

Innovations and Success Stories in Logistics, Supply Chain Management and Supporting Technologies



Dan Miller

**Supply Chain COE/
Solution Architect,
SAP**



Dominik Metzger

**Managing Director,
Westernacher**



LTC Courtney Abraham

**USA Secretary of Defense
Executive Fellow, SAP**



Embrace Complexity in Modern Supply Chains and turn it to your advantage with the SAP Digital Supply Chain



Supply Chain Technology Within the Fourth Industrial Revolution

- Additive Distributed Manufacturing and How It Will Change The Supply Chain
- Multi-echelon Enterprise Wide Inventory Optimization Can Deliver Higher Combat Readiness
- Multi-tier Supply Chain Visibility to Know Where Your Stuff Is
- Responsive Order Fulfillment to Meet Mission Critical Demand



Introduction

Westernacher & Partner Consulting Inc.



Deliver end-to-end value through process and technology consulting plus a range of other innovative services.

Pioneers and experts in emerging technologies and applications.

- Founded in 1969 in Germany
- Global HQ in Heidelberg DE, USA HQ in Boston, MA
- 600+ Consultants worldwide

EMEA

Germany, Austria, Switzerland, United Kingdom, Poland, Bulgaria, Belgium, Spain, UAE

AMERICAS

United States, Mexico, Canada

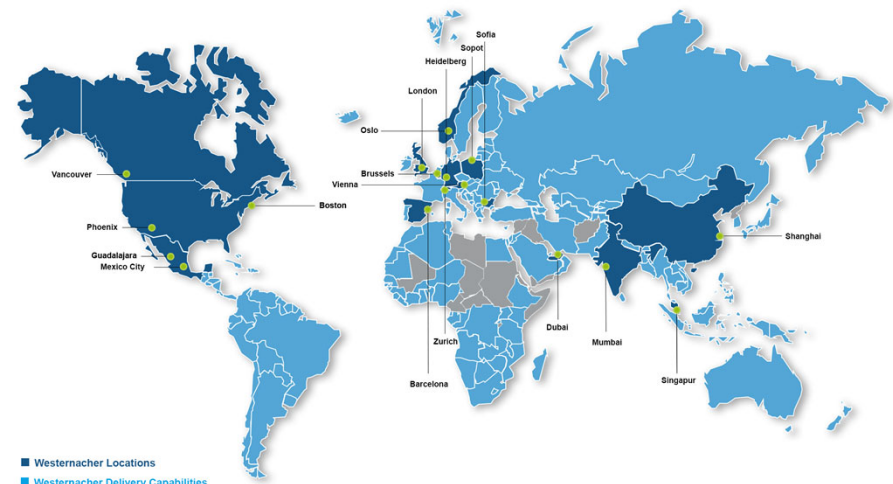
ASIA PACIFIC

China, India, Singapore

Dominik Metzger, Managing Director

Dominik is a Managing Director of Westernacher Consulting based out of New York City. He started his career at SAP in 2007 where he worked in different roles across Product Management and Consulting in the SAP Supply Chain space. For the past 4 years, Dominik has been leading different consulting practices at Westernacher and has been deeply involved in customer transformation programs, especially with Transportation Management, Extended Warehouse Management as well as SAP Supply Chain Planning Solutions. During his +11 years of professional experience, Dominik has acquired deep know-how in various industries, such as Ocean Carriers, 3PLs, Manufacturing, Chemicals and the Retail / CPG Industry.

- ❑ 600+ Consultants worldwide
- ❑ 80+ Consultants, North America
- ❑ 25+ Consultants, Mexico
- ❑ 100% Employee owned





Dan Miller **Solution Architect, SAP SCM Center of Excellence**



Dan Miller is a Solution Architect in SAP America's Supply Chain Center of Excellence. Dan has 23 years of experience in manufacturing and information technology in a variety of roles from manufacturing engineering to IT program management for global firms with complex supply chains. Prior to joining SAP 14 years ago Dan was a project manager in the Automotive industry on global SAP deployments and maintenance management system rollouts.

As an SAP program manager and Solution Architect he has helped firms develop and implement solution roadmaps to address a variety of business needs including but not limited to reducing inventory, improving forecasting, increasing collaboration, and expediting international trade. His delivery of major SAP implementations for Manufacturing firms in High Tech and Industrial Machinery are noteworthy for simplification of project plans and efficient delivery.

