



Your real-time visibility platform  
for intermodal supply chains



**SYNFI00**

# The Synfioo platform: Multi-modal Supply Chain Visibility & Precise ETA Predictions



## Process-ETA in Real-time

End-to-end coverage for estimated times of arrival of all shipments in the overall supply chain.



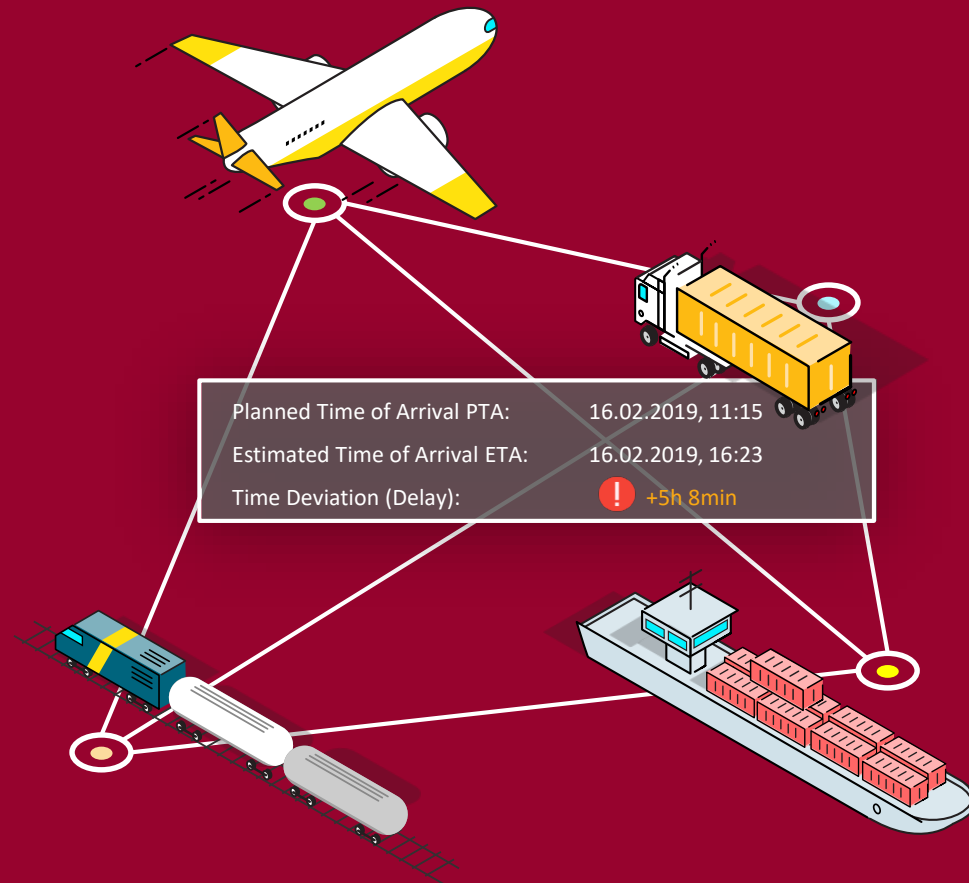
## Disruption Notifications

Faster tracking of issues and efficient management of delays to reduce business impact.



## Track&Trace

Stay informed on the ETAs for all your shipments in the overall supply chain and share the insights with your business partners.

