



COREALIS Antwerp Demo/Training Webinar

CARGO FLOW OPTIMISER

Stefano Persi, Mosaic Factor

November 10th, 2020

Mosaic Factor is specialized in Big Data and Artificial Intelligence for mobility and logistics. Know the context, understand the problem and familiarize with the data to find the right answers and extract real value.



OPTIMIZATION OF PORT OPERATIONS



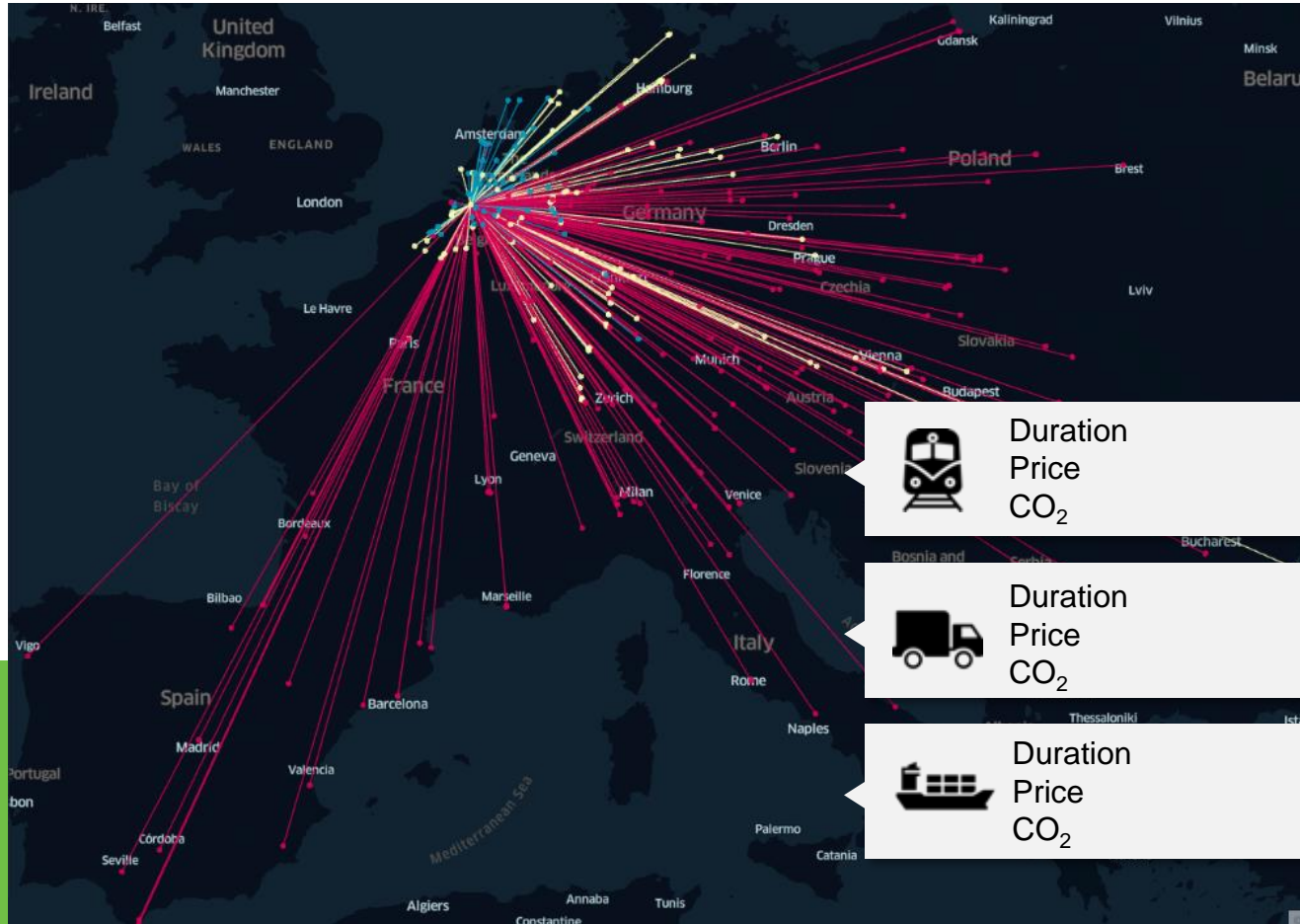
- MULTIMODAL INLAND PLANNER
- CARGO FLOW PREDICTION



MULTIMODAL INLAND PLANNER



MULTIMODAL INLAND PLANNER



(i) Complete overview of the most efficient connections from Port of Antwerp to its hinterland by rail, barge or truck.