Prior to his retirement from the Naval Reserve in 2017 he served in a variety of billets being called to active duty numerous times, including service as a logistics planner for the Ebola Task Force as well as counter-terrorism operations.

Dan holds a Bachelor's Degree from the U.S. Naval Academy in Annapolis and a MBA from the University of Michigan. His combination of skills and experience enable him to help businesses and government understand how SAP's supply chain solutions can help address business and operational problems.

Supply Chain Technology Within the Fourth Industrial Revolution

Additive Distributed Manufacturing and how it will change the supply chain

1. CA: 3D printing technology has advanced rapidly enabling faster cheaper production of more complex parts.
2. To Dan: How could this be deployed to simplify spare parts forecasting?
3. Follow up to Dan: What considerations need to be evaluated to select the right supply plan for each part?
4. To Dominik: What is your perspective?
5. Dominik leads in directly to Inventory Optimization

Multi-echelon enterprise wide inventory optimization can deliver higher combat readiness

1. Follow-Up to Dominik: What are the Key Objectives of Inventory planning?
2. To Dominik: What are the key principles to deploy an inventory optimization solution and improve service levels without increasing cost?
3. CA to Dan: How does Inventory Optimization for commercial 'enterprises' relate to the perspective of the DOD?
4. Conclude with Dan: What organizational and policy changes are required in traditional military planning to take advantage of these planning algorithms?

Supply Chain Technology Within the Fourth Industrial Revolution

Multi-tier supply chain visibility

1. CA: In a more connected world we are seeing people, companies and organizations connect directly with each other in real time.
2. To Dan: How do you see the military taking advantage of this to connect the entire supply chain and get everyone on the same page in real-time
3. To Dominik: What is your perspective on this?

Responsive order fulfillment

1. CA: In the last ten years we've seen companies like Amazon changing the retail industry and driving order fulfillment times down drastically.
2. Question to Dominik: How do you see the military adopting best practices from the commercial world to take advantage of connected systems and improve order fulfillment?
3. To Dan: What is your perspective on this?

Distributed & Additive Manufacturing

Convert Slow Moving Spare Parts into 3D Printable Virtual Inventory

Minimize Downtime by Providing Critical Parts as 3D Printable Parts



Challenge

- 64K (89% of SKU) Are Slow Moving Spare Parts worth billions of dollars (parts + inventory carrying cost)
- Spare parts stored across remote warehouses and distribution centers
- Too much effort required to manage bottom 5% of sales
- Managing these slow moving service parts are too costly - fees, price premium, MOQ, sub, rework, deviation, supplier transition, shipping cost

Resolution

Parts Assessment and Analysis

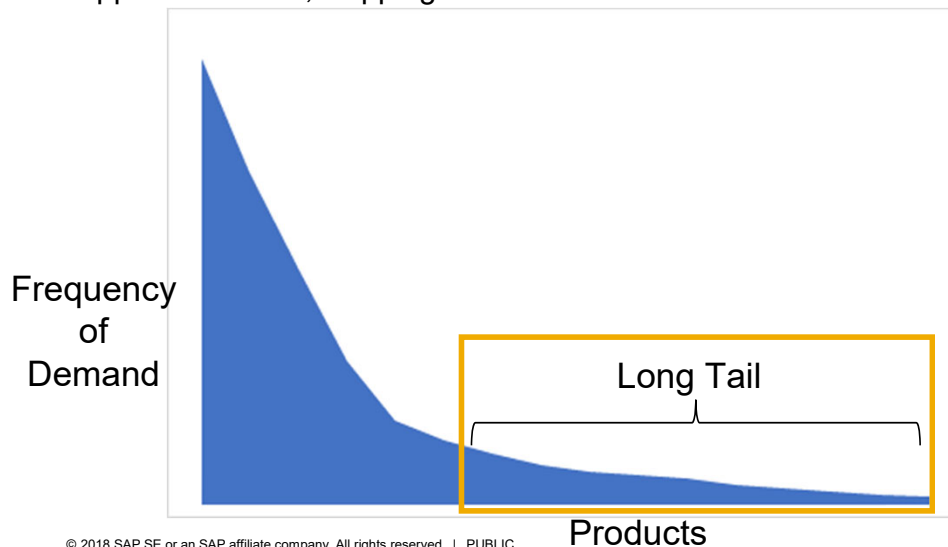
- Identify candidate parts for 3D printing based on supply chain metrics (lead-time, MOQ, usage volume, price, dimension, remaining year of service, material, material cost per weight)
- Assess technical feasibility to print selected parts
- Total cost analysis to make a decision to convert to 3D Printing

