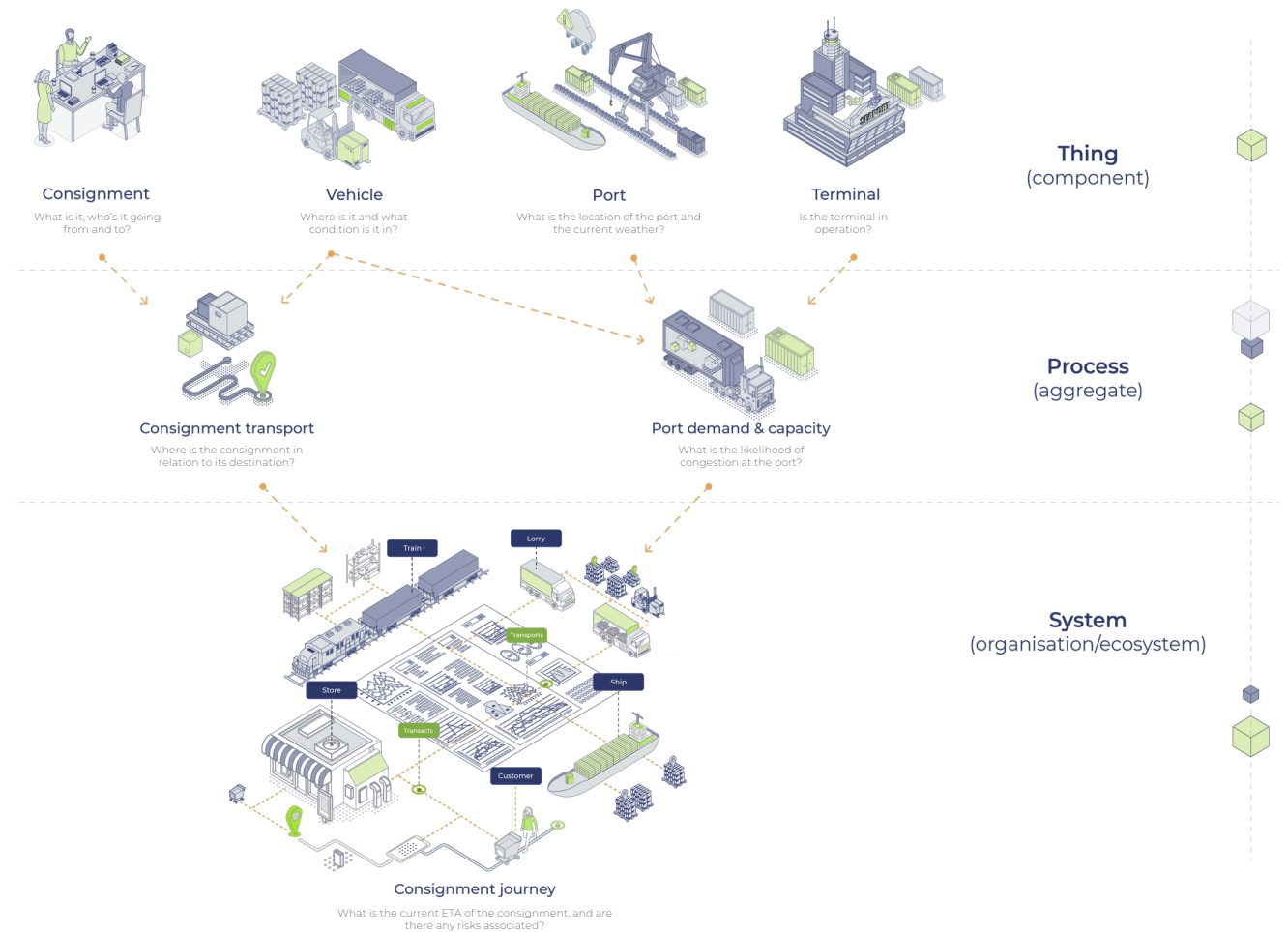


Digital Twin: The Foundation for the Intelligent Enterprise.