(ii) Calculates the optimal door-to-door container routes comparing the duration, price and CO₂ emissions.



MULTIMODAL INLAND PLANNER

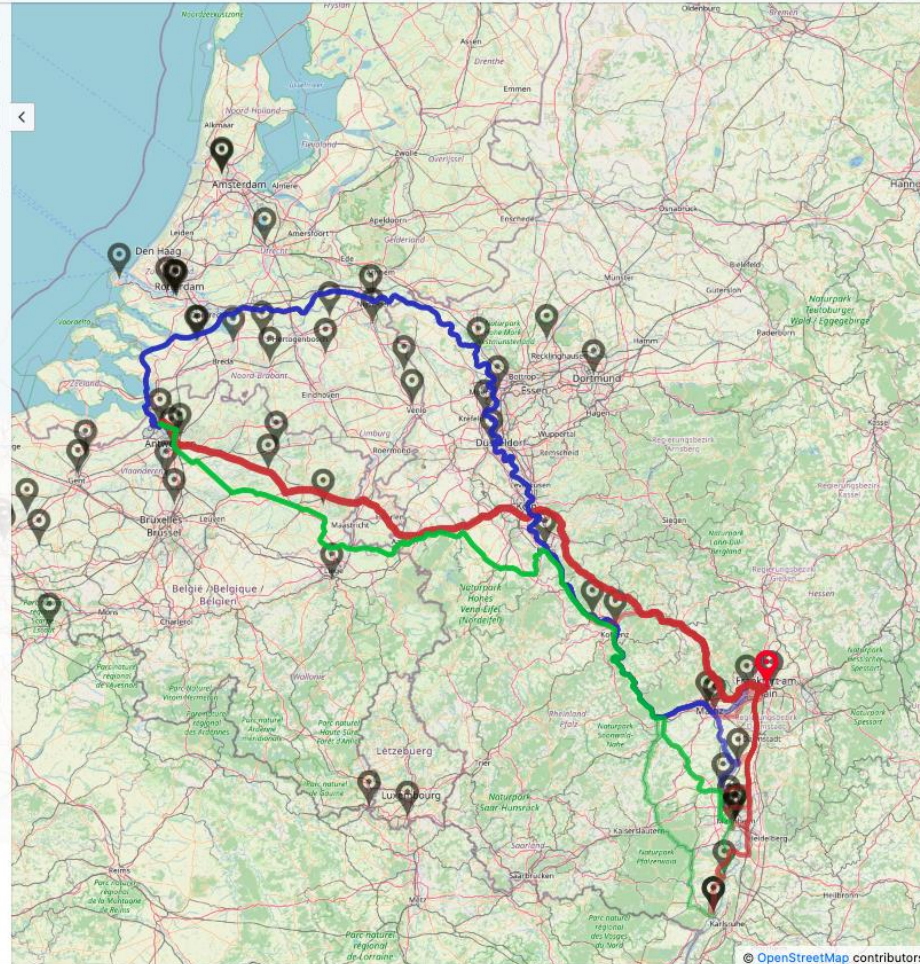
COREALIS - Multi-modal Inland Planner

Start
 Port Of Antwerp

Destination
 Frankfurt am Main Airport Long distance trains, Frankfurt, Hesse, Germany

Date
 2020-11-10

[Search routes](#) [Reset](#)



Available routes to Frankfurt am Main Airport Long distance trains, Frankfurt, Hesse, Germany