Virtual Inventory

- Approve the quality of the parts and convert to virtual catalogue

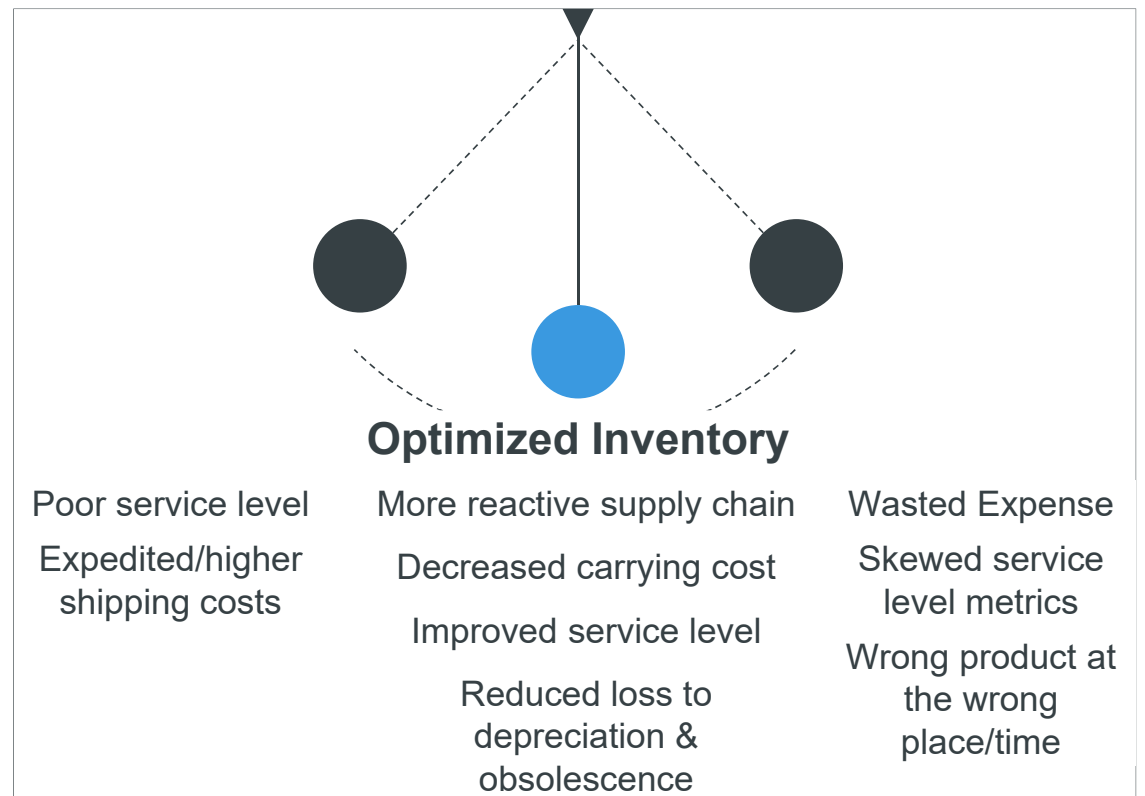
Temporary Emergency Parts via 3D Printing

- Convert high frequency critical parts to 3D printable parts and offer as temporary parts
- Reduce downtime at deployed units and shop floor, temporary parts are printed close to the customer and delivered in days



