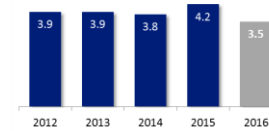




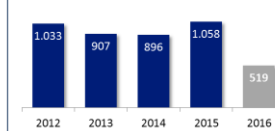
K+S: Supply Chain Optimization and ETA Prediction with Synfioo
July 11th 2017, SAP Leonardo Live

- K+S is an international resources company. We have been mining and processing mineral raw materials for more than 125 years.
- K+S is the world's largest salt producer and one of the top potash providers worldwide.
- The products we produce are used worldwide in agriculture, food and road safety and are important elements in numerous industrial processes.
- K+S has more than 14.000 employees worldwide.

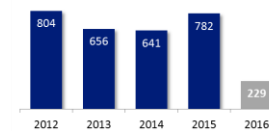
Revenues (€ billion)



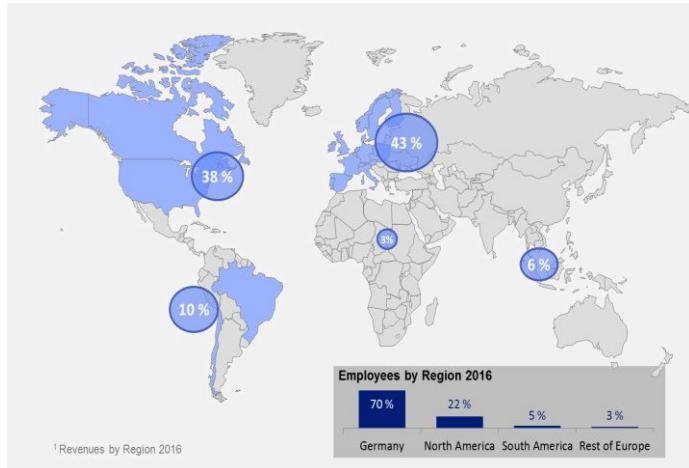
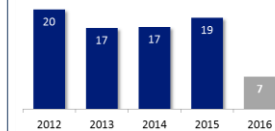
EBITDA (€ million)



EBIT I (€ million)



EBIT Margin (%)



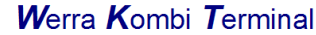


- Bulk terminal in port of Hamburg since 1926
- 405.000 mt storage capacity
- 4 million mt handled annually
- 45.000 containers loaded



Ein Produkt der K+S Transport GmbH

- Intermodal hinterland traffic to container terminals in Hamburg and Bremerhaven
- 36.000 containers, of which approx. 50% K+S



Betriebsgesellschaft mbH
Philippsthal

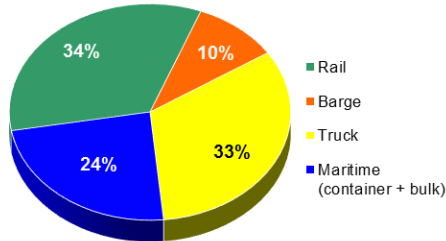
- From truck to rail
- 16.000 containers, of which approx. 50% K+S



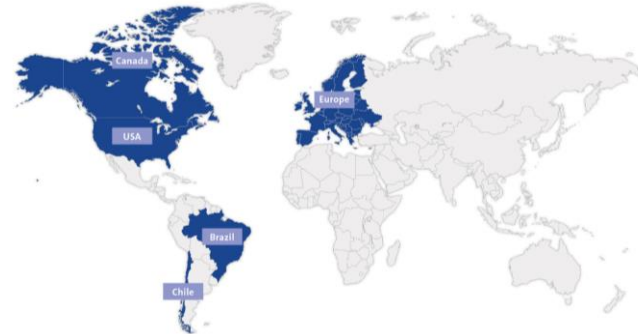
Börde Container Feeder GmbH

- Intermodal barge transports from Mittelland canal and river Elbe to Hamburg
- 35.000 containers, of which approx. 20% K+S

Modal Split Europe:

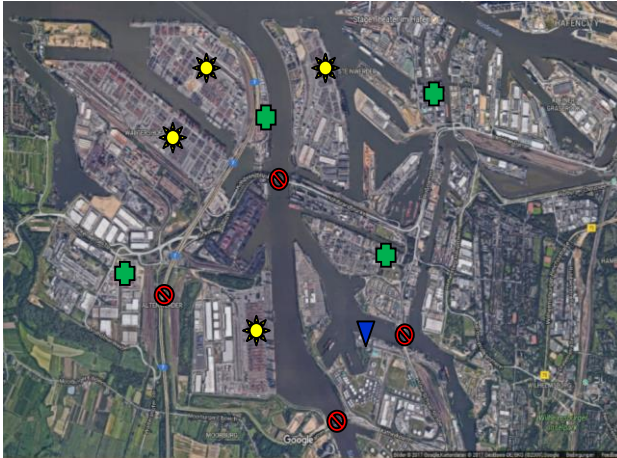


- We transport per year up to 25 million metric tonnes within and out of Europe.







- Worldwide we transport per year up to 60 million metric tonnes.