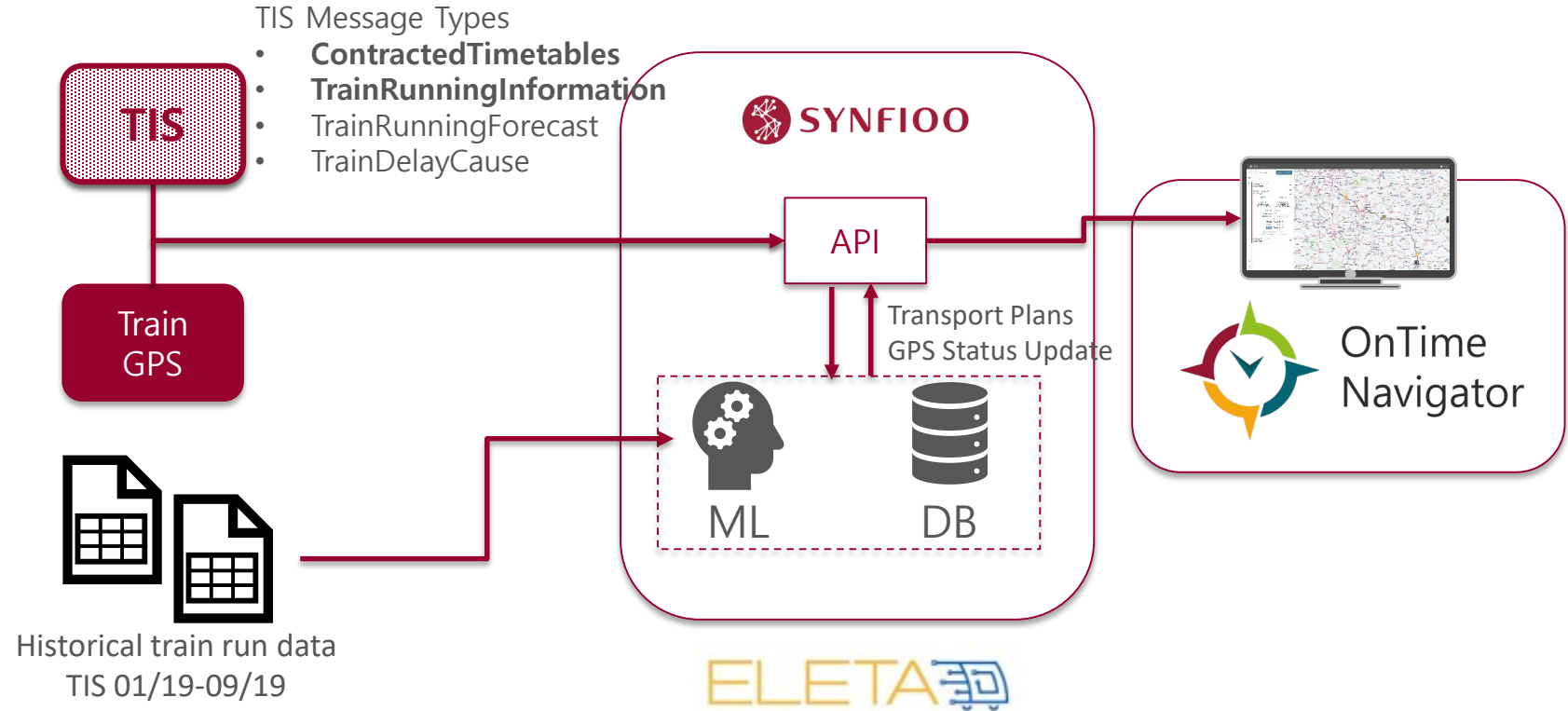


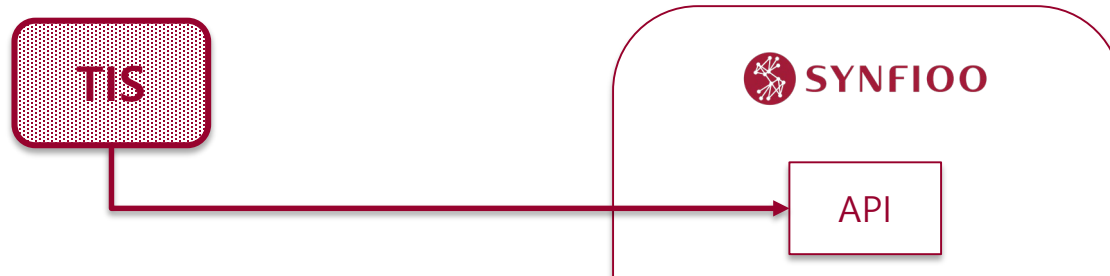




- ✓ **Made in Germany:** Worldwide Customers, International Orientation, Made in Germany, HQ and Development in Potsdam, Berlin Area
- ✓ **Trust:** All transport-relevant data is stored GDPR-compliant in Germany (Backup data in further EU-countries)
- ✓ **Innovation in the Blood:** Origin in multi-year research works from Hasso Plattner Institute in Potsdam







## Major data Challenges

- Data of train runs is not continuously available (**missing TIS user agreements, sharing not unlocked**)
- Data of international train runs often cannot be automatically combined to one single train run (**different train numbers, non-matching time plan sequence at border**)

→ **TIS and Synfioo** system can now **automatically solve** many of these issues, but continued actions need to be taken by all stakeholders in the sector