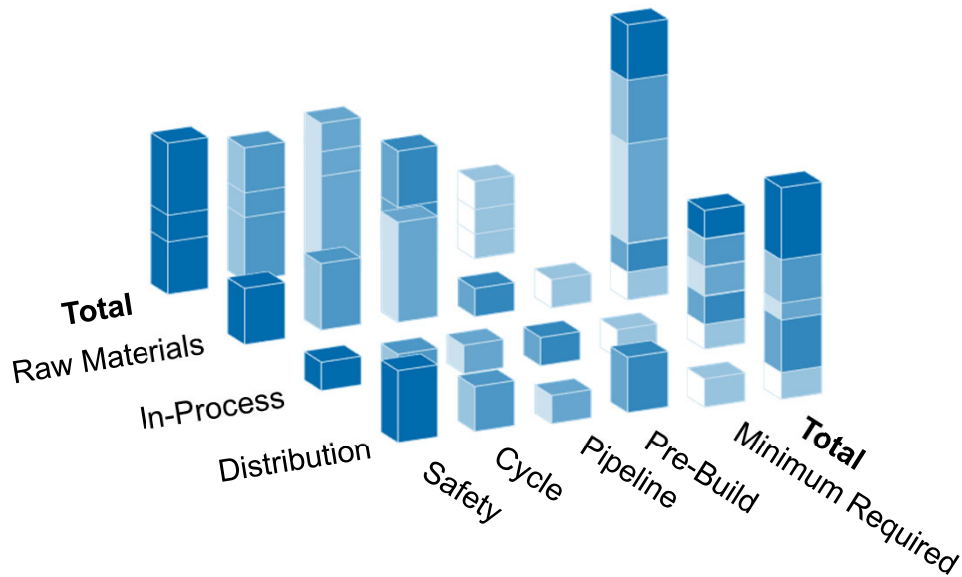
Objectives of Inventory Planning

It is all about balancing. Finding the right amount of inventory is critical to any supply chain. The objective of inventory planning is to lower stocking levels and to free-up working capital while maintaining or exceeding the stated service or readiness level.

