THE OPERATIONAL RESEARCH SOCIETY

mosaicfactor

Multimodal freight transport planning and prediction

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COREALIS project

COREALIS is developing an innovative framework for assisting cargo ports in handling their upcoming and future capacity, traffic, efficiency and environmental challenges. It is benefitting from disruptive technologies, including Internet of Things (IoT), data analytics, next generation traffic management and emerging 5G networks.

COREALIS
THE PORT OF THE FUTURE

Duration:
3 years
May 2018 – April 2021

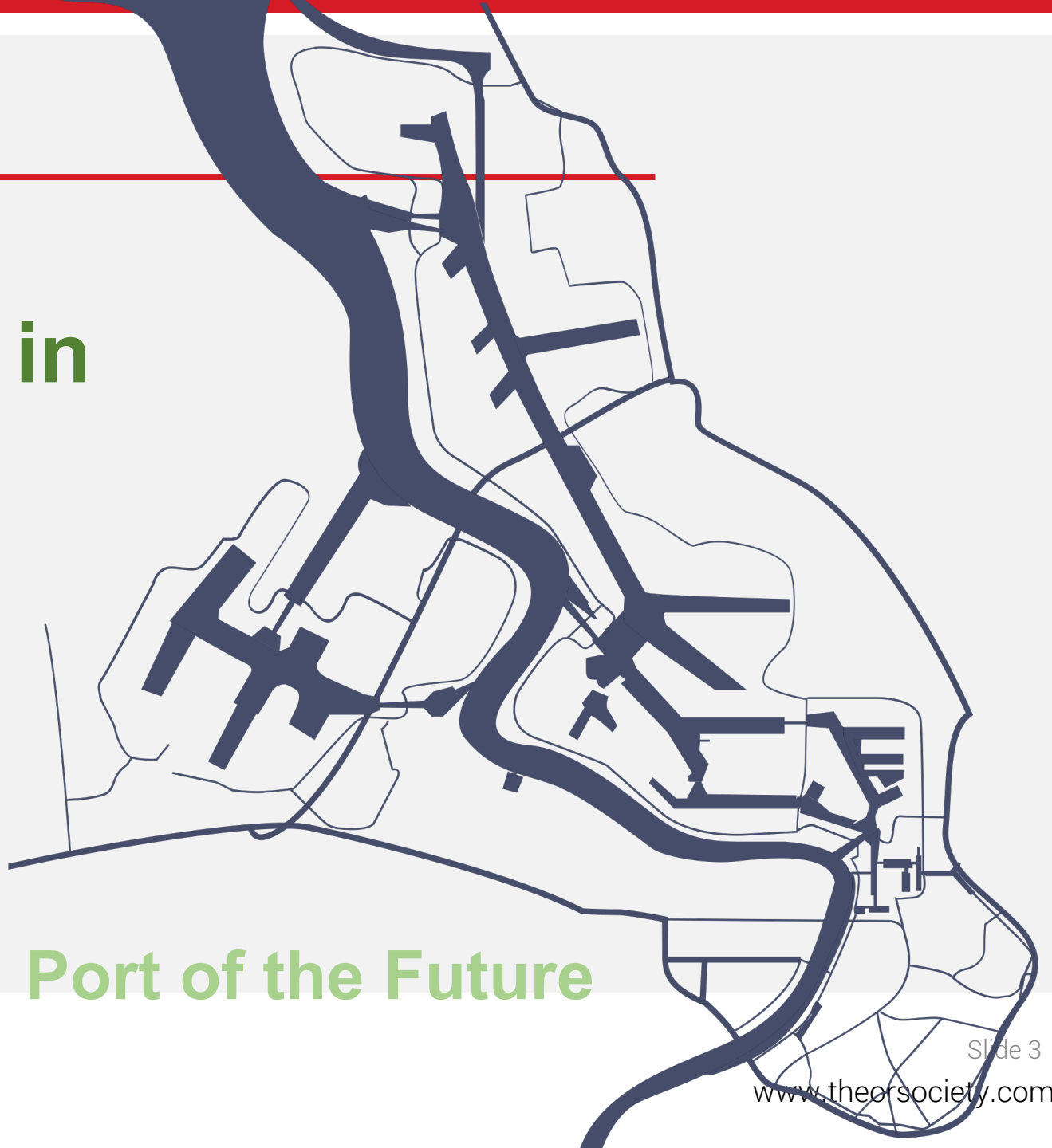
EU funding:
€5.15 million

Consortium:

Port of Antwerp

Second largest port in Europe

Belgium's biggest economic driver

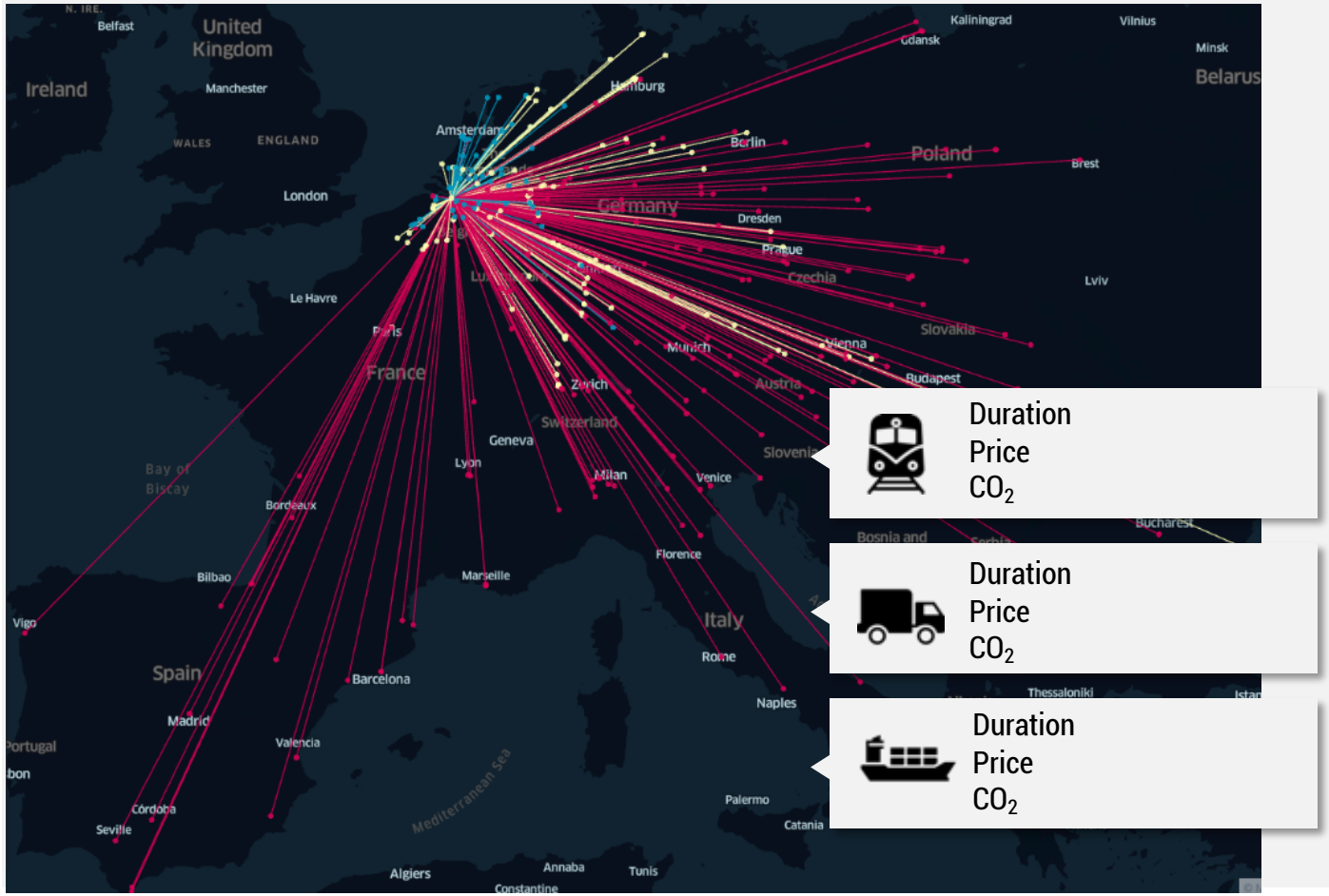


Port of the Future

OPTIMIZATION OF PORT OPERATIONS

- MULTIMODAL INLAND PLANNER
- CARGO FLOW PREDICTION

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 CO_2 emissions.

Multimodal Inland Planner

COREALIS - Cargo Flow Optimizer

Available routes to Frankfurt am Main, undefined, Hesse, Germany

Sort by

Default

All | Barge | Train | Truck

route 1: 04:16 - 407.53km

Leg	Transport	Duration	Distance (km)	Price	CO² (tonnes)
1	truck	04:16	407.53	€420.98	0.25474944089

