The Future of Track and Trace in a Digitalized World

Petra Diessner, SAP
Optimize customer service levels and track inventory from end to end with cloud-based, multitier logistics network capabilities. See how SAP Global Track and Trace complements and extends our existing on-premise solution portfolio for track and trace. Big Data architecture and easy onboarding and offboarding of business partners supports efficient decision making and business partner communication.
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The business need for track and trace
The challenge: Supply chain risk has increased tremendously – the imperative for track and trace.

Supply chain disruptions have a negative impact on the

**shareholder value** and **reputation** of a brand owner, regardless of the culprit: the *brand owner is always held responsible.*

Global supply chain disruption cost

$56 bn in 2015.

72% of suppliers that have dealt with a breakdown in their supply chains have lacked the full visibility needed to come up with a fast and simple solution.

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1 “From vulnerable to valuable – how integrity can transform a supply chain,” PricewaterhouseCoopers

2 Research from the British Standards Institute

3 Study by the Business Continuity Institute
The opportunity: The world is increasingly digital and networked.

By 2020

9 billion
mobile users in the world¹

End of 2020

212 billion
“things” will be connected.²

As digitalization continues to modify the global supply chain landscape, its unprecedented data sources and solutions will lead not only to the demise of disparate information systems but also to the rise of true end-to-end supply chain visibility.³

¹ Statista, 2014.
² Cisco Global Cloud Index: Forecast and Methodology 2014–2019, April 21, 2016
³ Supply Chain Visibility: A Precursor to Insight and Optimization, April 2016
SAP’s track and trace mission – supporting our customers in running a Live Business

Offer holistic tracking and traceability, covering the complete value chain, to establish full visibility and built-in compliance for **inventory and products** in our customers’ complex supply chains

Since 2001

- Business process tracking and visibility for goods and assets in transit
  - **SAP Event Management**

Since 2007/2015

- Comply with serialization directives (tobacco, agriculture, explosives, and life sciences) and provide product lifecycle intelligence
  - **SAP object event repository, SAP Auto-ID Infrastructure, SAP Advanced Track and Trace for Pharmaceuticals**

Since 2012

- Trace product batch genealogy
  - **SAP Global Batch Traceability**

On premise and on SAP HANA Enterprise Cloud | SAP S/4HANA sidecar certified (*planned)
How track and trace from SAP already supports customers in their digitalization journey

Life sciences, consumer products (CP):
*Condition monitoring* to assure product quality

Retail, CP:
*Geotracking* to allow for best-possible customer service

Automotive, high tech:
*Automation* through bar code and RFID to reduce efforts and errors

Leveraging the respective application’s (basic) IoT capabilities *OR* IoT services within SAP Leonardo IoT Foundation
Current trends in the track and trace space
Trends in the track and trace space

- Internet of Things (IoT)
- Exploding data volumes
- Scalable on-demand offering
- Machine learning, blockchain
- Business network support
- Multitier visibility
- Enticing experience, real time
SAP Leonardo – digital innovation system

- Breakthrough technologies integrated on SAP Cloud Platform
- User-centered design thinking
- Accelerators comprising software and services

- SAP Cloud Platform
- Internet of Things
- Machine learning
- Analytics
- Big Data
- Design thinking
- Blockchain
- Data intelligence
Characteristics of high-potential blockchain use cases

**Blockchain usage criteria**

- Multiparty scenario
- Participants as equal partners
- Shared repository
- Multiple writers
- Certain need for mutual control
- Intermediaries to be made obsolete
- Need for transparency
- Transfer of digital assets

**Food distribution** – authentication and record keeping ➤ permanent, tamper-proof record of every transaction along the way

**High-value items** – secure ledger to authenticate original versus counterfeit

[www.sap.com/blockchain](http://www.sap.com/blockchain)
Creating a trust chain with an irrefutable record of the material-to-product provenance

1. Crop protection used in a certain farm field
   - Material type/variety/grade
   - Harvest date
   - Farmer ID
   - From vendor to farm customer A

2. Harvest data:
   - Sustainability footprint and certified and checked free of child labor
   - Material name (GTIN)
   - Farmer ID/name
   - Farm field ID
   - Country of origin
   - From farmer A to trader A

3. From trader A to processor A
   - Commercial transaction only – no modification to material

4. From semifinished material processor A to finished food processor A
   - Relation of input material and their sustainability footprint to semifinished material genealogy

5. Finished food processor A to retailer A
   - Relation of input material and the sustainability footprint to finished product genealogy

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The business need for **track and trace**
The vision: leverage IoT for real-time insights into your extended supply chain – multitier, end-to-end

Connected IoT

- Devices and automation
- Products/cargo
- Transportation resources
- Onboard units
- Services

Cloud-based track and trace

- Events
- Status
- Location
- Condition

Visibility for customer and consumer

- Business partner onboarding

Multitier logistics network visibility
- Real-time inventory counting
- Food pedigree and safety
- Supply chain integrity
- Real-time planning
- Predictions

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Capture and share track and trace data across global sourcing, production and fulfillment networks with SAP Global Track and Trace

