Integration of a Vessel Performance System in a "classic" Performance Management set-up

Sverre Patursson Vange, Head of Performance Management

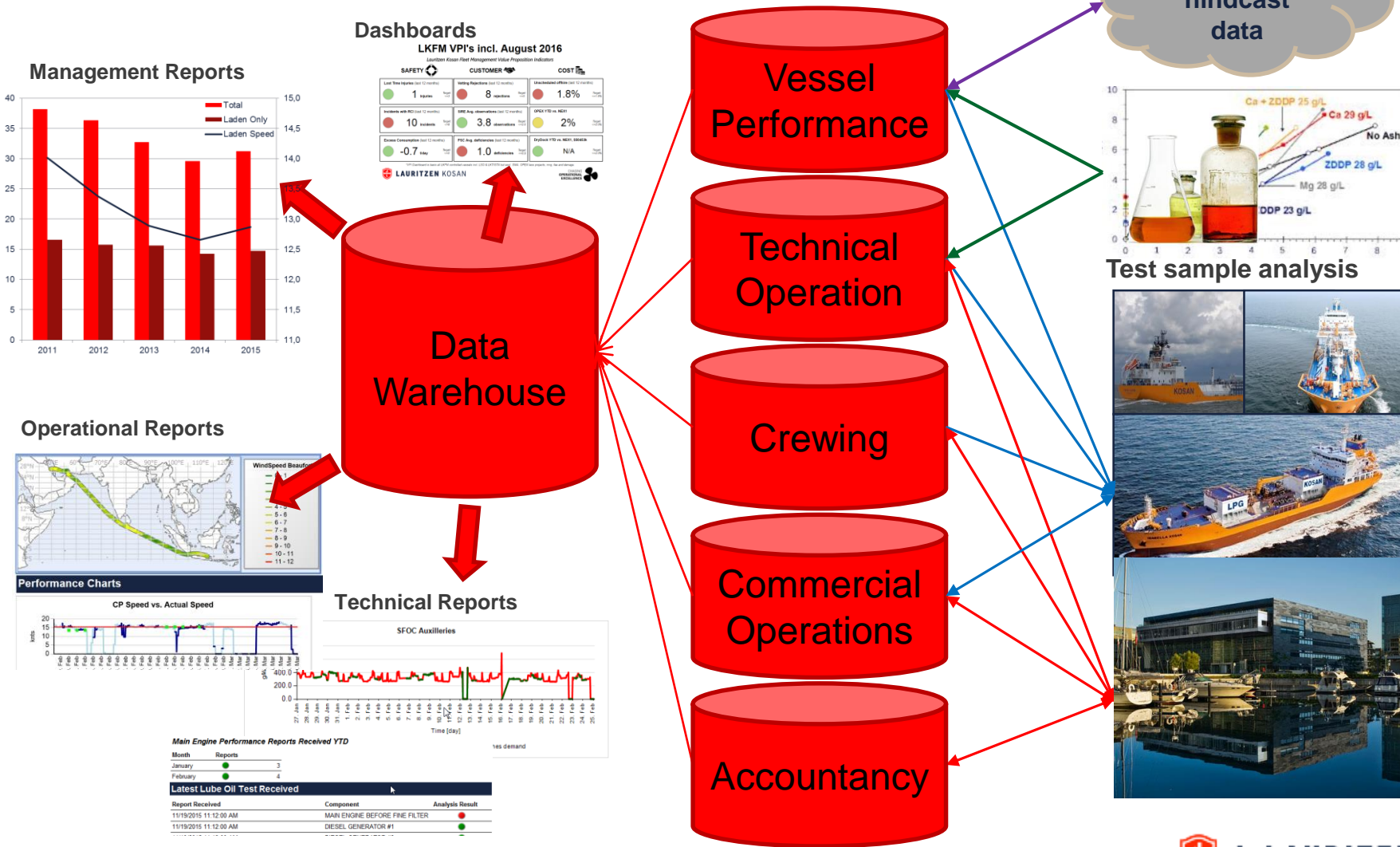3rd Navigating Ecotankers Conference, 6th March 2017