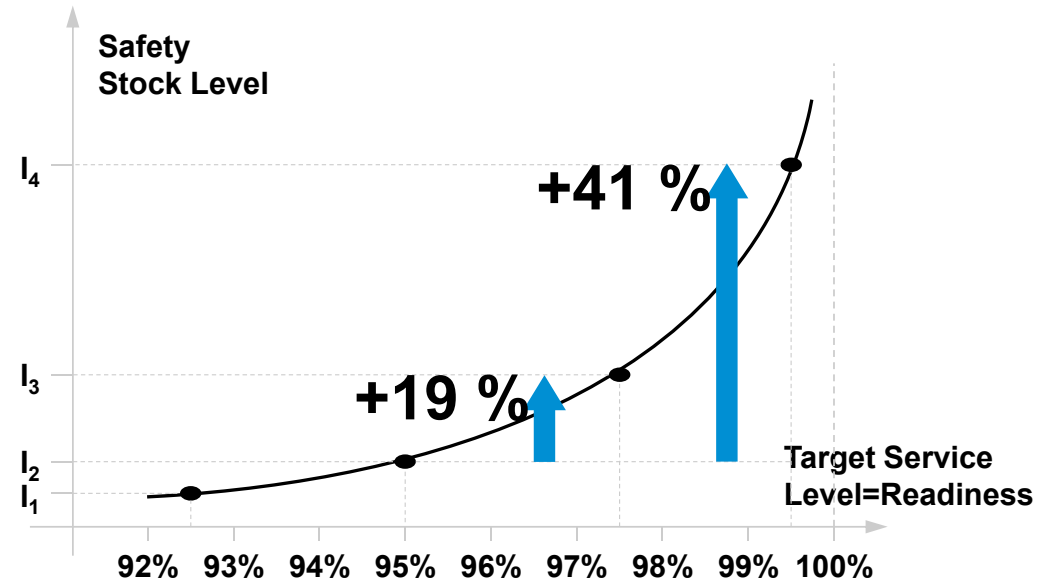


Key Principles to Deploy

1. Know how your Inventory is composed



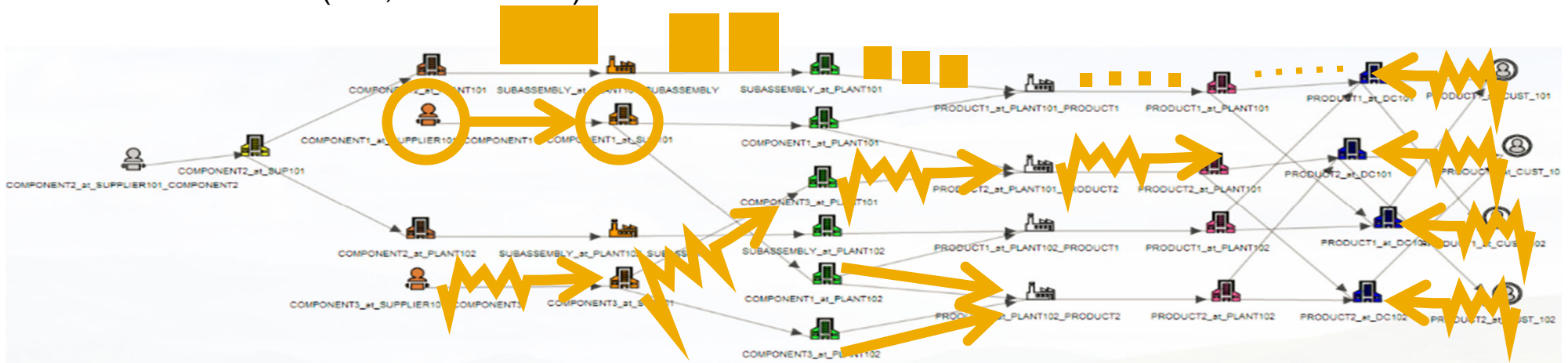
2. Find the right balance



Enterprise Wide Inventory Optimization

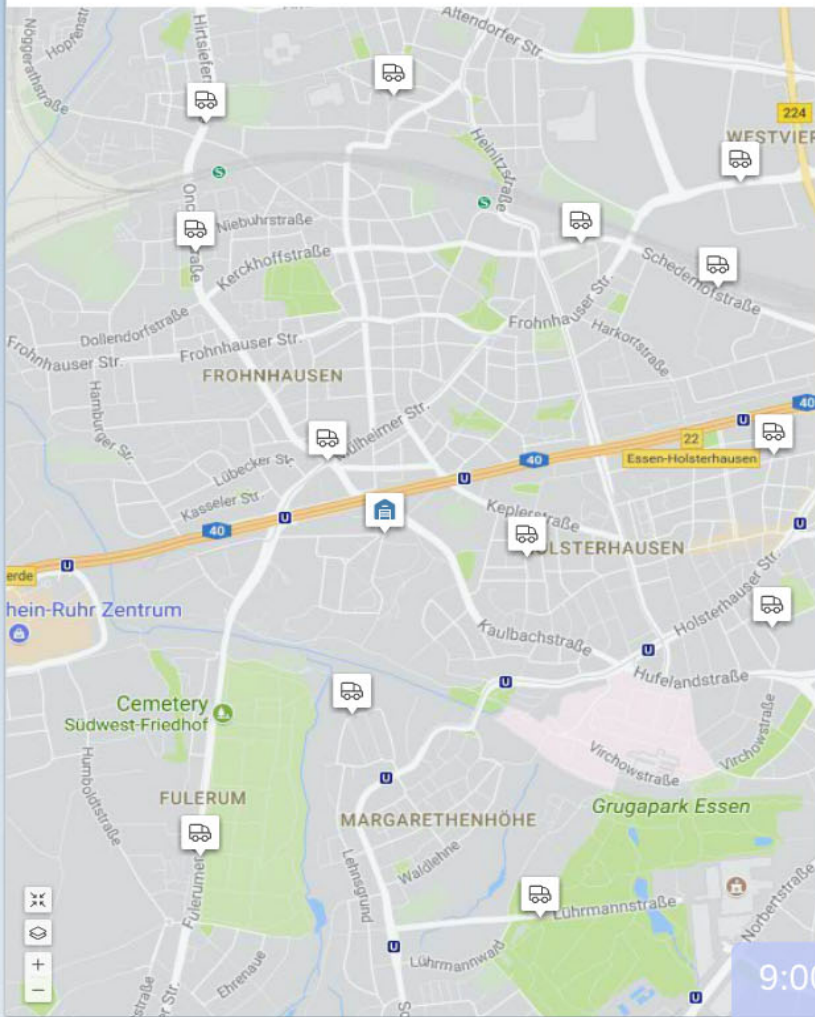
Factors handled by IBP for inventory to calculate optimal inventory (safety stock) distribution

- Supply-chain build: items, locations, sourcing, lead times, BOM, item costs, carrying costs, customer-facing service level
- Demand and demand uncertainty, propagated up in the supply chain
- Supply timing and supply timing uncertainty
- Batch sizes (min, incremental)



