Challenges with integrating vessel performance data

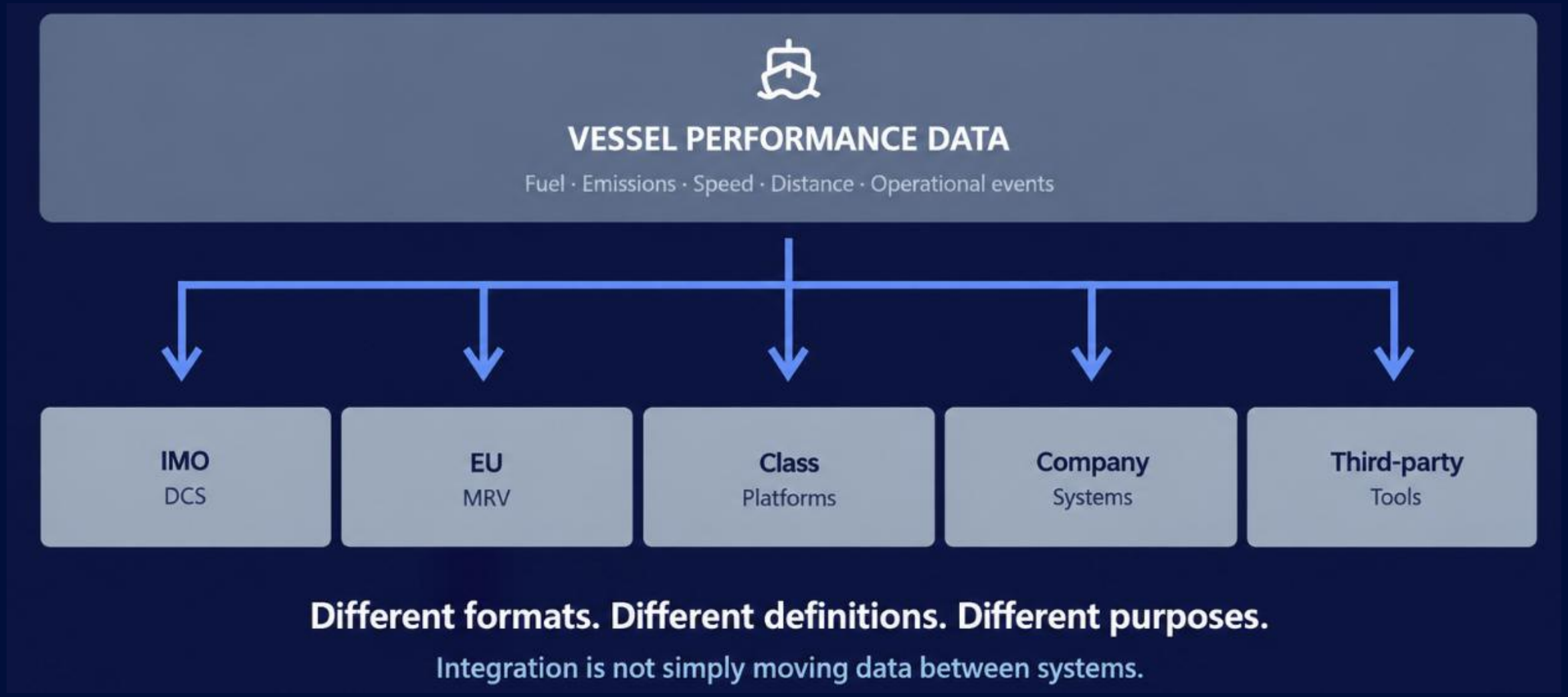
Dr. Carlos Gonzalez

2nd People Tech Maritime Bergen

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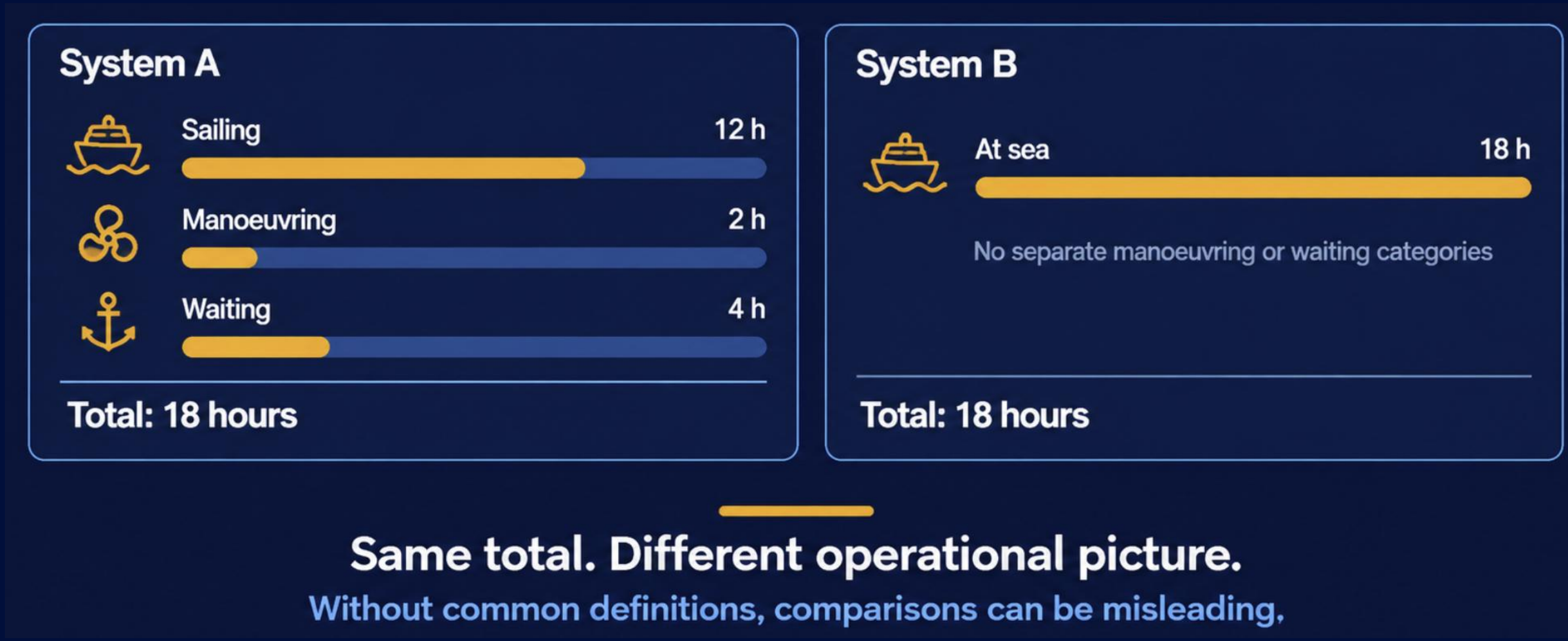

Leading The Way, Making A Difference.

The same vessel, different data systems



Same data. Different meaning

Example – How different systems classify vessel operational parameters



When data integration becomes a technical challenge
Example for Fuel Consumption

System A
Fuel by product

Fuel type	Consumption (t)
HFO	800
VLSFO	200
MGO	50
Total	**1,050**

System B
Fuel by consumer

Consumer	Consumption (t)
Main engine	850
Auxiliary engines	150
Boiler	50
Total	**1,050**

System C
Fuel by time/operational mode

Operational mode	Consumption (t)
Underway	900
Manoeuvring	80
In port	70
Total	**1,050**

Data integration
Mapping, conversion and validation

Challenges

Different data structures
Products, consumers or operational modes

Different definitions
What is "underway", "in port" or each consumer?