Presenter | Toby Mills
CEO | Entopy

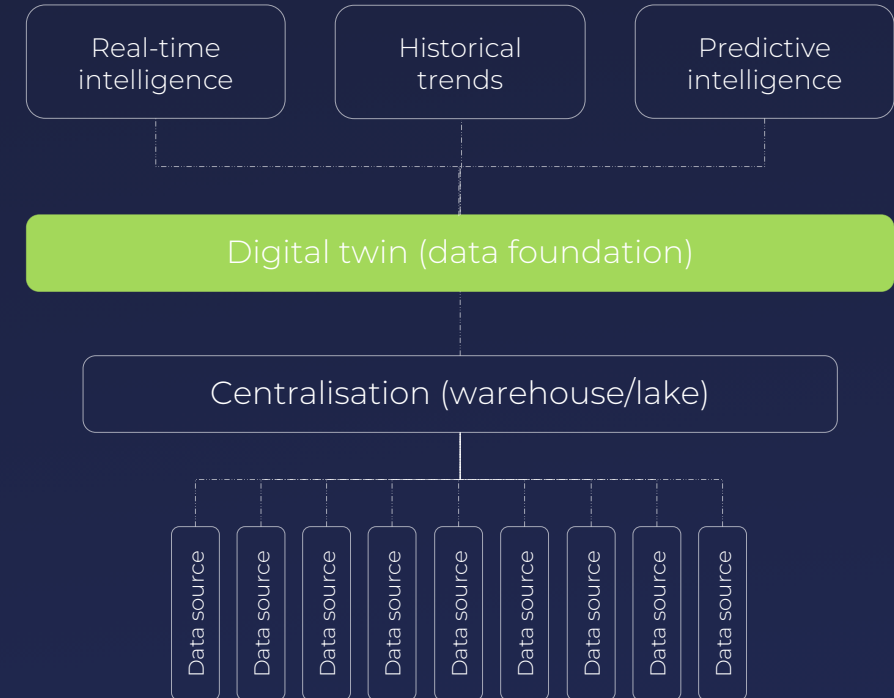
Using digital twin to bring meaning to data.

- Modelling data to reflect the real world
- Things, processes & systems
- RDF & ontology
- Top-level framework (interoperability)
- Things change, relationships change



A foundational data layer.

- Unifying data across the organisation/ecosystem
- In a meaningful & discoverable way
- Maintaining granular segmentation
- Creating a question agnostic foundation
- To deliver insights for past, present & future



Optimising multivendor hospitality & spaces.

- What:** Food market (ecosystem)
- Why:** Unify internal & external data
To uncover hidden insights
- Value:** Discovering hidden insights
Identified potential sales uplift >\$3m per year



Example of systems/data:

- EPOS, PSP, CCTV (footfall), wifi beacons, weather, local events, etc.

Enablement:

- Putting data together over time
- Deep trends (conversion rate vs footfall)

Use case futures:

- Predictive (micro ML models)
- Interventions (monitoring & refinement)
- Responsive display/ads



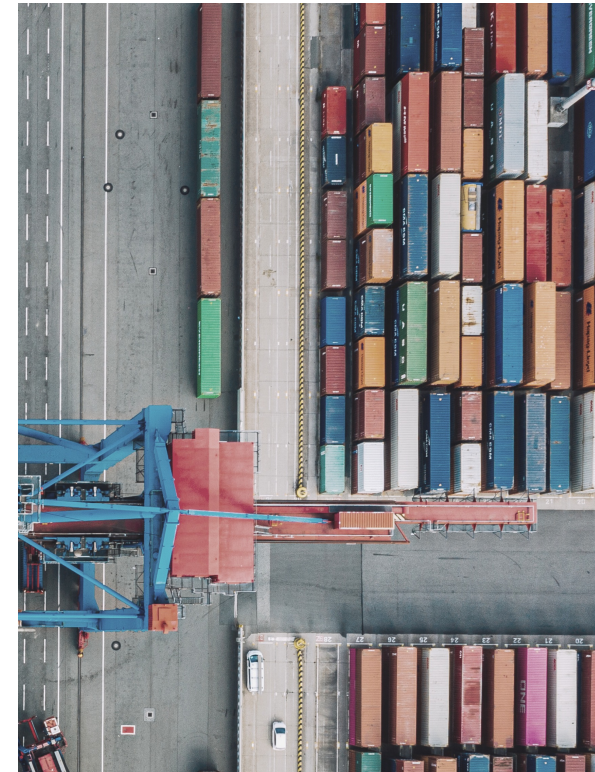


Helping to deliver smart borders (customs).