# Synfioo for ELETA – the numbers



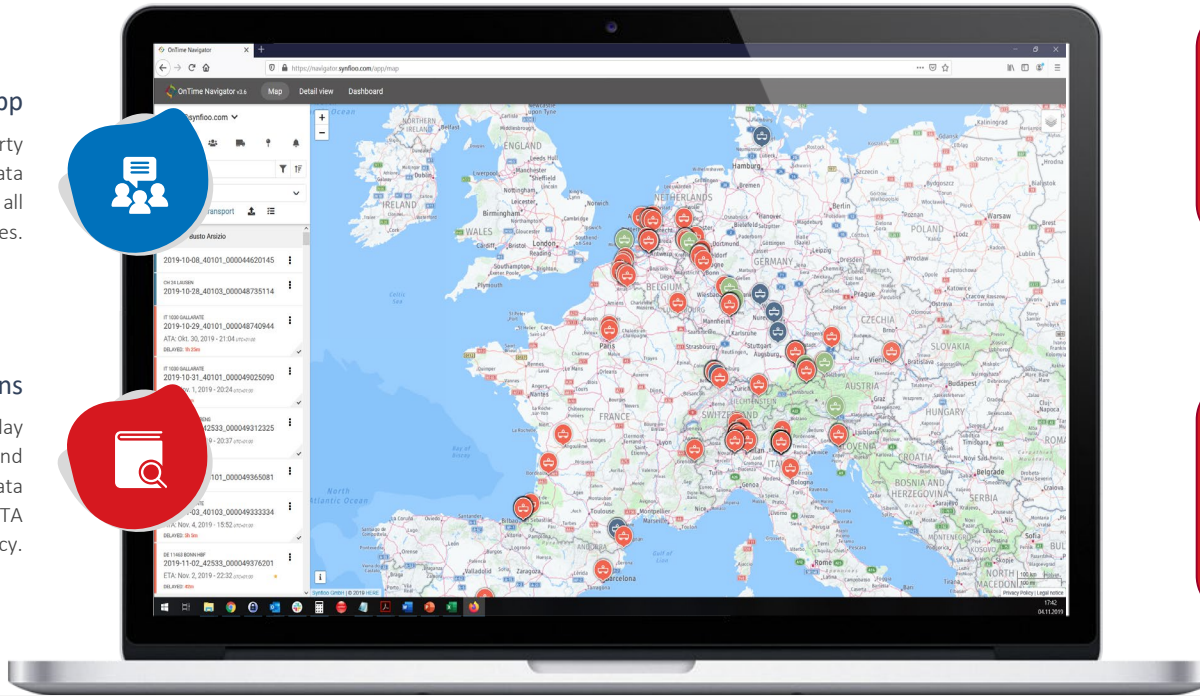
# Demo: TIS & ETA data in Synfioo OnTime Navigator

## Web-based App

Easy to access for every party involved. Complete TIS data and ETA predictions for all ELETA train lines.

## Details & Evaluations

Investigate detailed delay information and evaluations about data completeness and ETA prediction accuracy.



### Confidence Level

- during the train run -  
Indicates whether all input data is available and thus how good the ETA can be expected



### ETA Accuracy

- after arrival of the train -  
how accurate was the ETA prediction compared to a tolerance time window (e.g. +/- 60 min).