In-Transit Shipments

13 Shipments

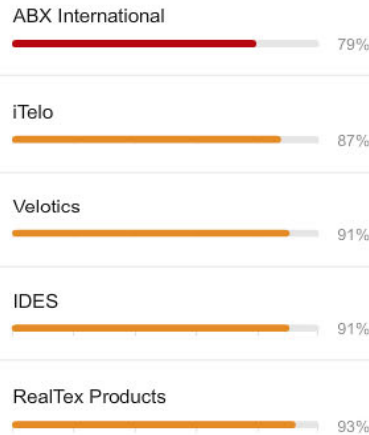


Delivery Accuracy

All Customers



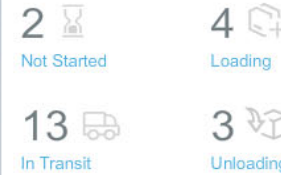
Customer Watchlist



Today's Shipments

24 Total

By Transportation Status



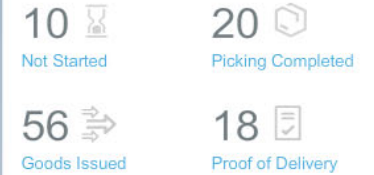
By Delivery Status



Today's Deliveries

104 Total

By Shipping Status



By Delivery Status



By Customer 4 of 35

Customer	Address	0 Delayed	In Transit	Delivered
ACME	Schnutenhausstraße 9, 45136 Essen, Germany	0	4	4
iTelo	Niederdingstraße 22, 45147 Essen, Germany	0	2	2
Velotics	In der Hagenbeck 33, 45143 Essen, Germany	0	4	5
ABX International	Hans-Böckler-Straße 80, 45127 Essen, Germany	0	3	7

9:00 AM

Vibration Anomaly?
Goods in transit approaching vibration threshold of 20Hz

Deliveries
Total deliveries this week 5% above weekly average.

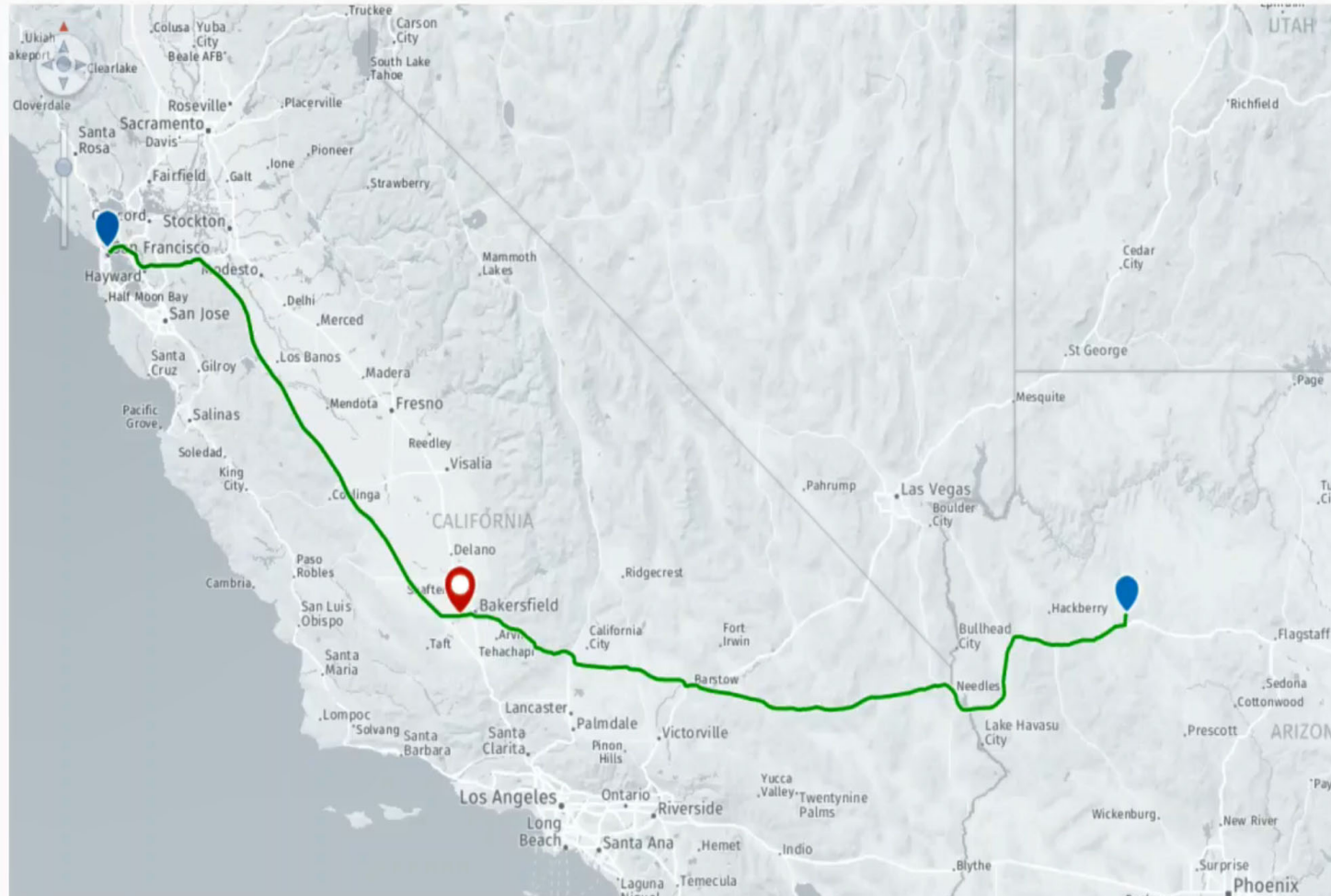
Perfect Order Fulfillment
Value improved 3% compared to same period last year.