Sort by
 Default

All Barge Train Truck

Leg	Transport	Duration	Distance (km)	Price	CO ₂ (kg)
1	truck	4h, 15min	407.53	€420.98	254.75
2	3d, 0h, 38min	607.64km	€435.50	188.97kg	
3	4d, 0h, 32min	609.97km	€433.36	188.88kg	
4	2d, 0h, 40min	654.29km	€449.96	205.27kg	
5	4d, 0h, 18min	607.23km	€419.75	179.58kg	
6	4d, 0h, 54min	693.92km	€471.81	224.04kg	
7	1d, 1h, 28min	444.25km	€566.33	117.8kg	
8	2d, 0h, 57min	559.41km	€619.72	139.89kg	
9	1d, 1h, 4min	566.29km	€625.91	144.14kg	
10	1d, 1h, 19min	629.88km	€665.99	170.17kg	
11	1d, 1h, 29min	669.08km	€695.67	187.66kg	

From Port of Antwerp to Frankfurt am Main

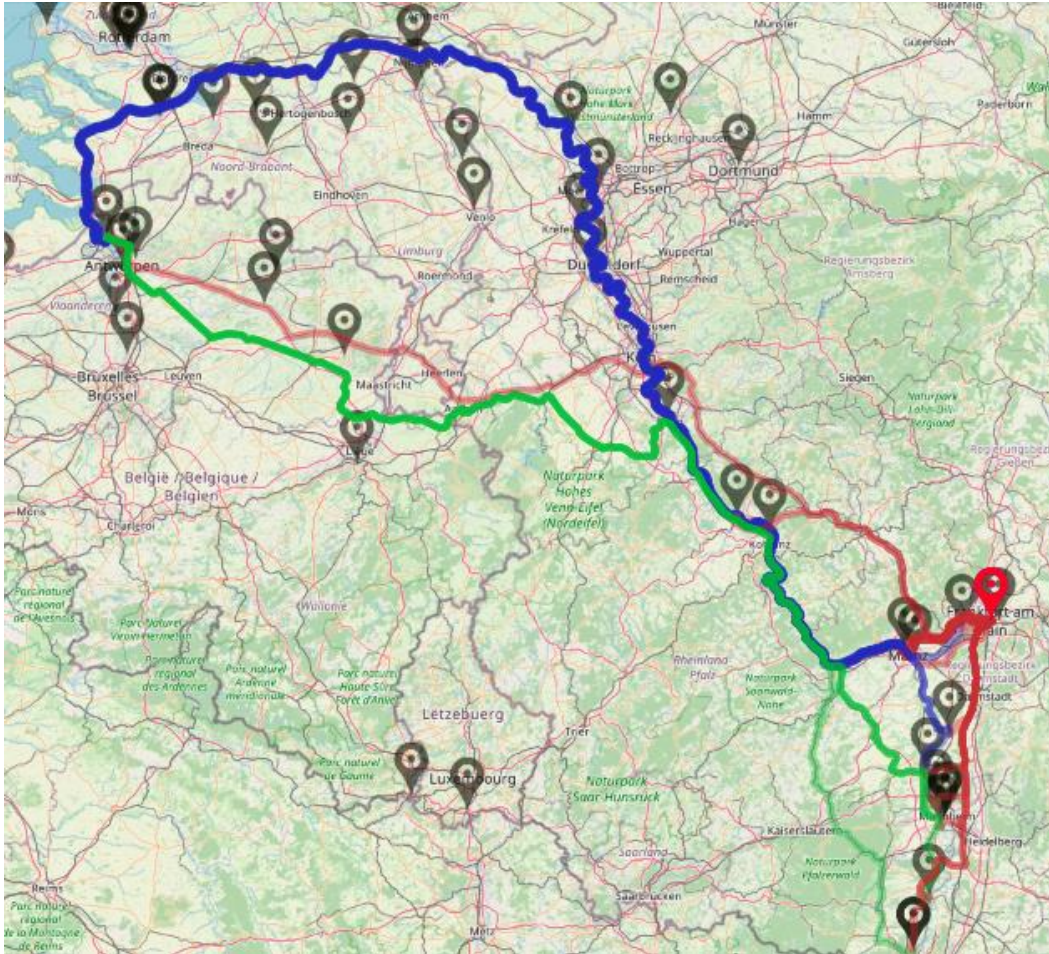


COREALIS project has received funding from the European Union's Horizon 2020 research & innovation programme under grant agreement No. 768994. Content reflects only the authors' view and European Commission is not responsible for any use that may be made of the information it contains.