2019-10-08\_40101\_000044620145

CH 24 LAUSEN  
2019-10-28\_40103\_000048735114

IT 1030 GALLARATE  
2019-10-29\_40101\_000048740944  
ATA: Okt. 30, 2019 - 21:04 UTC+01:00  
DELAYED: 1h 25m

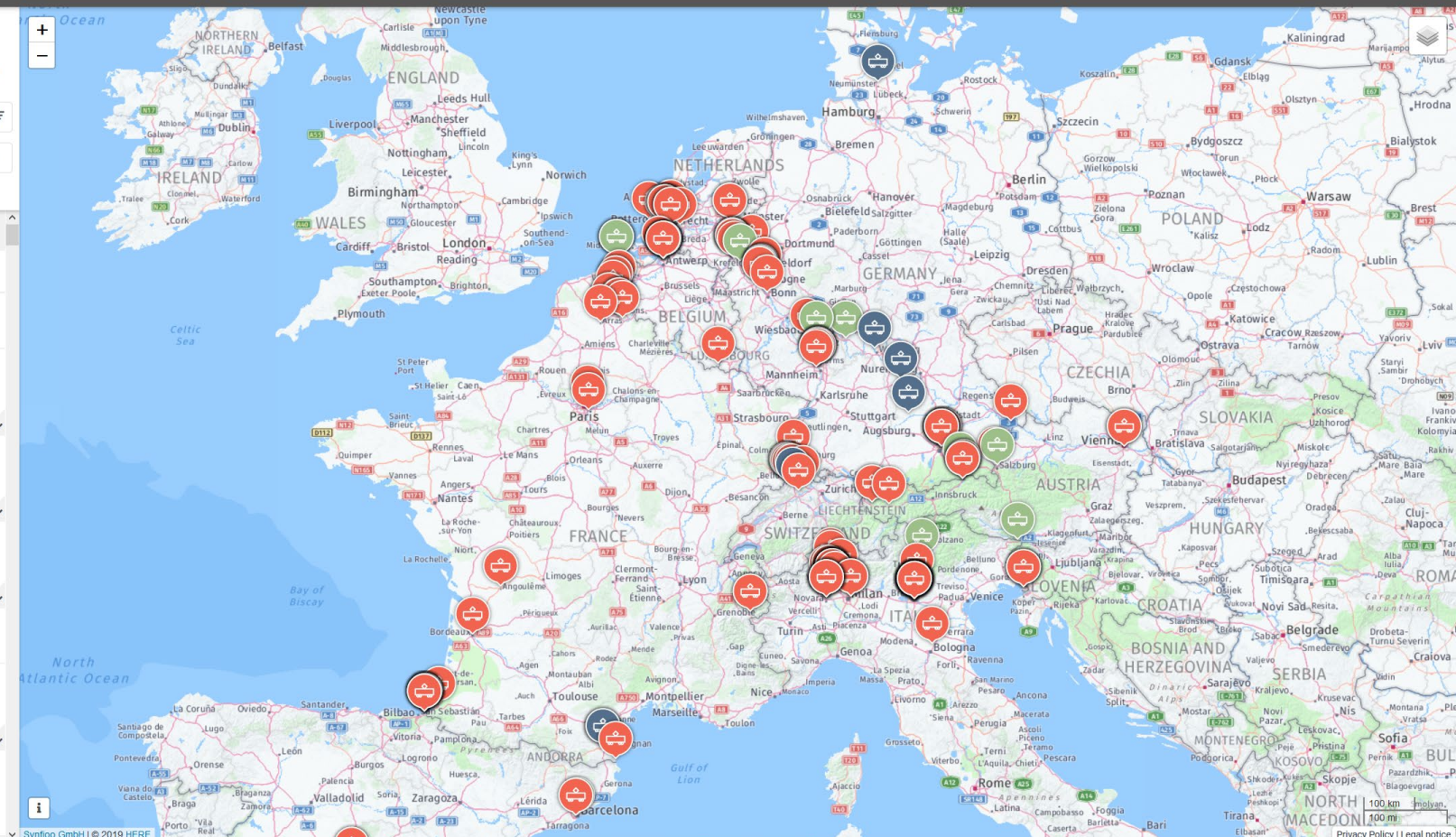
IT 1030 GALLARATE  
2019-10-31\_40101\_000049025090  
ATA: Nov. 1, 2019 - 20:24 UTC+01:00  
DELAYED: 45m

NL 1331 VENLO GRENS  
2019-11-02\_42533\_000049312325  
ATA: Nov. 2, 2019 - 20:37 UTC+01:00  
DELAYED: 33m

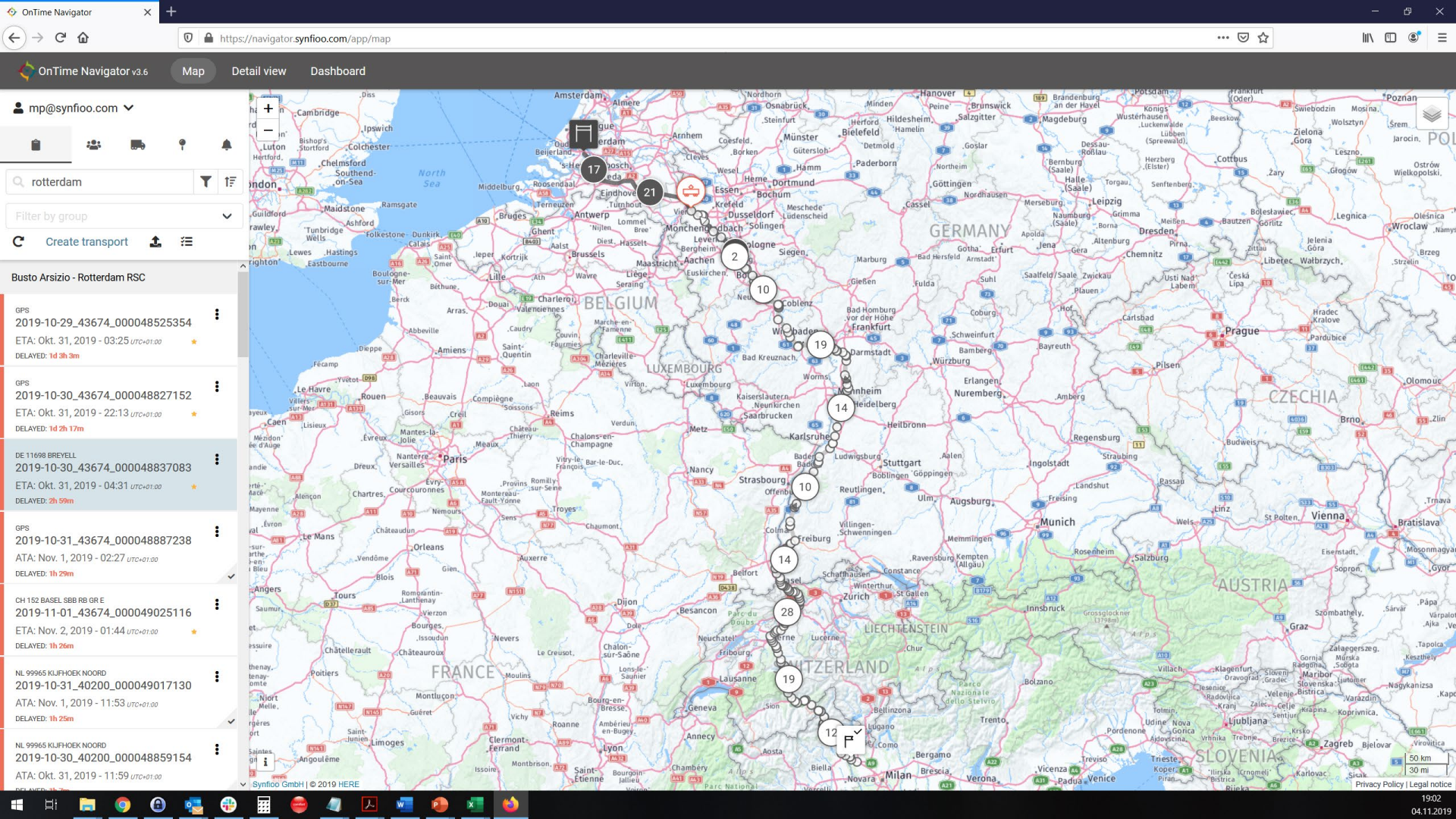
CH 90 BASEL BAD BF  
2019-11-02\_40101\_000049365081