J. LAURITZEN

J. Lauritzen

- Lauritzen Kosan

  - Ship-owner

    - Own vessels, Joint ventures, Bare Boat and Time Charter, Pool Partners

  - Operates 32 LPG carriers from Copenhagen and Singapore

    - Commercial Pool of Ethylene carriers

  - Technical Management of 27 LPG carriers from Copenhagen

- Lauritzen Bulkers

  - Owned, but mostly Time Chartered vessels: Supramax and Handysize

  - Operates 87 bulkers from Copenhagen, Singapore and Stamford USA

  - Technical Management outsourced

J. LAURITZEN

Performance Management System

Simple overview of the data flow in J. Lauritzen

Management Reports

Dashboards

Operational Reports

Technical Reports

Data Warehouse

Vessel Performance

Technical Operation

Crewing

Commercial Operations

Accountancy

AIS and hindcast data

Test sample analysis

J. LAURITZEN

Blue INNOship

Work Package 2 - Performance & Monitoring, Project #5: Vessel Performance Decision Support

- Energy Efficiency
- KPI Framework
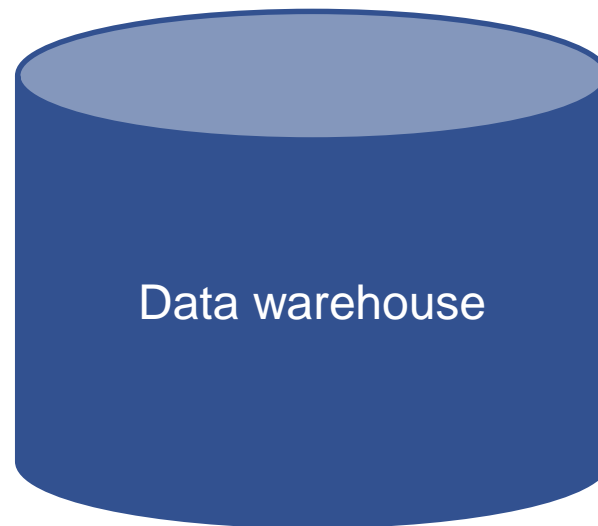- Open standard for exchange of Performance Data

Trending of Vessel Performance

Based on Vessel Performance Analysis engine developed under Blue INNOship Project #5: "Vessel Performance Decision Support"

Validation KPI

Excess Consumption [%]
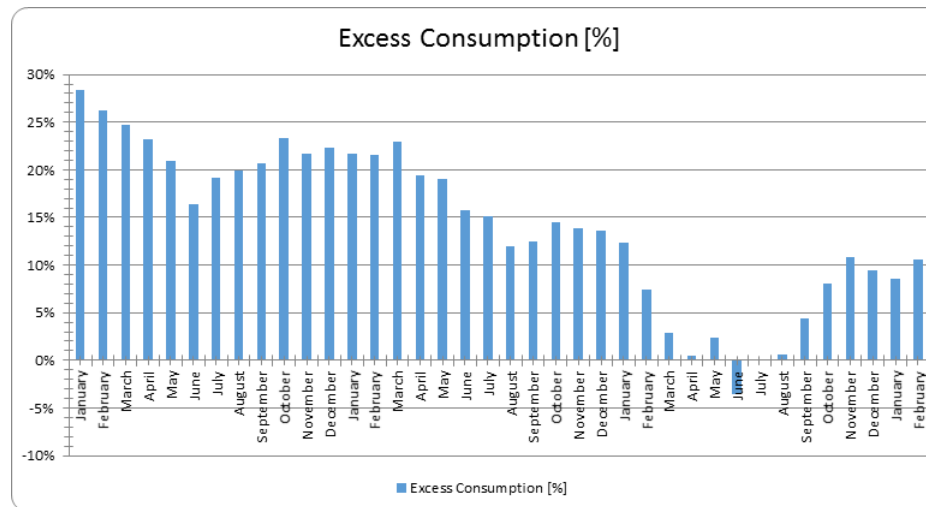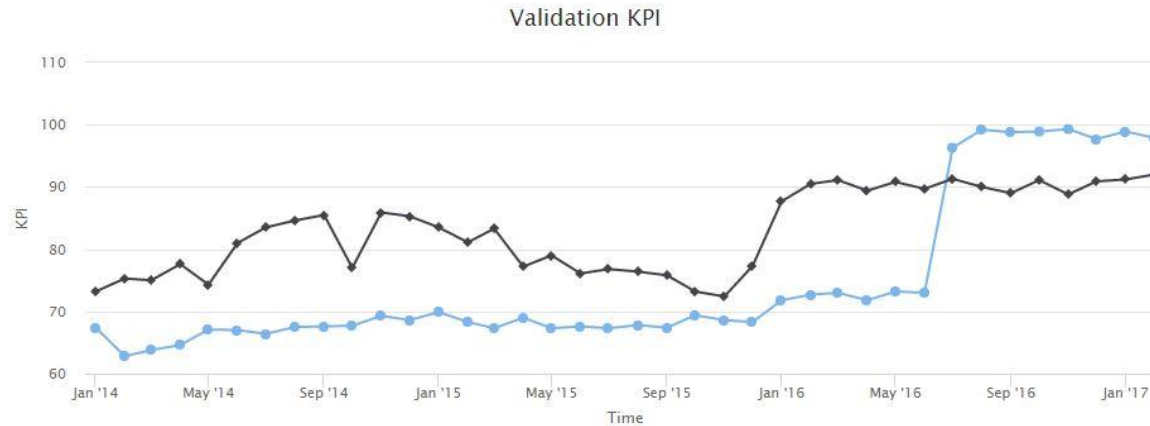
Lots and lots of data, including performance related data.