MULTIMODAL INLAND PLANNER - BARGE

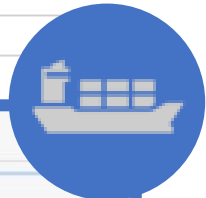


Available routes to Frankfurt am Main Airport Long distance trains, Frankfurt, Hesse, Germany

Sort by

Default

All Barge Train Truck



route 1: 4h, 15min - 407.53km - €420.98 - 254.75kg

route 2: 3d, 0h, 38min - 607.64km - €435.50 - 188.97kg

Leg	Transport	Duration	Distance (km)	Price	CO ₂ (kg)
1	barge	3d, 0h, 0min	566.18	€285.78	163.05
2	truck	0h, 38min	41.46	€149.72	25.92

route 3: 4d, 0h, 32min - 609.97km - €433.36 - 188.88kg

route 4: 2d, 0h, 40min - 654.29km - €449.96 - 205.27kg

route 5: 4d, 0h, 18min - 607.23km - €419.75 - 179.58kg

route 6: 4d, 0h, 54min - 693.92km - €471.81 - 224.04kg

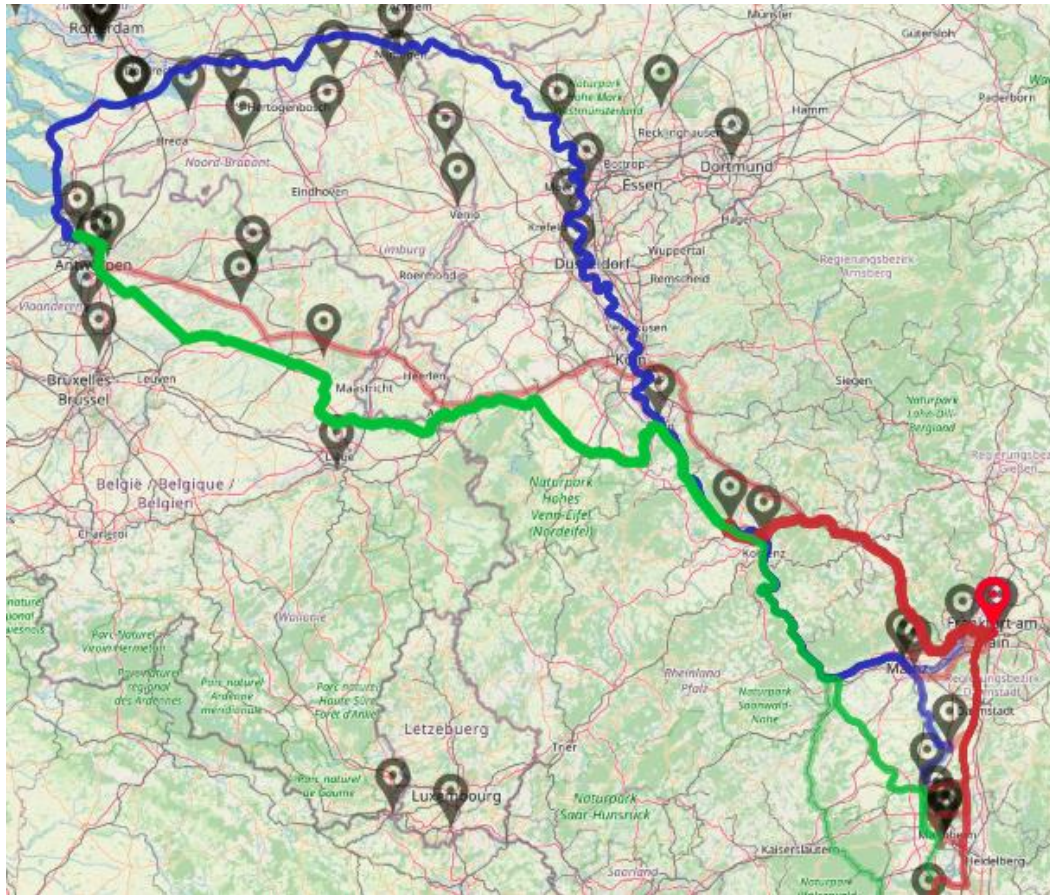
route 7: 1d, 1h, 28min - 444.25km - €566.33 - 117.8kg

route 8: 2d, 0h, 57min - 559.41km - €619.72 - 139.89kg

route 9: 1d, 1h, 4min - 566.29km - €625.91 - 144.14kg



MULTIMODAL INLAND PLANNER - RAIL



Available routes to Frankfurt am Main Airport Long distance trains, Frankfurt, Hesse, Germany