IT 1030 GALLARATE  
2019-11-03\_40103\_000049333334  
ATA: Nov. 4, 2019 - 15:52 UTC+01:00  
DELETED: 5h 5m

DE 11463 BONN HBF  
2019-11-02\_42533\_000049376201  
ETA: Nov. 2, 2019 - 22:32 UTC+01:00  
DELAYED: 42m









OnTime Navigator v3.6

Map

Detail view

Dashboard

mp@synfioo.com

busto

Filter by group

Create transport

Busto Arsizio - Ludwigshafen KTL

GPS

2019-10-30\_43010\_00004886287

ETA: Okt. 31, 2019 - 07:38 UTC+01:00

DELAYED: 2h 21m

DE 16530 LUDWIGSHAFEN (RHEIN) BASF UBF

2019-11-01\_43074\_000049122054

ATA: Nov. 1, 2019 - 14:14 UTC+01:00

DELAYED: 1h 45m

DE 16530 LUDWIGSHAFEN (RHEIN) BASF UBF

2019-10-31\_43010\_000048887244

ATA: Nov. 1, 2019 - 09:08 UTC+01:00

DELAYED: 1h 40m

GPS

2019-10-30\_43074\_000048812247

ETA: Okt. 30, 2019 - 12:24 UTC+01:00

DELAYED: 20m

GPS

2019-10-31\_43074\_000048932026

ETA: Okt. 31, 2019 - 12:15 UTC+01:00

DELAYED: 11m

IT 1026 SESTO CALENDE

2019-11-04\_43010\_00004933316

ETA: Nov. 5, 2019 - 08:08 UTC+01:00

DELAYED: 6m

DE 16530 LUDWIGSHAFEN (RHEIN) BASF UBF

2019-10-31\_43720\_000049018293

ETA: Okt. 31, 2019 - 23:31 UTC+01:00

DELAYED: 1h

TRANSPORT ID

2019-10-31 43010 000048887244

ASSET ID

43010

Position

DE 16530 Ludwigshafen (Rhein) BASF

Ubf

Last GPS signal: Nov. 1, 2019 - 09:08 UTC+01:00

Last update: Nov. 1, 2019 - 10:14 UTC+01:00

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1900

04.11.2019

OnTime Navigator

OnTime Navigator v3.6

Map

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mp@synfioo.com

busto

Filter by group

Create transport

Busto Arsizio - Ludwigshafen KTL

ATA: Nov. 1, 2019 - 14:14 UTC+01:00  
DELAYED: 1h 45m

DE 16530 LUDWIGSHAFEN (RHEIN) BASF UBf  
2019-10-31\_43010\_000048887244  
ATA: Nov. 1, 2019 - 09:08 UTC+01:00  
DELAYED: 1h 40m