Unit and time mismatches
Hourly, daily, voyage or annual reporting

Need for consistent mapping
To enable meaningful comparisons

The same total fuel consumption. Different structures, definitions and level of detail.
Integration requires more than connecting data sources.

Standardisation – Where should we start?

1 Common definitions
Ensure data has the same meaning

- **Vessel operating conditions**
  e.g. underway, manoeuvring, in port
- **Fuel types and energy content**
  e.g. fuel categories, LCV
- **Performance indicators**
  e.g. CII, GFI, emissions (WtW/TTW)

2 Common data structures
Organise information consistently

- **Standardised data fields**
  e.g. vessel, voyage, fuel, emissions
- **Consistent formats and units**
  e.g. ISO units, date and time
- **Reporting granularity**
  e.g. hourly, daily, voyage, annual

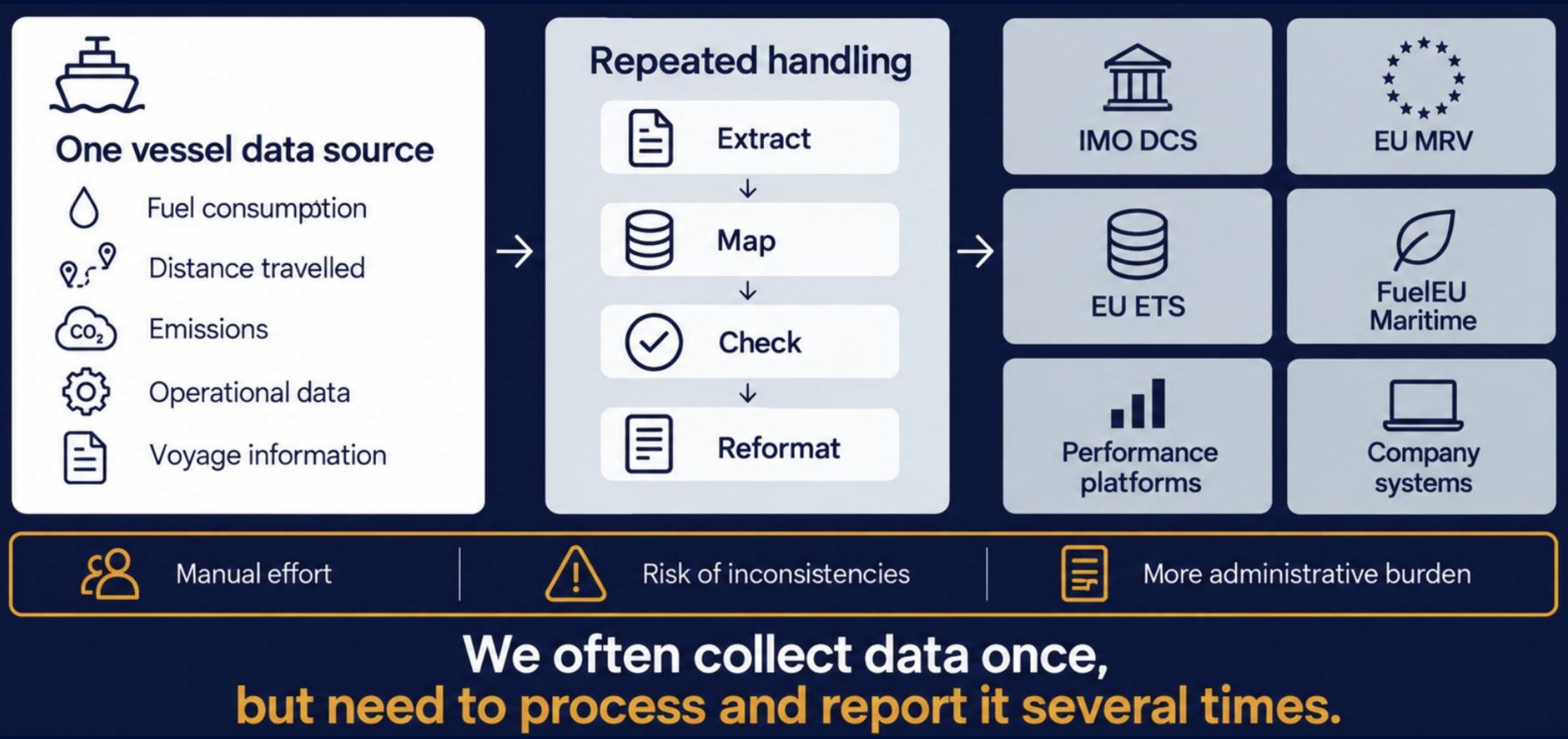
3 Standardised data exchange
Enable seamless interoperability