Sort by

Default

All Barge Train Truck

route 1: 4h, 15min - 407.53km - €420.98 - 254.75kg

route 2: 3d, 0h, 38min - 607.64km - €435.50 - 188.97kg

route 3: 4d, 0h, 32min - 609.97km - €433.36 - 188.88kg

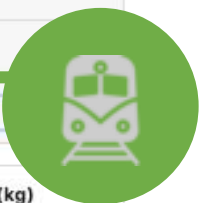
route 4: 2d, 0h, 40min - 654.29km - €449.96 - 205.27kg

route 5: 4d, 0h, 18min - 607.23km - €419.75 - 179.58kg

route 6: 4d, 0h, 54min - 693.92km - €471.81 - 224.04kg

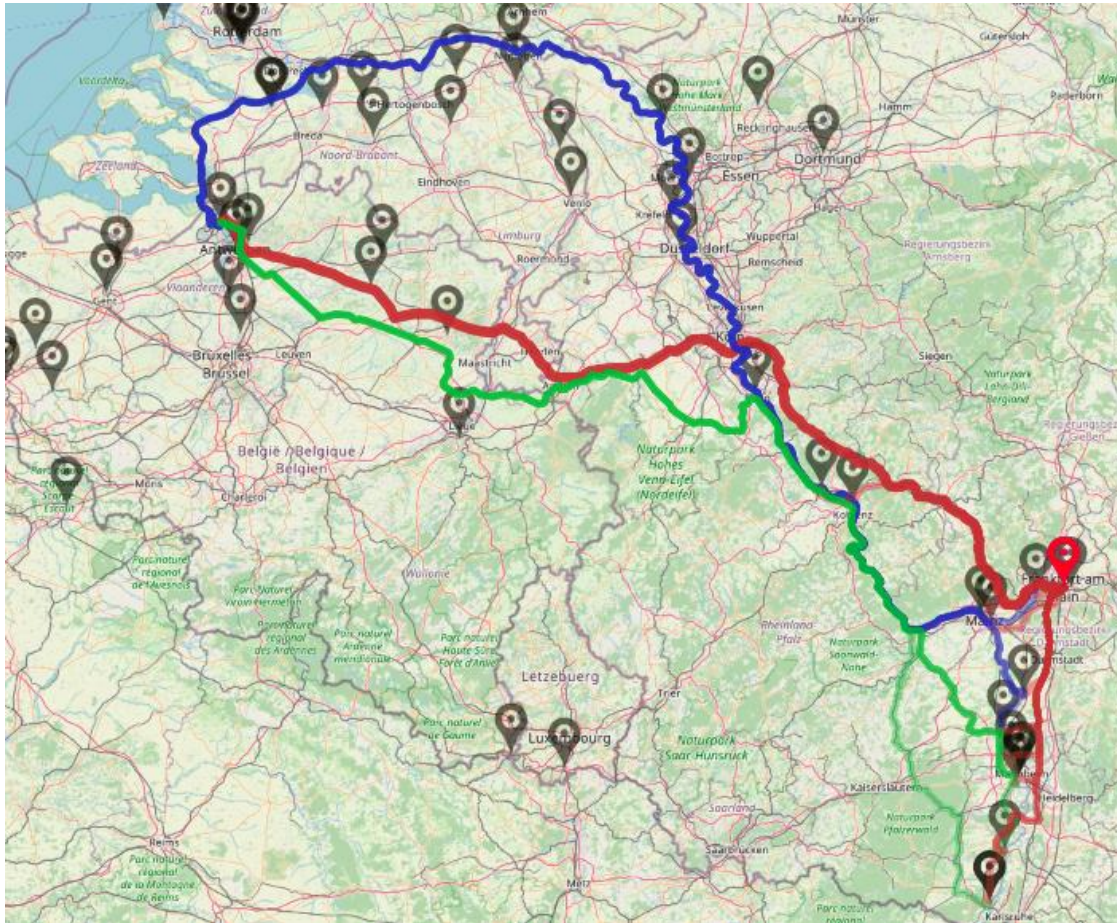
route 7: 1d, 1h, 28min - 444.25km - €566.33 - 117.8kg