Data warehouse

How to integrate a performance management solution?

How to reduce amount of data to relevant decision support?

J. LAURITZEN

Vessel
Performance
Solutions

PERFORMANCE MONITORING SYSTEM: KEY ELEMENTS

Data collection:
Noon or autolog (many solutions!)
Quality of data
Communication vessel/office

Data storage:
Noon or auto-log
Ease of access (interfacing and security)
On-board storage?

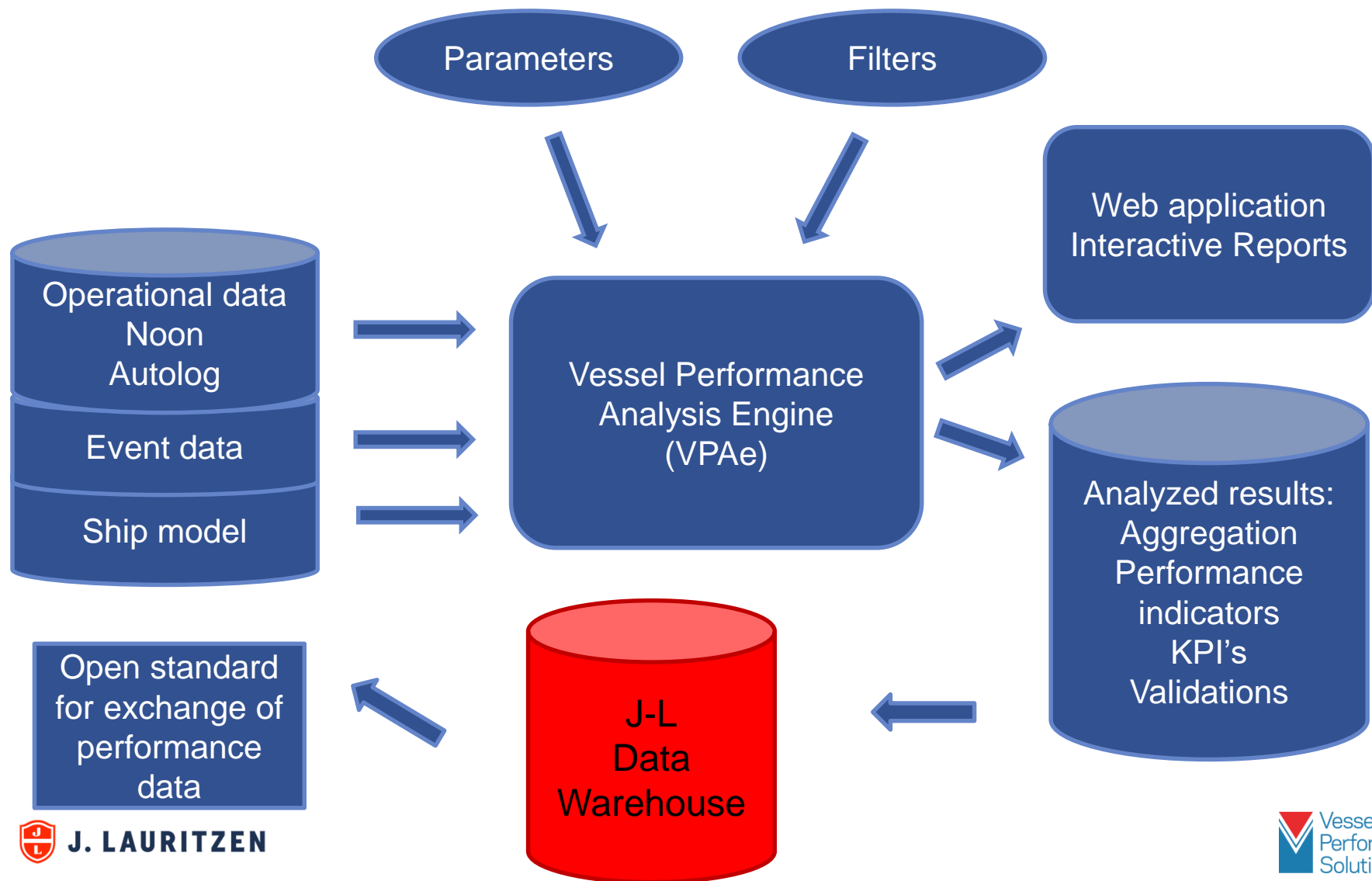Analytics:
Models, modeling and analysis
Filtering
Noon or auto-log