GPS

2019-10-30\_43074\_000048812247  
ATA: Okt. 30, 2019 - 12:24 UTC+01:00  
DELAYED: 20m

GPS

2019-10-31\_43074\_000048932026  
ETA: Okt. 31, 2019 - 12:15 UTC+01:00  
DELAYED: 11m

IT 1026 SESTO CALENDE

2019-11-04\_43010\_00004933316  
ETA: Nov. 5, 2019 - 08:08 UTC+01:00  
DELAYED: 6m

DE 16530 LUDWIGSHAFEN (RHEIN) BASF UBf

2019-10-31\_43720\_000049018293  
ATA: Okt. 31, 2019 - 23:31 UTC+01:00  
EARLY: 1m

GPS

2019-10-30\_43720\_000048859569  
ETA: Okt. 30, 2019 - 23:08 UTC+01:00  
EARLY: 20m

Busto Arsizio - Rotterdam RSC

General information

2019-10-31\_43010\_000048887244

General status: Late

Position: DE 16530 Ludwigshafen (Rhein) BASF Ubf (Completed)

From

IT 1030 GALLARATE

Planned time of departure: Okt. 31, 2019 - 18:30 UTC+01:00

Actual time of departure: Okt. 31, 2019 - 19:16 UTC+01:00

To

DE 16530 Ludwigshafen (Rhein) BASF Ubf

Planned time of arrival: Nov. 1, 2019 - 07:27 UTC+01:00

Actual time of arrival: Nov. 1, 2019 - 09:08 UTC+01:00

Delayed: 1h 40m

General information

2019-10-30\_43720\_000048859569

General status: Late

Position: GPS (Completed)

From

IT 1028 SOMMA LOMBARDO

Planned time of departure: Okt. 30, 2019 - 12:11 UTC+01:00

To

DE 16530 Ludwigshafen (Rhein) BASF Ubf

Planned time of arrival: Okt. 30, 2019 - 23:29 UTC+01:00

Estimated time of arrival: Okt. 30, 2019 - 23:08 UTC+01:00

Early: 20m

Map of Central Europe showing routes between Germany, France, and Switzerland. Key cities include Mannheim, Heidelberg, Stuttgart, Strasbourg, and Basel. A route is highlighted with a black line and numbered circles (8, 11, 14, 15, 16, 19, 28, 31).

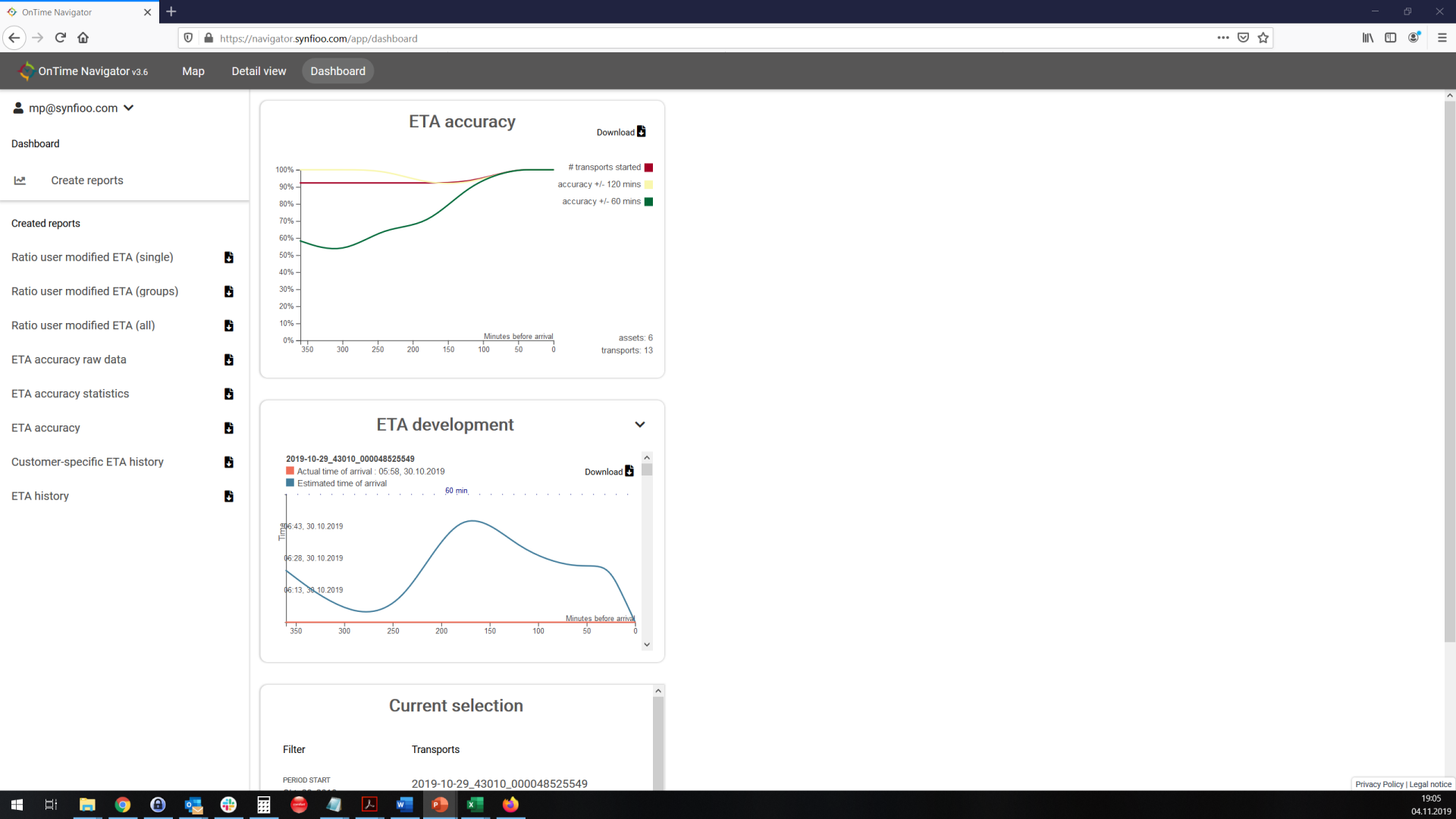
Map of Central Europe showing routes between Germany, France, and Switzerland. Key cities include Mannheim, Heidelberg, Stuttgart, Strasbourg, and Basel. A route is highlighted with a black line and numbered circles (9, 14, 15, 19, 28, 31).