Leg	Transport	Duration	Distance (km)	Price	CO ₂ (kg)
1	train	1d, 0h, 0min	311.21	€348.74	34.64
2	truck	1h, 28min	133.05	€217.59	83.17





MULTIMODAL INLAND PLANNER - TRUCK



Available routes to Frankfurt am Main Airport Long distance trains, Frankfurt, Hesse, Germany

Sort by

Default

All Barge Train Truck



route 1: 4h, 15min - 407.53km - €420.98 - 254.75kg

Leg	Transport	Duration	Distance (km)	Price	CO ₂ (kg)
1	truck	4h, 15min	407.53	€420.98	254.75

route 2: 3d, 0h, 38min - 607.64km - €435.50 - 188.97kg

route 3: 4d, 0h, 32min - 609.97km - €433.36 - 188.88kg

route 4: 2d, 0h, 40min - 654.29km - €449.96 - 205.27kg

route 5: 4d, 0h, 18min - 607.23km - €419.75 - 179.58kg

route 6: 4d, 0h, 54min - 693.92km - €471.81 - 224.04kg

route 7: 1d, 1h, 28min - 444.25km - €566.33 - 117.8kg

route 8: 2d, 0h, 57min - 559.41km - €619.72 - 139.89kg

route 9: 1d, 1h, 4min - 566.29km - €625.91 - 144.14kg

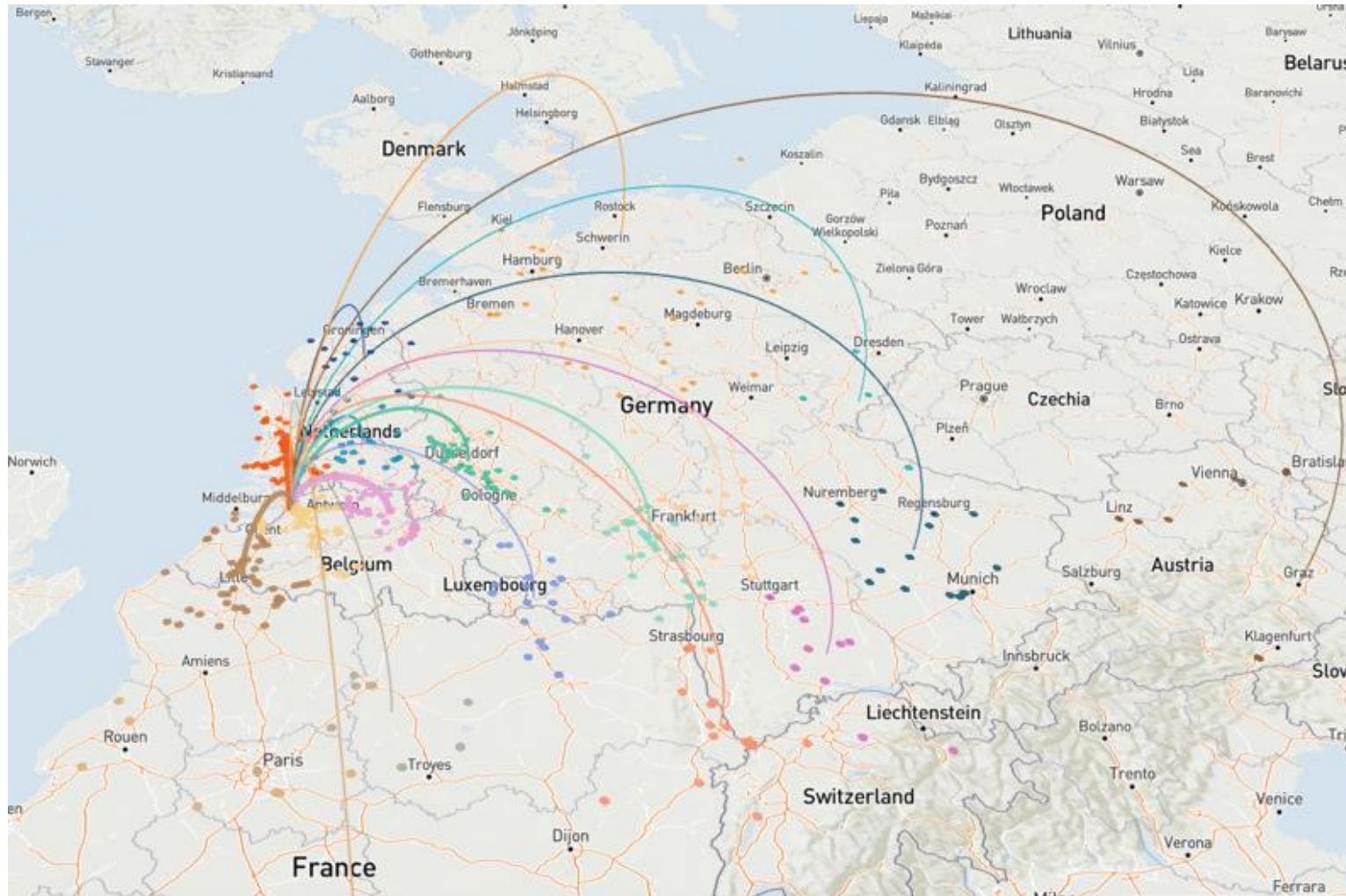
route 10: 1d, 1h, 19min - 629.88km - €665.99 - 170.17kg