route 2: 00:38 - 607.64km

route 3: 00:32 - 610.35km

route 4: 00:41 - 654.99km

route 5: 00:19 - 607.09km

route 6: 00:53 - 694.75km

route 7: 01:29 - 444.25km

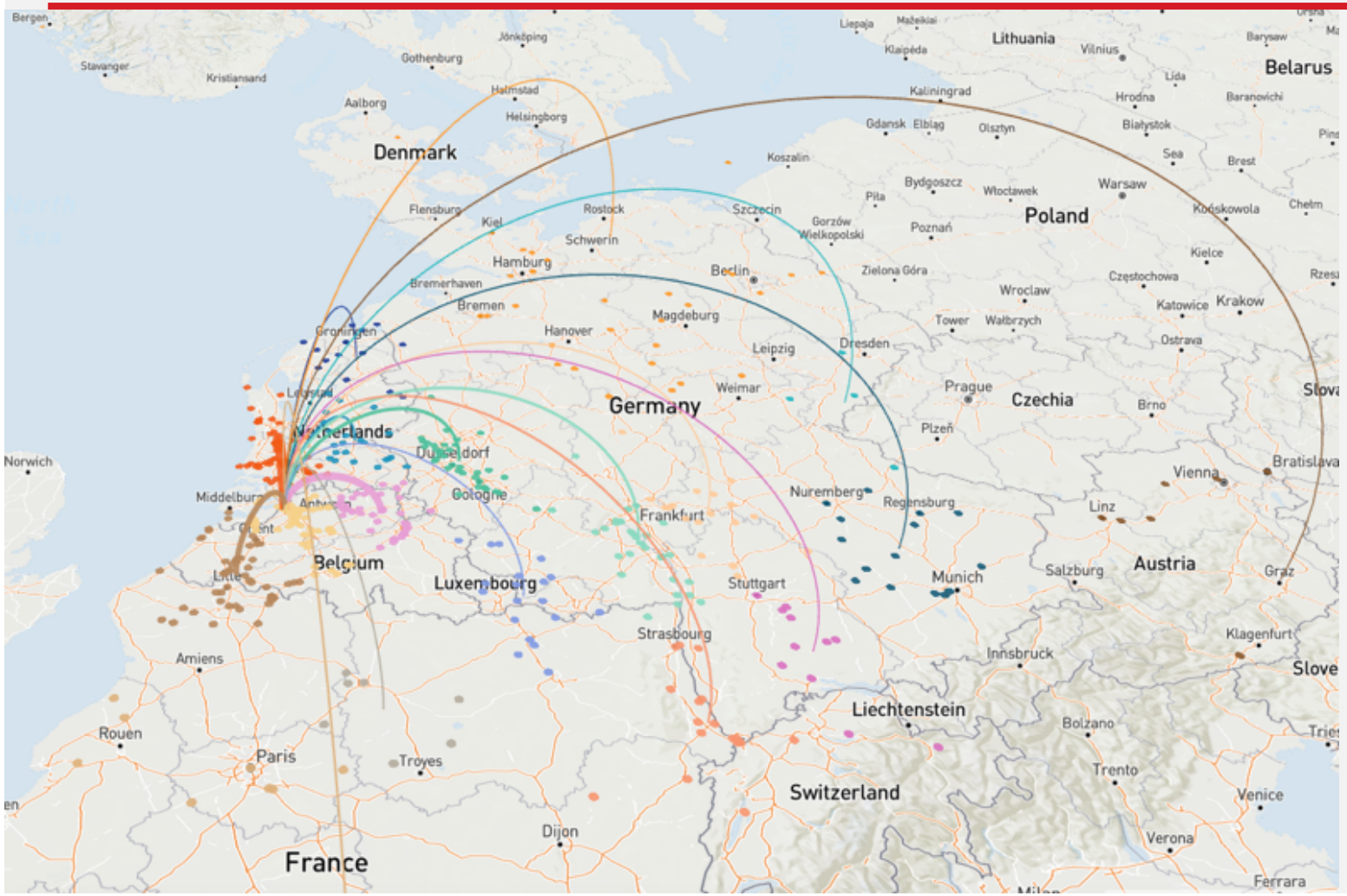
route 8: 01:29 - 450.57km

route 9: 00:58 - 560.12km

route 10: 01:05 - 566.99km

route 11: 01:20 - 630.59km

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 .

SOURCES

Cargo data

Traffic data

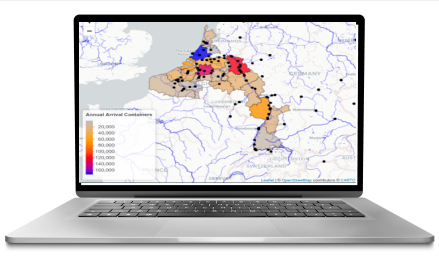
SOLUTION

Exploration data analysis & time-series analysis

Predictive modelling

Results evaluation

OUTPUT



Predicted cargo destination and mode of transport

THANK YOU

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