What: Consignment journey (process/ecosystem)

Why: Digital consignment records
Stakeholder visibility (individual & network)

Value: Pre-clearance of goods ahead of arrival
Combining multiple data from separate organisations whilst maintaining privacy



Example of systems/data:

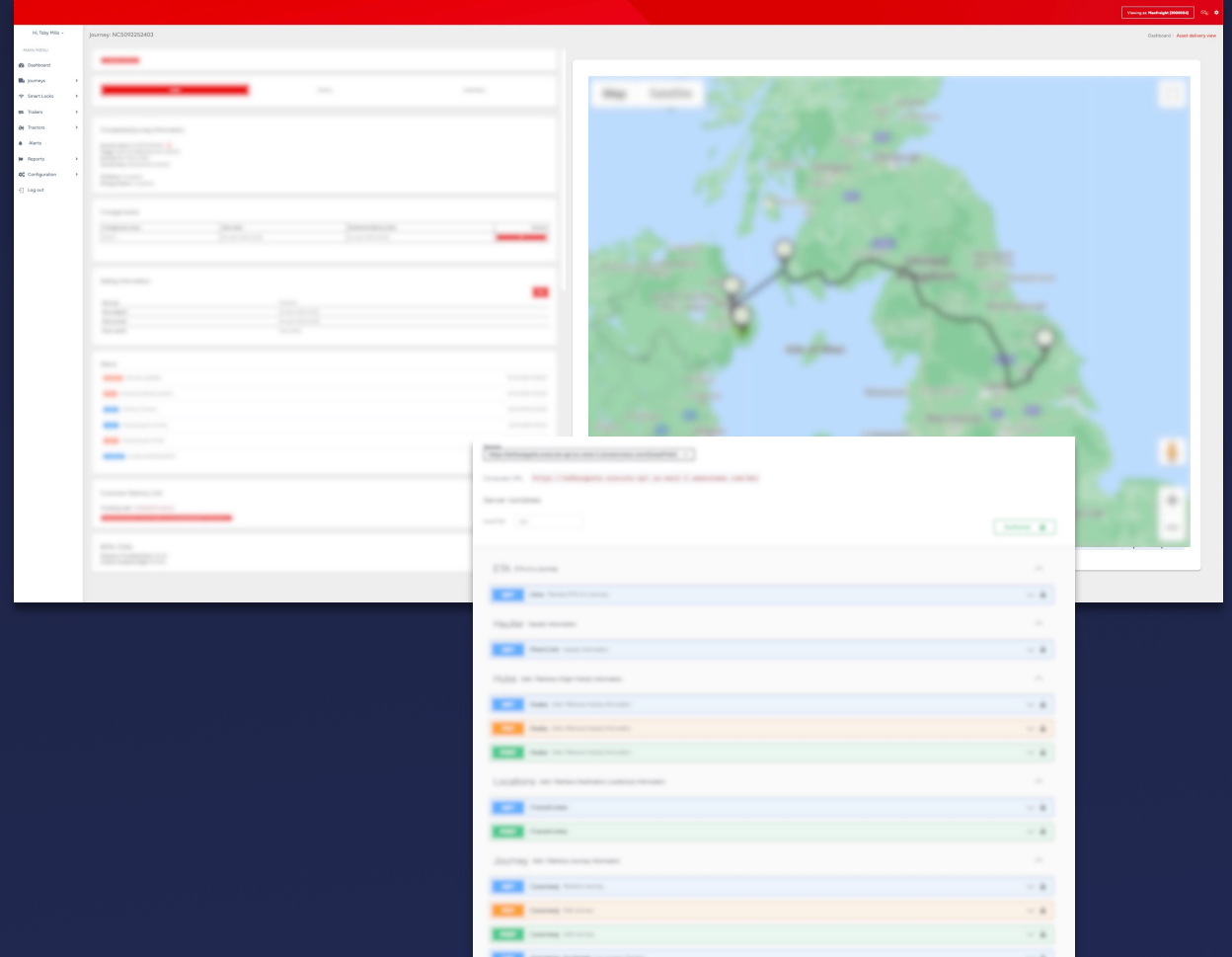
- GPS, Transport Management System, ERP, Customs, Traffic, ferry sailing, etc.

Enablement:

- Creation of consignment journey record
- Event capture, timeline, Co2e

Foundational:

- Network visibility - targeted intervention
- API (with >40 methods) used to deliver additional data services

