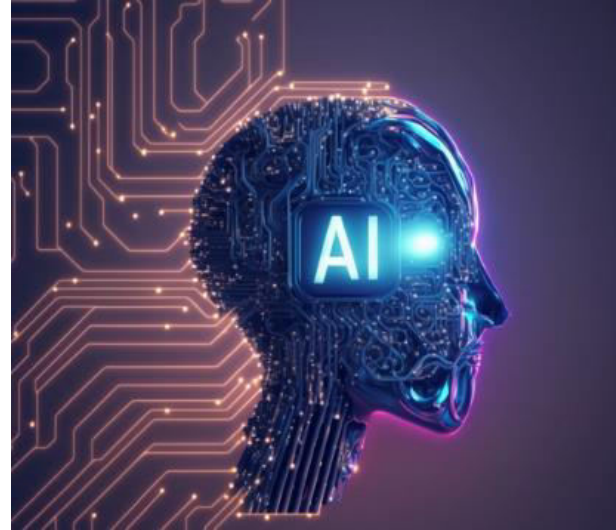
# Forward looking approach – Inventory Prediction Mockup



## Value proposition:

- Used by Supply Chain and Finance community
- Performance dialogues with Operating Units and Regions
- Year End planning, Financial planning
- Identify opportunities for inventory optimization
- Warehouse capacity planning
- Manufacturing capacity planning
- Future alerts , inventory ageing and slow movers projection

# Forward looking approach – Inventory Prediction Data Processing



ERP\* + Planning system  
Projection  
KPI\* correlation elements  
(FA,FB\*, production yield...)  
Financial journeys  
Manual adjustments

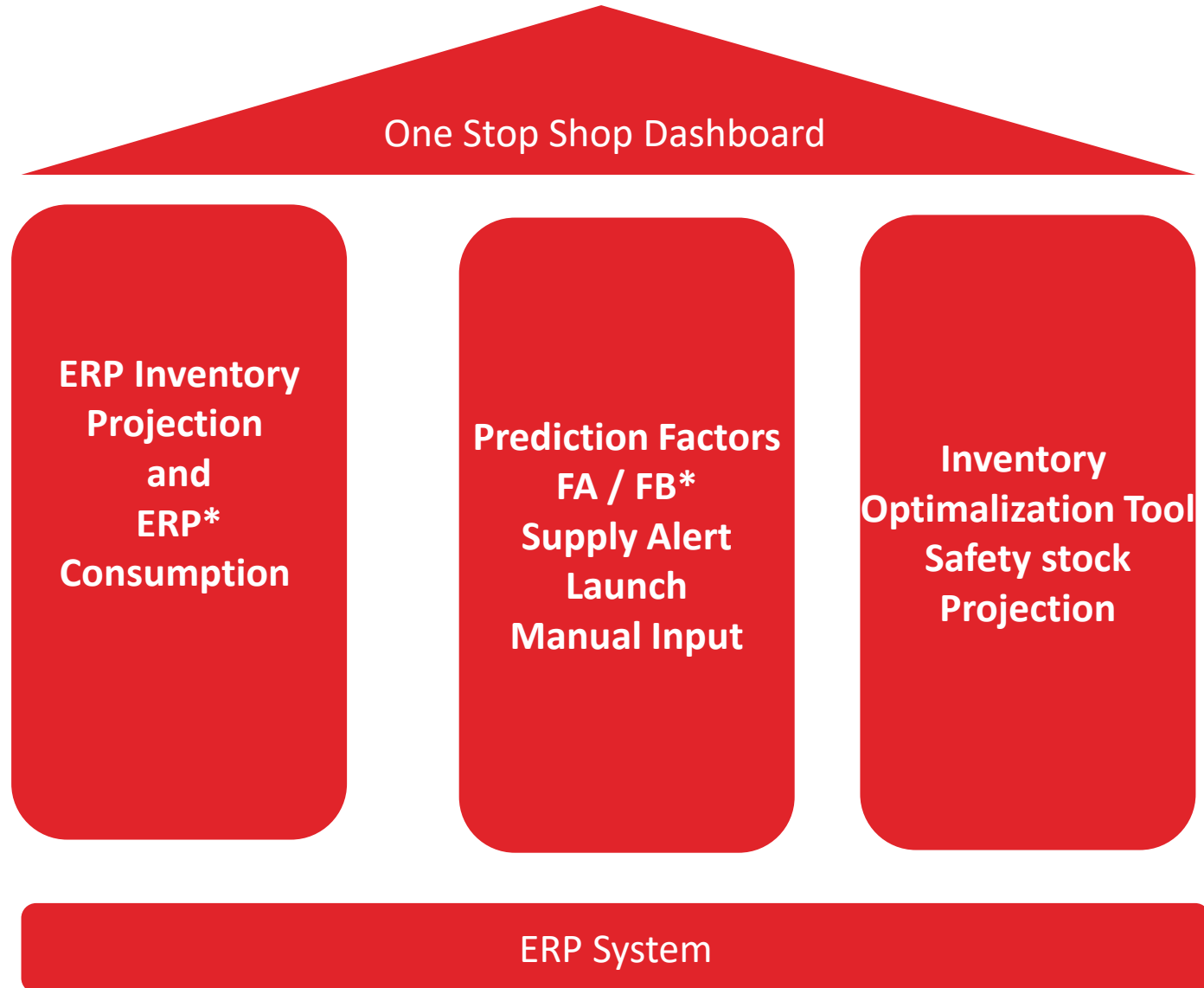
Artificial Intelligence Tool  
Outcome: Based on best model  
Inventory Prediction  
Outcome -> compare with  
Budget / multi-echelon  
inventory optimization tool  
result

Visualization  
Compare with Budget / multi-  
echelon inventory  
optimization tool result

\*ERP – Enterprise Resource Planning  
KPI – Key Performance Indicator  
FA – Forecast Accuracy / FB – Forecast Bias



# Forward looking approach - Takeda Inventory Projection Footprint



- Automated data flow
- Data available for everyone
- More data granularity
- Monthly Performance Dialogues to understand trends
- Secondary KPI tracking

\*ERP – Enterprise Resource Planning

FA – Forecast Accuracy / FB – Forecast Bias

# Forward looking approach – Inventory Prediction



## Challenges...

- Data consistency: different key figures in planning system, the business process not always aligned
- Communication: if they change something in process, lack of communication
- Data architecture, connection establishment
- Planning levels in planning system (material type / Bill Of Material)
- Organizational challenges, change management

## ... vs Opportunities.....

- External Artificial Intelligence tool
- Unlimited further used cases
- Supply Chain Planning, Manufacturing capacity planning, Procurement, Warehouse Management, Transportation planning
- Financial planning: MRP planning, Year end closing, Budget planning



THANK YOU!