CARGO FLOW PREDICTION



CARGO FLOW PREDICTION



Forecast model of the flow of containers departing from the Port of Antwerp.

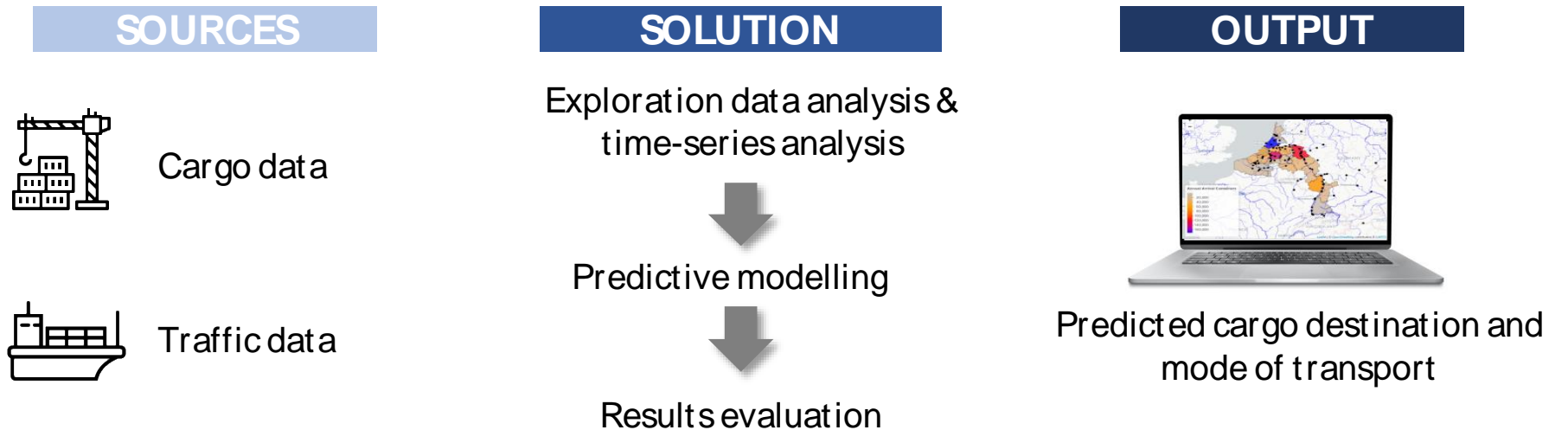
The accuracy of predicting cargo operations contributes to the planning and control in port terminals and increases reliability and resiliency of port operations in an ecosystem with high uncertainties and a turbulent and ever-shifting demand.