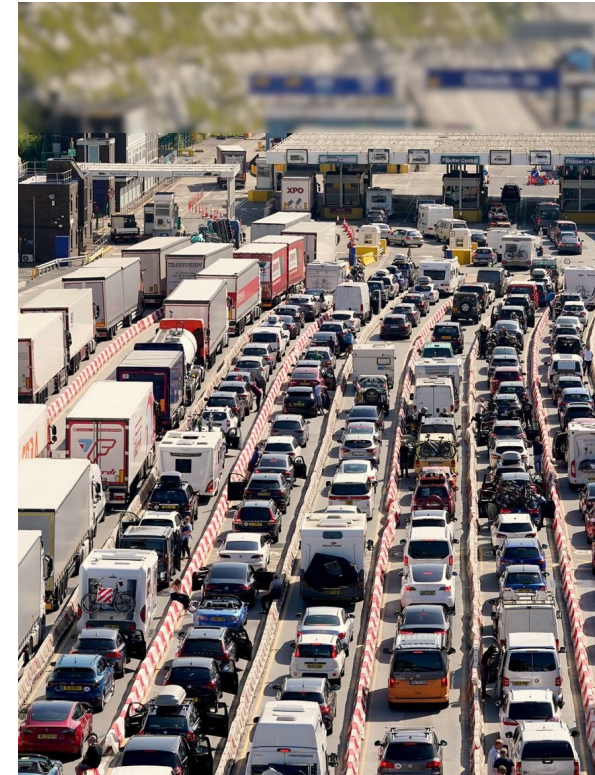


Predicting freight & all traffic flows at UK port.

What: Strategic road network (process/ecosystem)

Why: Visibility of future traffic vs capacity
To mitigate congestion

Value: Informed resourcing
Proactive communication with freight
Improved service levels & reduced congestion



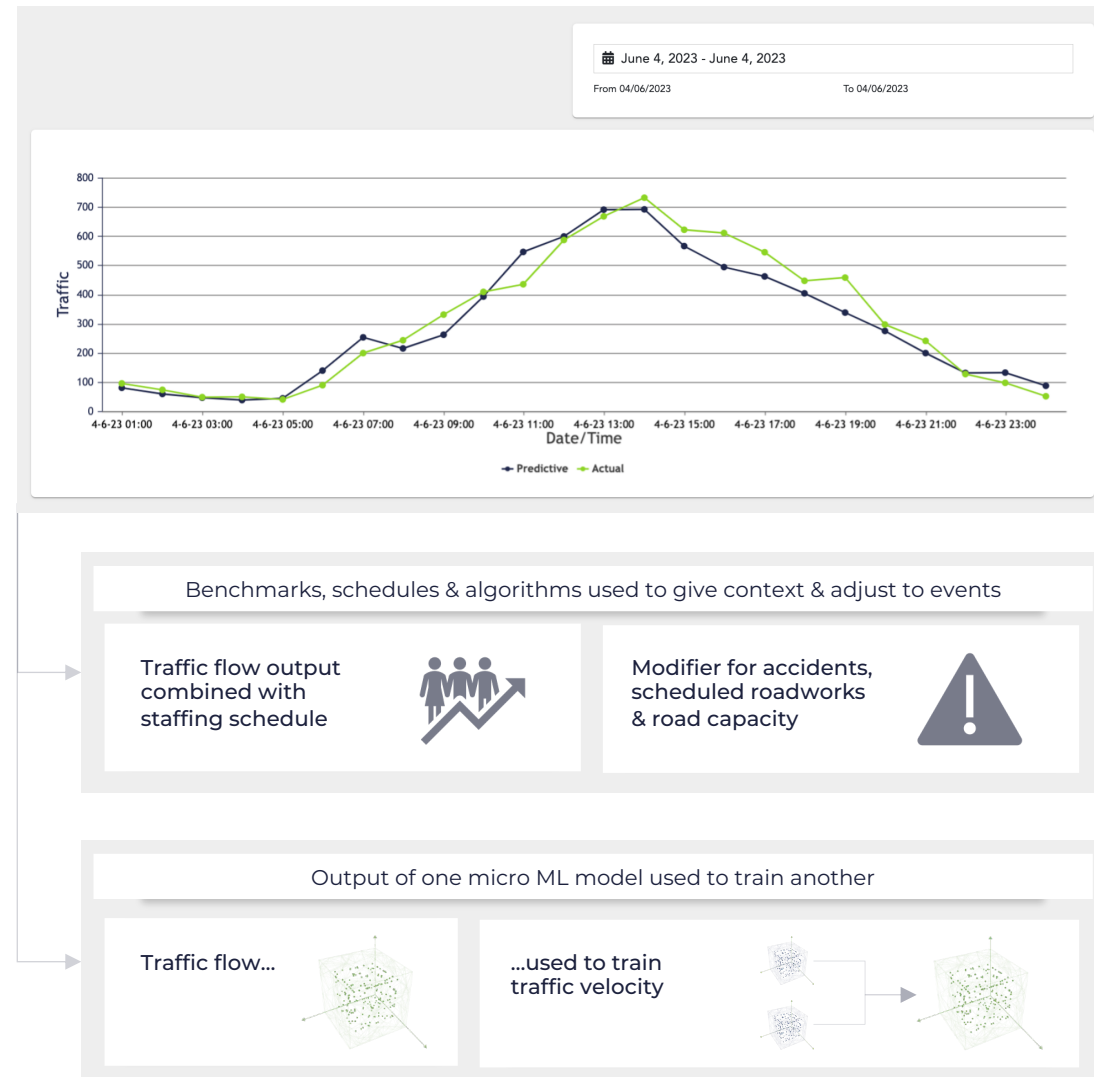
Micro machine-learning models:

What & why?