Port of Hamburg: K+S container traffic



source: google maps, 2017

-  container terminals
-  major container depots
-  major infrastructure bottlenecks
-  K+S bulk terminal

Achieve predictability and avoid cost through dynamic calculation of expected time of arrival:

- Tense traffic situation in metropolitan and port area of Hamburg
- Manage idle times for expensive longshore workers
- Today approx. 100.000 € avoidable idle time at K+S bulk terminal
- Knowledge of exact arrival time of trucks allows better employment of labour in terminal operations
- Knowledge of exact arrival time of trucks enables better preparation of terminal operations and shortens throughput times and truck waiting times (→ freight optimization)
- Avoid no-show fees, extra booking or documentation cost through immediate adaptation of booking order through change of number of containers in case of delays (empty container depots, container terminals, traffic)

Port of Hamburg: K+S container traffic



Achieve transparency, deliver extra services and avoid cost:

Terrestrial transport (from loading site to container terminal):

- Tracking empty container depots and container terminals
- Required notices transmitted properly (e.g. verified gross mass)

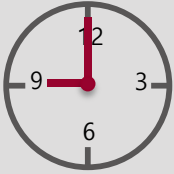
Maritime transport (from port of loading to port of discharge):

- Monitoring transit times and performance of carriers
- Inform customers as early as possible in case of late arrivals
- Avoid detention or demurrage cost for customer not picking up all containers

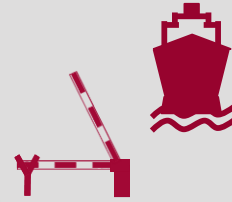
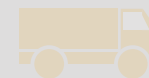
Outlook:

From use case to transparent and predicable supply chains

- Application for other modes of transport and other loading sites
- Track and trace vs. connect multi-modal and multiple SC participants
- Geofencing vs. short distances
- Advantage Synfioo



Problem: Transportation is subject to various **external disruptions**



Construction site



Traffic jam, waiting times



Drivers' resting times

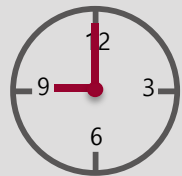


Missed cutoff time



Which transports are delayed
and require action?

the synfioo value



Precise **ETA Predictions**



Relevant **Action Alerts**



Dynamic **Decision Support**

Displayed in **your**
existing IT system



the synfioo benefits



+24% increase in **profits** due to better asset utilization



More **effective** management of the delivery time window

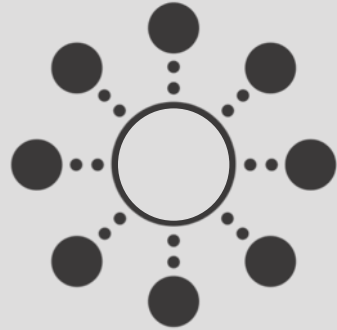


+20% increase in **productivity** for Transport Managers

the synfioo approach



Upload
transport
plan into
Synfioo cloud



Add data
from
external
sources



Predict ETA



Notify all
affected
stakeholders

the synfioo data science



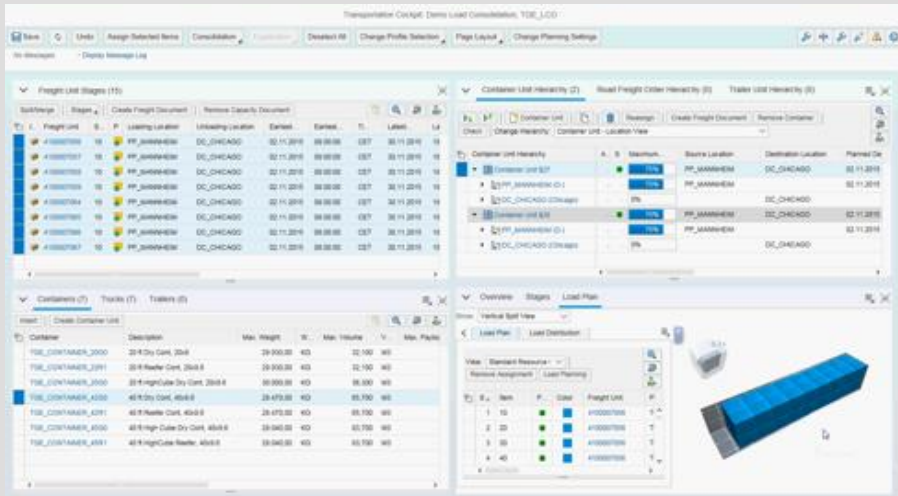
How Synfioo Predicts ETA



- **Harmonize** data sources
- Establish relevant **incident interdependencies**
- **Match data** to specific routes **by location and time**
- Analyze the **delay impact for each way point** along the transport chain
- Learn from existing data to improve predictions - **machine learning**
- Incident detection via fleet data, e.g. truck GPS - **crowdsourcing**

Synfioo – integrated in the SAP Transportation Management application

SAP Transportation Management (SAP TM)



- Freight Orders sent to Synfioo ETA service
- Synfioo provides in SAP TM:
 - Up-to-date **ETA predictions**
 - Specific **alert messages** incl. delay details
 - **Route alternatives**
- Synfioo enables **Management-by-Exception** of critical transports in SAP TM

Synfioo for K+S

Use Case: Worldwide Potash Transport

- Potash transported to Port of Hamburg „Kalikai“
- From „Kalikai“ transported worldwide by ship, connection routes by truck
- Synfioo monitors
 - the (physical) **transport chain** – departures, arrivals, delays
 - the (digital) **documentation chain** – e.g. VGM cutoff



Thank you.



Holger Seifart
Managing Director K+S Transport



Marian Pufahl
Managing Director Synfioo