Presentation (different stakeholders):
On-board
Office internal
Office external

Torm and Lauritzen: Three different data collection platforms in use for noon data and two/three for autolog.

J. LAURITZEN

Vessel
Performance
Solutions

THE INNOPLUS VESSEL PERFORMANCE DECISION SUPPORT SOLUTION

Parameters

Filters

Operational data
Noon
Autolog

Event data

Ship model

Vessel Performance
Analysis Engine
(VPAe)

Web application
Interactive Reports

Analyzed results:
Aggregation
Performance
indicators
KPI's
Validations

Open standard
for exchange of
performance
data

J-L
Data
Warehouse

J. LAURITZEN

Vessel
Performance
Solutions™

Decision support on:
- Calibrated fuel tables
- Hull&propeller performance (trending)
- Main engine performance
- Base load performance (sea&harbor)
- Boiler performance
- Fuel balance
- Data Quality (validation, PI's and KPI's)
- On-going voyages monitoring, including CP compliance
- Completed voyages CP compliance

In progress:
Consolidated scorecards, assembling all PI's (or KPI's) in one dashboard.
User defined aggregation periods: today, weekly, monthly.

J. LAURITZEN

Vessel Performance Solutions™

Will receive data from many different data collection providers -> flexibility requirement.
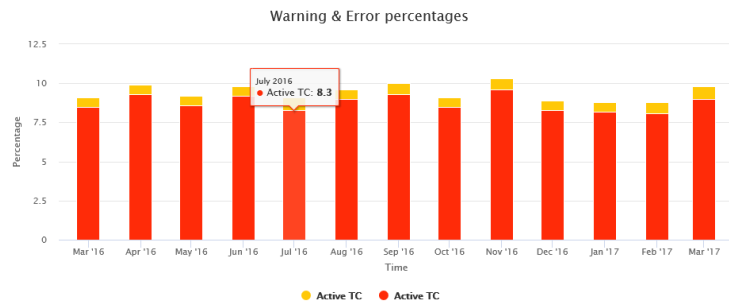Necessary with a strong pre-analysis tool for data quality assessment.
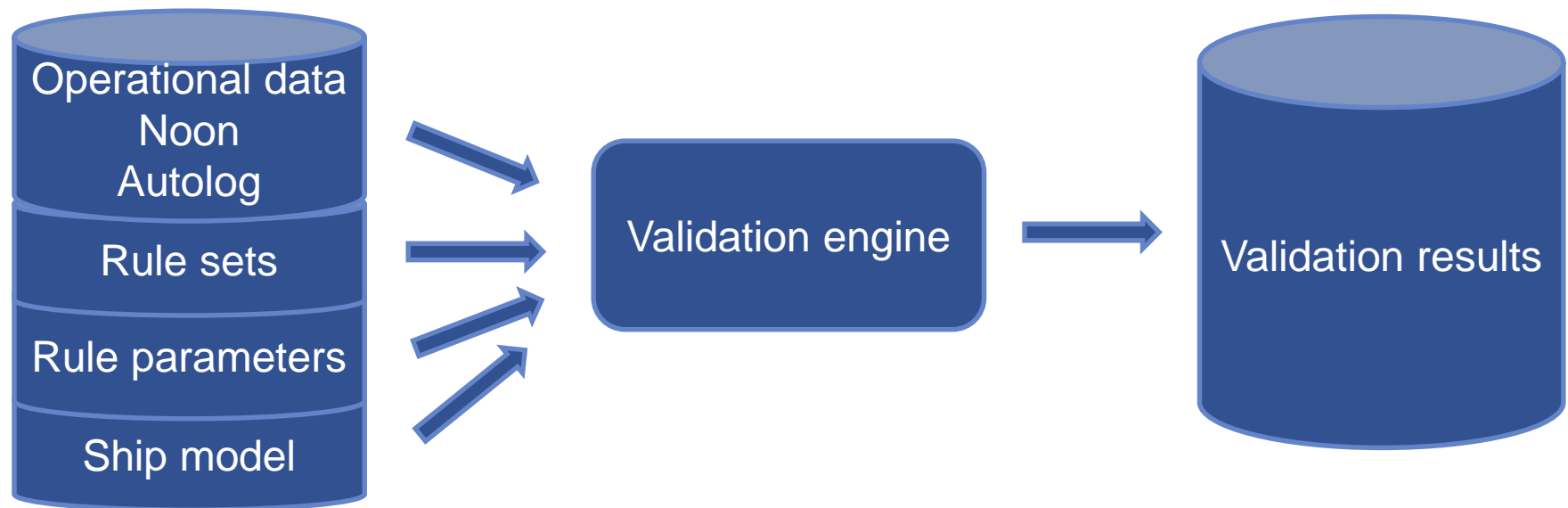
Statistical results including all vessels and all reports, possible to identify problem vessels and problem areas in the office.
Build as a module, can be used by any data collection module on-board with proper interfacing.

J. LAURITZEN

Vessel Performance Solutions

VALIDATION ENGINE OUTPUT

Warning & Error percentages

Warning & Error per rule
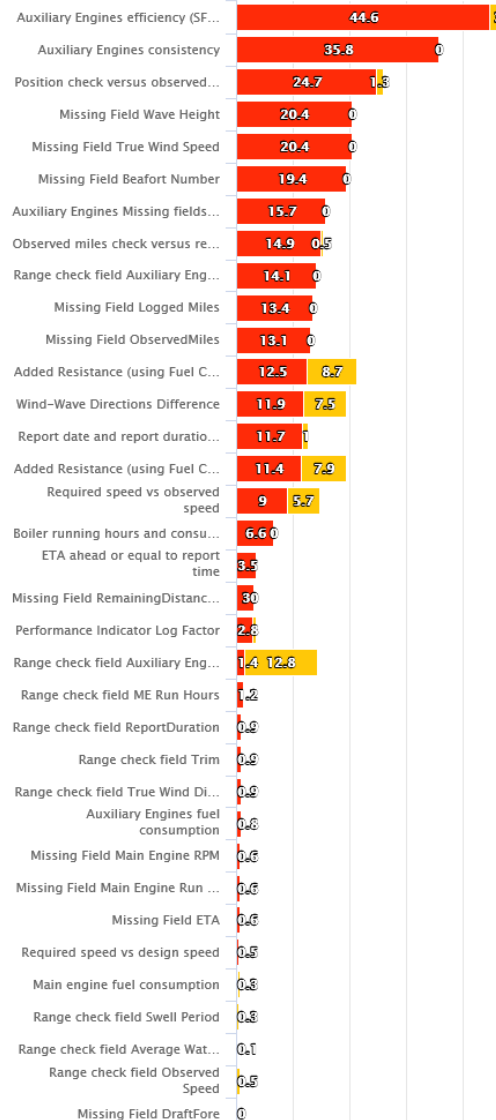

Warning & Error per vessel

Easy identification of low hanging fruits:
- low or high performers
- topic items

Easy to follow process; is progress in the right direction?