CARGO FLOW PREDICTION



An Artificial Neural Network (ANN) algorithm has been developed that can predict the daily traffic flow of containers, the destination and the mode of transport by means of historical and real-time data .



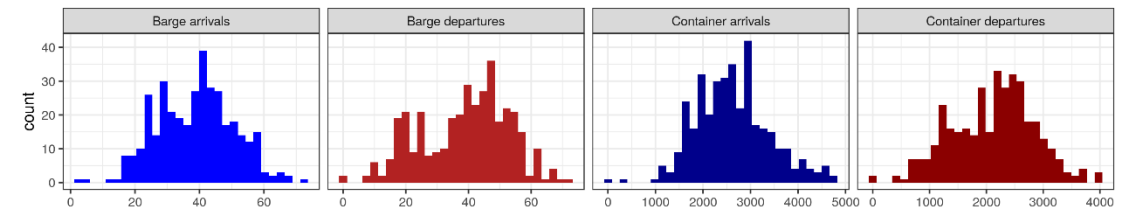
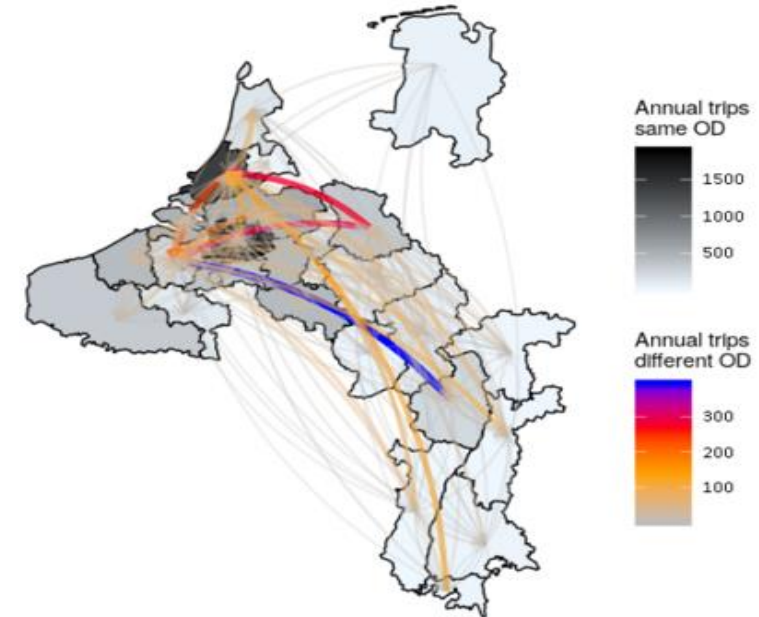


CARGO FLOW PREDICTION

Understand the context and dynamics of traffic flows arriving and departing the port.

Extract container flow patterns using:

- Container operations at terminals data
- Arrival and departure traffic data





LESSONS LEARNED



WHO ARE THE DRIVERS?



SHIPPERS



**FREIGHT
FORWARDERS**



RAIL OPERATORS



Bring the demand together
Make the demand visible



DATA ARE THE KEY

Salir ahora OPCIONES

Wearing a mask on public transport is required due to COVID-19.

Enviar indicaciones al teléfono

Salida	Itinerario	Duración
16:04-20:33	24 > Thalys > Thalys > RE7 > ICE	4 h 29 min
16:05 desde Antwerpen Havenhuis		4 min
15:58-20:33	IC > Thalys > RE7 > ICE	4 h 35 min
18:04-22:16	24 > Thalys > Thalys > RE7 > ICE	4 h 12 min
17:58-22:16	IC > Thalys > RE7 > ICE	4 h 18 min

EXPLORADOR DE HORARIOS





www.corealis.eu



[corealis_eu](https://twitter.com/corealis_eu)



[COREALIS EU Project](https://www.youtube.com/COREALIS%20EU%20Project)



[Corealis_eu](https://www.linkedin.com/company/corealis_eu)



info@lists.corealis.eu

THANK YOU FOR YOUR ATTENTION



Stefano Persi, Mosaic Factor

 stefano.persi@mosaicfactor.com



This project has received funding from the European Union's horizon 2020 research and innovation programme under grant agreement No. 768994