- Break complex predictive problems into smaller, more specific chunks (model/data fit)
- Orchestrate outputs using ontology (predicted/synthetic attributes & workflows)
- Smaller data, better accuracy, quicker delivery

Consideration & research areas:

- Repeatability of models & orchestration techniques
- Generalisation of models
- Federation of models



Increased model accuracy

Combined with other models

Example of systems/data:

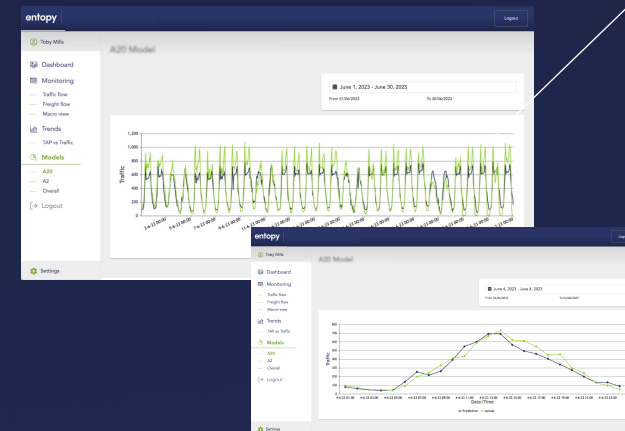
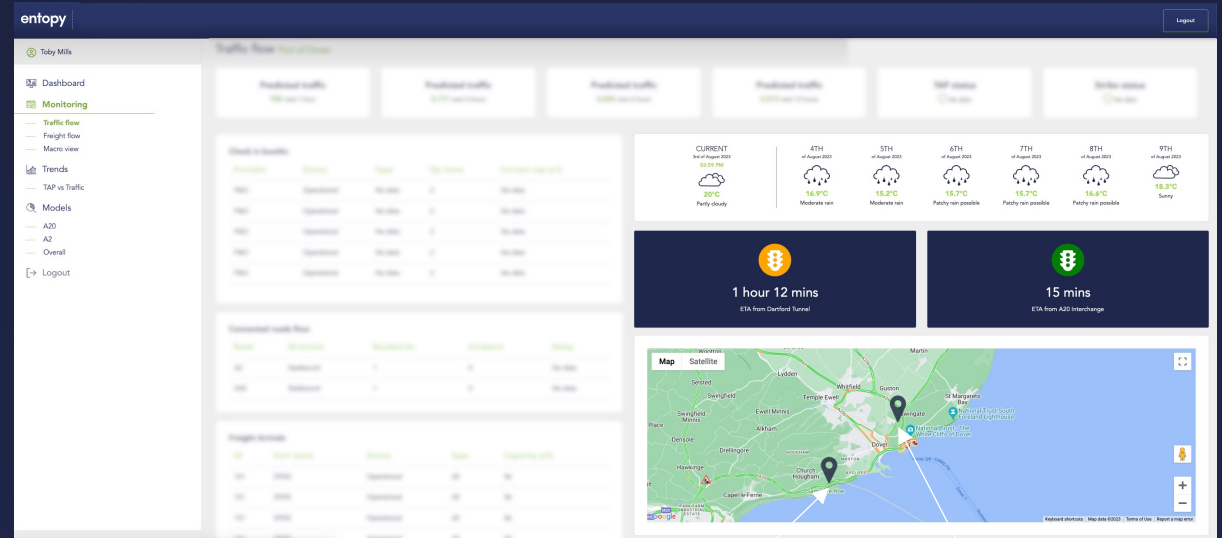
- Traffic cameras, RNS, check-ins, bookings, traffic, weather, events, etc.

Enablement:

- High accuracy predicted outputs (>80%)
- Combined with computational model (impact of roadworks, forward staffing schedules, impact of accidents, etc.)

Use case futures :

- Increased model footprint
- Federation with consignment journey digital twin



Other topics (please follow up).

- Closer look at ontology & architecture
- Deep dive into micro machine-learning models
- Challenges & learnings of productising the concept
- Barriers to adoption and what we are doing to overcome them



Toby Mills

CEO | Entopy

toby.mills@entopy.com



An aerial photograph of a city at sunset. A river flows through the center, with a bridge crossing it. The city is surrounded by dense trees with autumn foliage. The sky is a mix of orange, pink, and blue.

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