Equally relevant for autolog or noon.
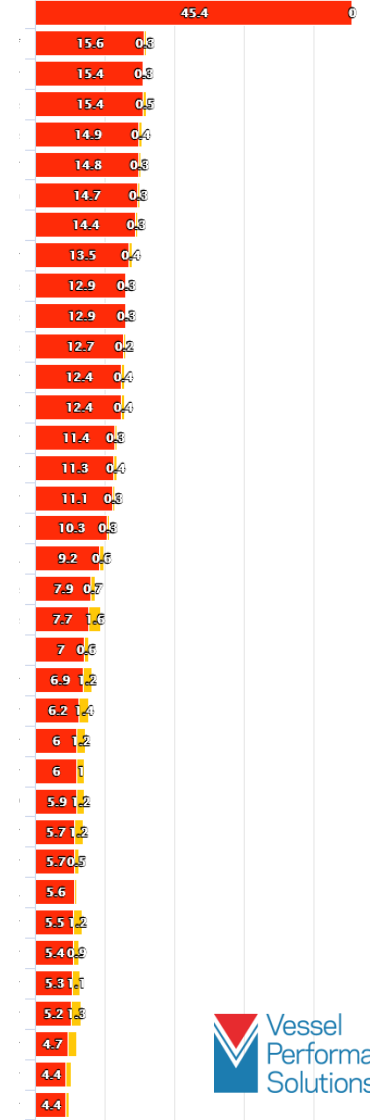
STEPS TOWARDS OPERATIONAL EXCELLENCE

Operational excellence requires framework that support a structured process:
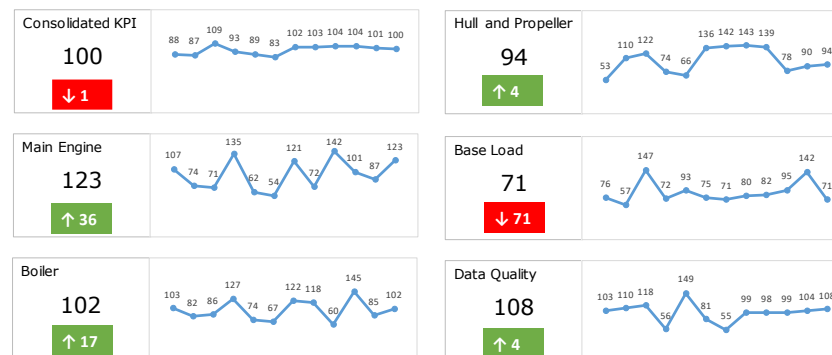- Identify and develop algorithms for relevant **performance indicators**
- Establish **baselines** for relevant performance indicators
- Establish **targets** over a pre-defined period for relevant performance indicators
- Pro-actively **monitor progress** towards target throughout monitoring period

The framework that has been designed in the INNOplus Vessel Performance Decision Support project will in its final version support such a process:
- System supported data driven KPI process for the fleet
- Monitor the progress daily, weekly, monthly for fleet, groups, individual vessels.
- At very early stage (daily) catch non-performance fleet wise, groups etc.

Assembling relevant performance indicators and KPI's into one dashboard:

KPI Scores: Jan '16 - Dec '16

Consolidated KPI	Hull and Propeller
100 ↓1	94 ↑4

Main Engine	Base Load
123 ↑36	71 ↓71

Boiler	Data Quality
102 ↑17	108 ↑4

J. LAURITZEN

Vessel Performance Solutions™

CONCLUSIONS

Big data and internet of things requires open and transparent interfaces between systems.

Different shipping companies have different needs

The VPDS project has developed a performance platform with a modular structure:
- data collection,
- data storage,
- analysis engine (VPAe) with modular validation engine,
- presentation layer

with transparent interfaces. Possible to interface to the VPAe and the validation engine from third party applications.

Open standard will enable easy exchange of operational performance data.

Most importantly, the participating shipping companies have achieved significant results over the last 18 month.

The latest developed modules will deliver further fuel and operational savings as well as improvements in data quality for the shipping companies in 2017.

J. LAURITZEN

Vessel Performance Solutions™