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19:01

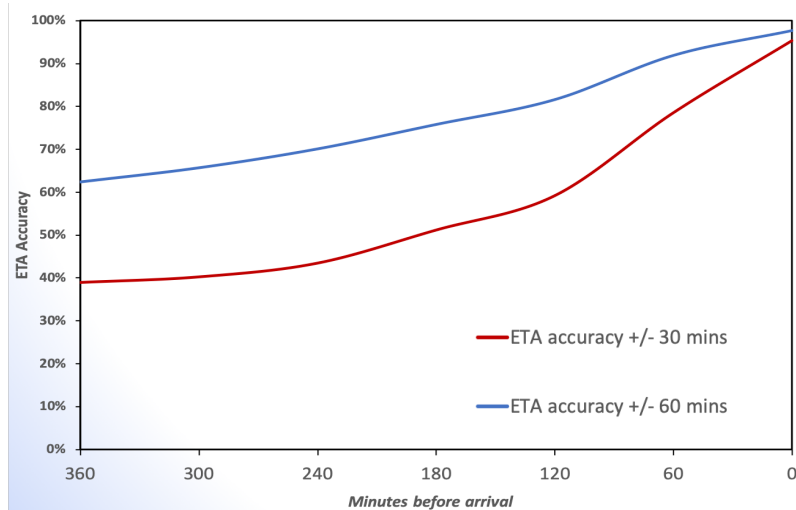
04.11.2019







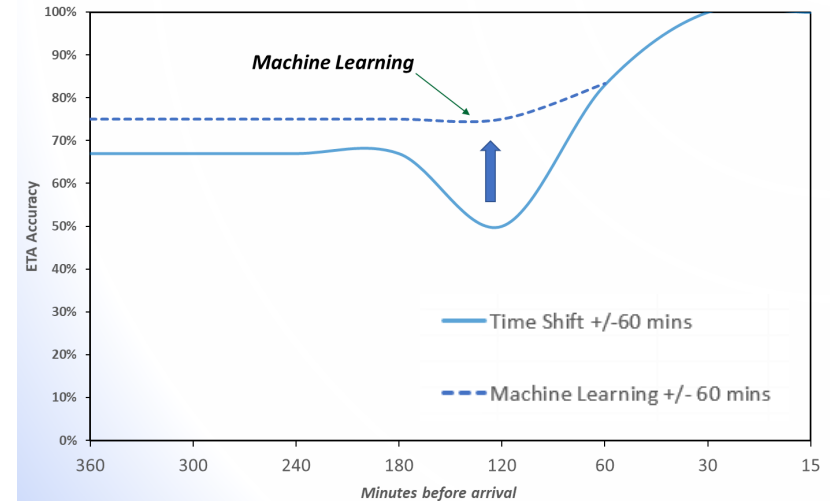
## ETAs provided (all lines)



All lines (September-October 2019)

„Mixed Model“: using Machine Learning based predictions where enough training data is available, fall-back to timeshift predictions with insufficient data