- **Common API specification**
  e.g. INTERTANKO Standard API
- **Provider-agnostic exchange**
  No bespoke development for each provider
- **Data validation and governance**
  Ensure quality and consistency

A common API is useful.
A common understanding of the data is essential.

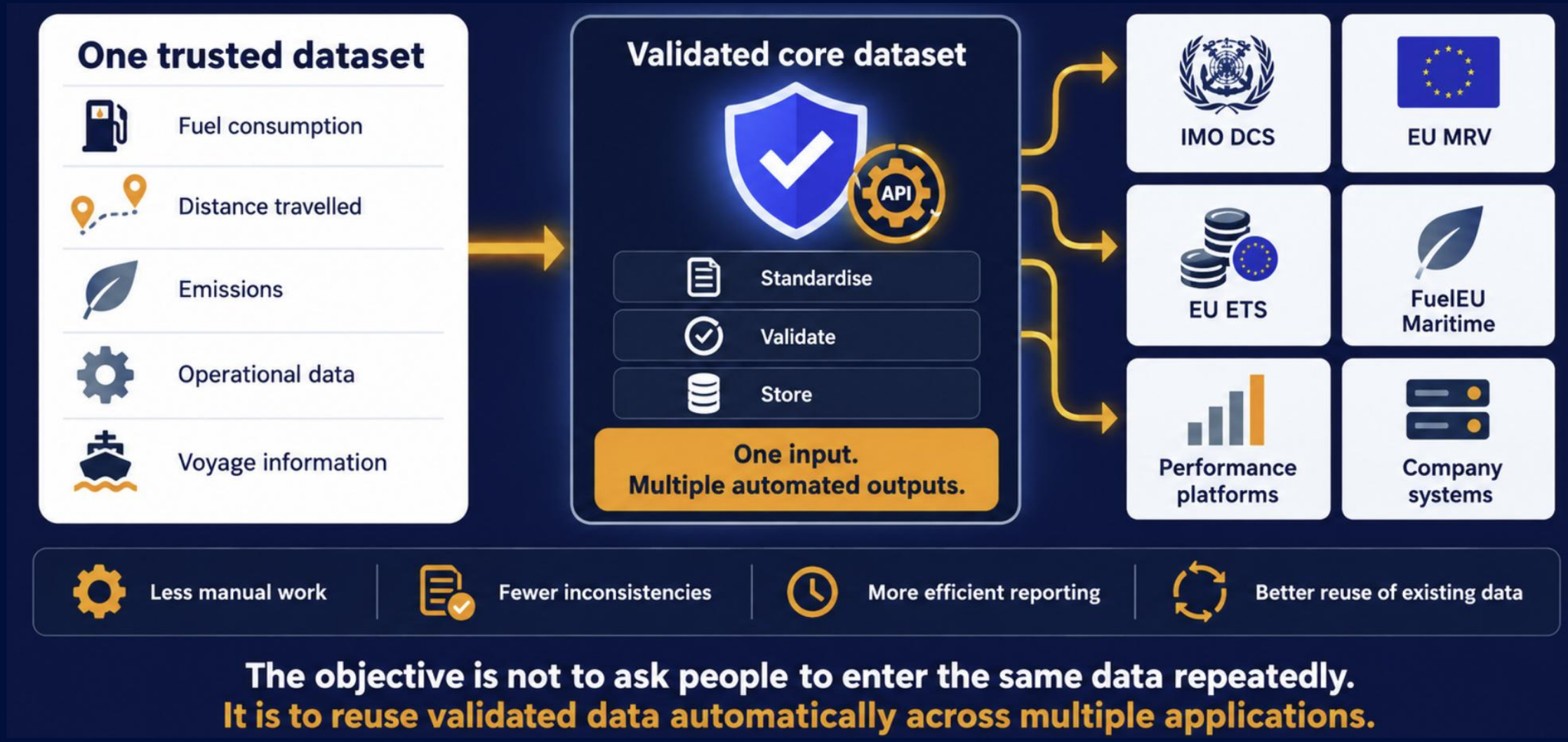
Technical connectivity enables data exchange, but common definitions and structures are necessary for meaningful comparisons.