A cloud-based track and trace network service by SAP
Survey the timely execution of critical business processes and track goods and assets in transit with **SAP Global Track and Trace**
SAP Global Track and Trace

Onboard business partner ecosystem | Insights into overarching business processes

Digital core
SAP S/4 HANA, transportation management, third party

Solution owner

Supplier
Insights into outbound processes

Other solution participant

Customer
Insights into inbound processes

Logistics service provider
Insights into transportation execution

Global Track and Trace
Processes, assets, and goods – milestones and actual events

Real-time traffic and weather information, sensor and device data
Demo
SAP Global Track and Trace
Ready-to-run content: provide real-time delivery transparency in your extended supply chain

Provisioning and onboarding – master data: business partner

Can be complemented by shipment tracking on a project basis
## SAP Global Track and Trace

Ready-to-build: generic business process and object tracking – examples

### Parcel tracking

<table>
<thead>
<tr>
<th>Process</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Induction</td>
<td>🌐</td>
</tr>
<tr>
<td>Out for delivery</td>
<td>🚛</td>
</tr>
<tr>
<td>Departure</td>
<td>🚛</td>
</tr>
<tr>
<td>Hub</td>
<td>🚛</td>
</tr>
<tr>
<td>Last mile</td>
<td>🕒</td>
</tr>
</tbody>
</table>

**Processed**

**Arrival**

### Shipment execution

<table>
<thead>
<tr>
<th>Process</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading begin</td>
<td>🚛</td>
</tr>
<tr>
<td>Proof of pickup</td>
<td>🚛</td>
</tr>
<tr>
<td>Customs In</td>
<td>🚛</td>
</tr>
<tr>
<td>Arrival</td>
<td>🚛</td>
</tr>
<tr>
<td>Delay</td>
<td>🚛</td>
</tr>
<tr>
<td>Proof of delivery</td>
<td>🚛</td>
</tr>
<tr>
<td>Return empty container</td>
<td>🚛</td>
</tr>
</tbody>
</table>

**Carrier arrival**

**Loading end**

**Departure**

**Clear customs**

**Unloading**

### Provisioning and onboarding – master data: business partner

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SAP Global Track and Trace

**Setup**
- Onboard business partner ecosystem based on consolidated master data
- Integrate with business backend systems
- Activate and/or configure tracking scenarios

**Monitor**
- Capture business events from a variety of data sources across your business network in real time

**Notify**
- Be informed of deviations from the plan
- Get real-time status updates

**Adjust**
- Make informed and timely decisions
- Act on early notification of emerging threats
- Trigger business adjustments

**Analyze**
- Allow each stakeholder to access a personalized view of the tracked objects and processes
- Run reports

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- SAP back-end integration via SAP Event Management application interface
- Configuration editor
- Via OData interface or SAP Fiori app
- SAP Fiori app search via status
- Manual
- SAP Fiori app
SAP Global Track and Trace
Provide the right information to the right users at the right time

Personalized launchpad

Tracking details

Integration with collaboration workspace
SAP Global Track and Trace
Value drivers: instance-level and aggregated visibility on the go

Provide real-time insights to all relevant stakeholders for their specific business needs

Gain scalable performance and throughput on demand

Easily onboard and offboard business partners

Upload and consolidate master data

Cloud extension: SAP Global Track and Trace

Core business processes  
Analytics

Real-time data  
Historical data

On premise | Cloud | Hybrid

Enterprise digital core: SAP S/4HANA
SAP Global Track and Trace
Architecture

SAP IoT Application Enablement
SAP Cloud Platform Integration
Integration with SAP and third party

User access and collaboration

SAP Cloud Platform

SAP Leonardo IoT Foundation

IoT services from SAP

Bucket A | Bucket B | ....

Thing connectivity

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Current capabilities and road map

Available today
- Delivery tracking
- Shipment tracking

Coming soon – ordering across the network
- Extended scenarios for business process tracking
  - Purchase order tracking
  - Sales order fulfillment tracking
  - Different network party views

Road map
- IoT capabilities
- Object tracking
- Product genealogy
- Generic and industry networks
  - Farm-to-consumer value chain track and trace

Subject to change
SAP Global Track and Trace
Business benefits

- Improve customer service through better reliability and real-time insights
- Reduce supply chain costs by easing collaboration and avoiding costly firefighting
- Enable event-driven operations based on operational and aggregated insights into supply chain conditions
- Protect and differentiate brand with the help of value-add services
- Support regulatory compliance and sustainability efforts based on collating necessary data
Where to find more information

Early adopter registration
https://influence.sap.com/sapglobaltrackandtrace

Help
https://help.sap.com/viewer/p/sap_global_track_and_trace

SAP Solution Explorer
https://solutionexplorer.sap.com/solexp/ui/vlm/default/vlm/def
ault-lob-99/default-bpr-259,default-e2e-1128,default-ist-3126

SAP.com
coming soon
Thank you.

Contact information:

**Petra Diessner**
Solution Owner Track and Trace, IoT and Digital Supply Chain SAP SE
petra.diessner@sap.com
LinkedIn