HIDE


4500000041

Refresh ↻




Business Process ▾ IoT Realtime Monitor Map



Realtime Sensor Data

Shock Level 
low

Temperature 
24.0

Tilt 
107.6 
6.7 

 31/08/17 10:40:24 Shock sensor
Low Shock Threshold Exceeded.



Supply chain collaboration dashboard for proactive exception management

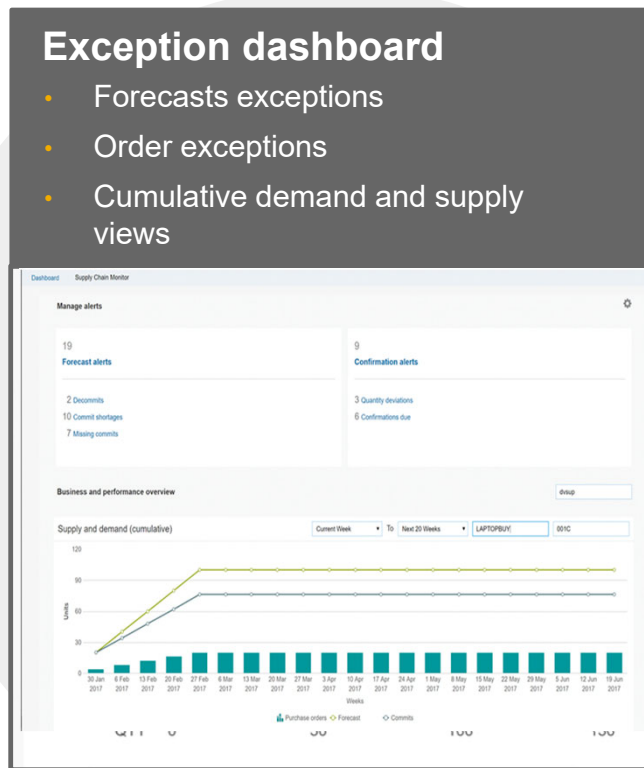
Buyer

Forecast/demand

Order/subcontract
PO

Change order

Goods receipt
notice



Trading partner

Forecast commit

PO confirmation

Change order
confirmation

Advance ship
notice

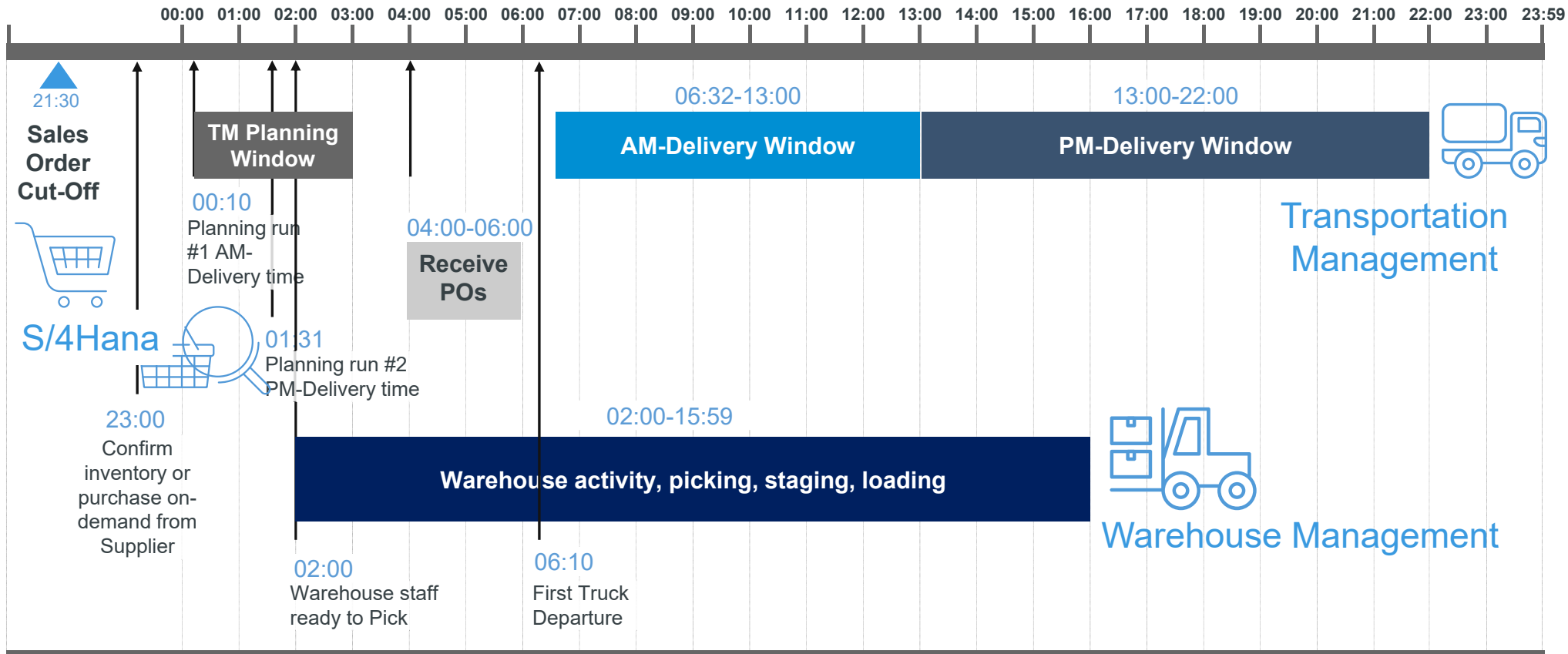
Capabilities

- Proactive exception alerts flagging potential issues
- Configurable intercompany business rules
- Aggregation of key supplier and supply chain intelligence

Benefits