Same data – Multiple reporting demands



From repeated reporting to Data Reuse

Capture once, validate once, then distribute automatically



From theory to practice: INTERTANKO Experience

GHG Benchmarking Toolbox

~1,300
Vessels participating

2023+
Reporting years

Multiple
Data providers and formats

Different data structures
Fields, formats and reporting granularity

Different definitions
Operational events and performance indicators

Data validation and consistency
Completeness, units and comparable reporting periods

Collecting data is only part of the work.
Making it comparable is the real challenge.

From data integration to meaningful benchmarking

GHG 2.0 – lessons learnt and new functionalities

Multiple data sources

- **Class data platforms** e.g. DNV, ABS, ClassNK
- **MRV / DCS platforms** e.g. Veracity, EU MRV
- **Company systems** e.g. noon reports, PMS
- **Other sources** e.g. OVD, fuel suppliers

Secure and standardised exchange

INTERTANKO Standard API



Key outputs for Members

- **Comparable performance** Vessel, fleet and route benchmarking
- **Track progress** Period comparison and trend analysis
- **GHG performance monitoring** Track emissions and energy efficiency indicators
- **More shared data** Stronger insights – for all

One platform. Multiple data sources. Practical insights.
INTERTANKO GHG Toolbox 2.0 – Launched October 2026

Better data. Better decisions.

Better data exchange, better decisions

Key takeaways for a more connected and efficient maritime industry

1

Common definitions

Align on how key parameters are defined and calculated to ensure data means the same thing across systems and stakeholders.

2

Standardised data exchange

Use consistent data structures and open interfaces to enable efficient and secure interoperability.

3

Reuse reliable data

Collect and validate data once and reuse it for multiple purposes, reducing duplication and administrative effort.

4

Greater value for all

More comparable insights, better decision-making and a more efficient use of resources for shipowners, operators, regulators and the wider industry.

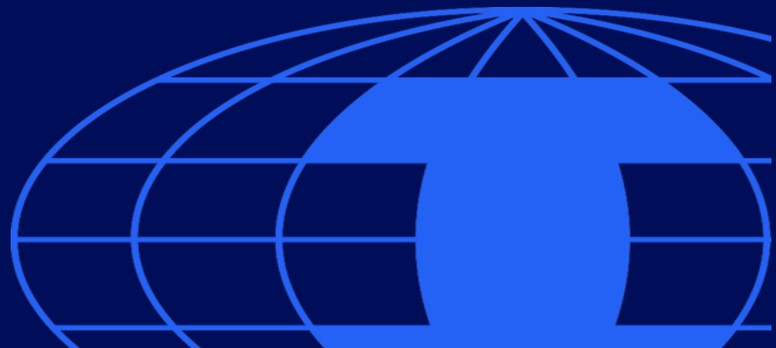


The value of vessel data is not in how much we collect, but in how effectively we can use it.

INTERTANKO | More shared data means stronger insights — for all.

Thank You

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