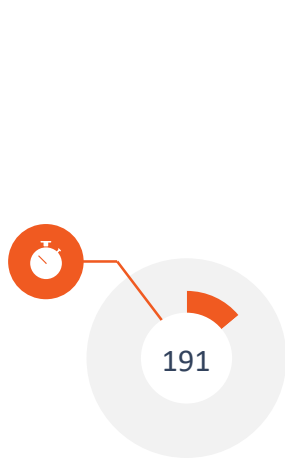
## Only Machine Learning ETAs



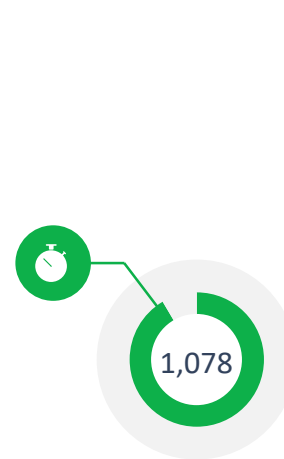
Example: Train 43034, Busto to Ludwigshafen (September-October 2019)

Where data is complete and available in good quantity & quality, Machine Learning is already improving ETA predictions.

ML works better at **scale**: the more training data is available, the better the results will be

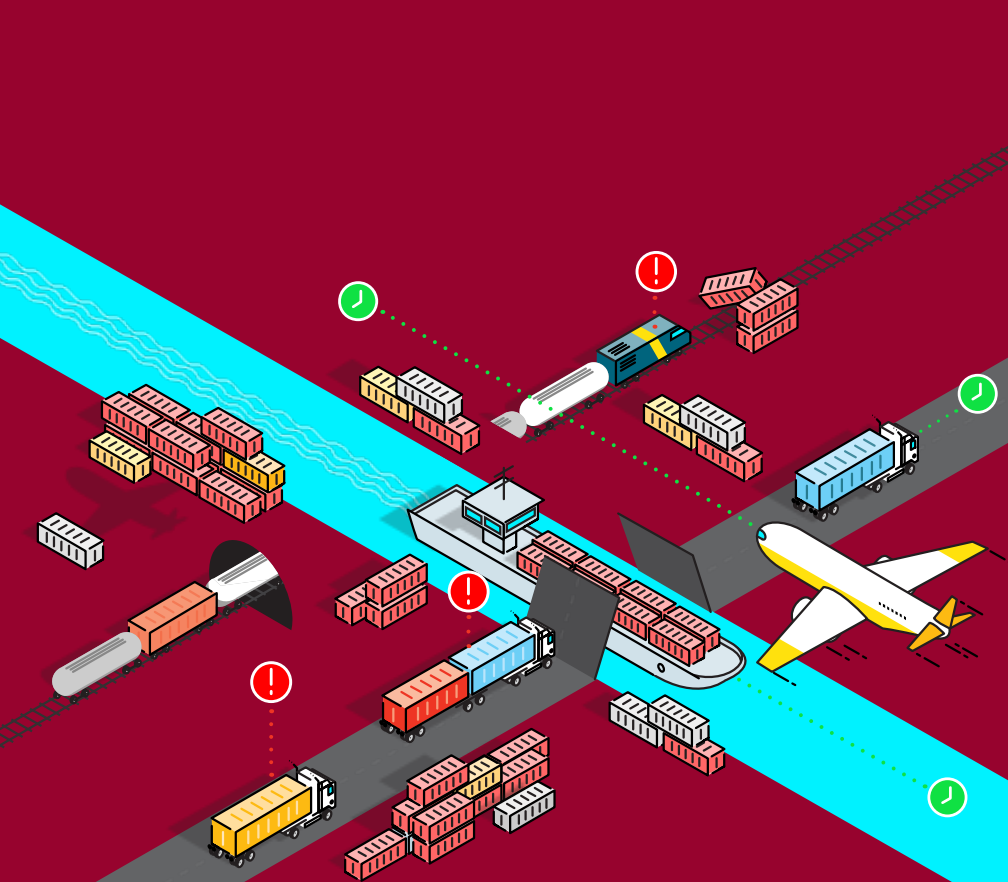


**ELETA:** For the best train number, our system has collected data of **191** complete train runs.



Other Synfioo customer:  
Our system used **1.000+** train runs and produced ML-ETAs with **92.5% accuracy.**

+/-60 mins accuracy, ETA predicted at start of the train run



**Thank you!**

**Marian Pufahl**

Co-Founder | CEO

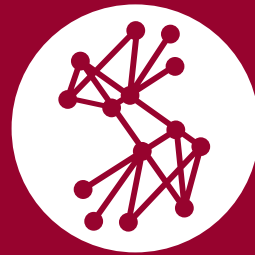
+49 331 600 750 25

+49 172 32 85 165

[marian.pufahl@synfioo.com](mailto:marian.pufahl@synfioo.com)



Synfioo GmbH  
August-Bebel-Str. 27  
14482 Potsdam  
Germany



**SYNFIOO**

THE ETA EXPERTS