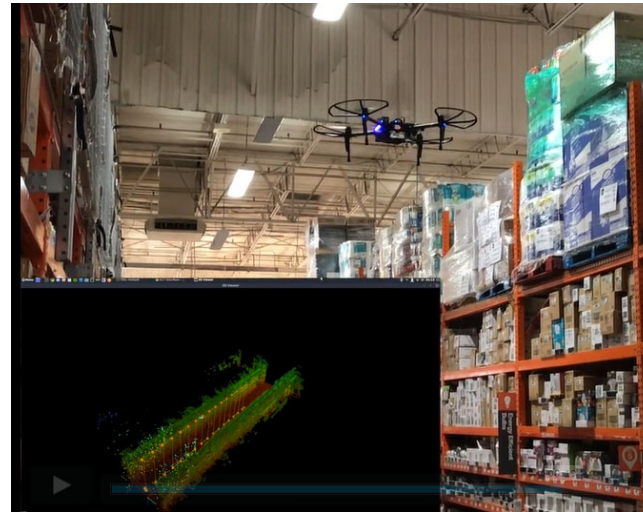
- Obtain real-time status information
- Measure trading partner performance
- Prevent potential supply chain disruptions

Responsive Order Fulfilment



SAP Investments in Leading Technology

- Technology to enable and manage autonomous devices in a heterogenous environments
- Indoor navigation using a vision system without GPS that measures heading, speed, and acceleration to determine location 50 times per second
- Integration to vehicle operating data for device management and compliance
- Augmented Reality for Warehouse Picking provides Heads-up display for safety and efficiency



Blockchain ✓
Digitalization ✓
➤ no paper
➤ no physical move of originals ✗
Trust / Security ✓
➤ tamper-proof
➤ no fraud
Efficiency Gain ✓