TMS Dry Ltd

Fleet Digitalization & Compliance: A Toolkit for the Modern Age

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Roadmap

- Overview of Digitalization in Shipping
- Low Frequency Data Validation
- Data Acquisition Onboard Vessels
- Solutions for Data Storage & Processing
- Extracting Valuable Insights
- Tools for Office Presentation

Digitalization Overview

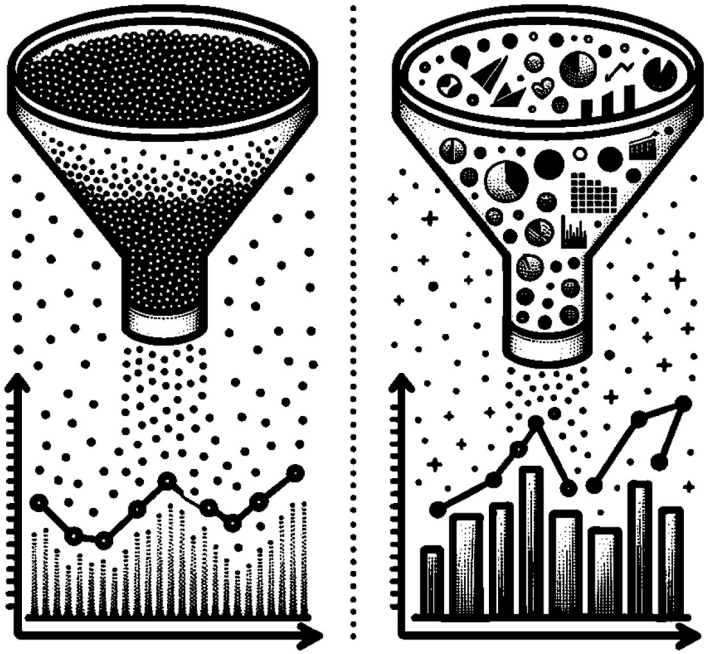
Digitalization Process

Overview of Digitalization in Shipping

- Importance of Digitalization
- Impact on Fleet Efficiency
- Compliance Requirements
- Impact on profitability

Data Acquisition Onboard Vessels

- Noon Report Data
- Sensors and IoT Devices
- Real-time Data Collection
- Data Types
  - Operational
  - Performance
  - Compliance
- Challenges and Solutions
- Office Tools



Data Storage & Processing

- On Premise vs Cloud-Based Solutions
- Onboard & Onshore Data Centers
- Data Security Measures
- Data Validation and Cleaning

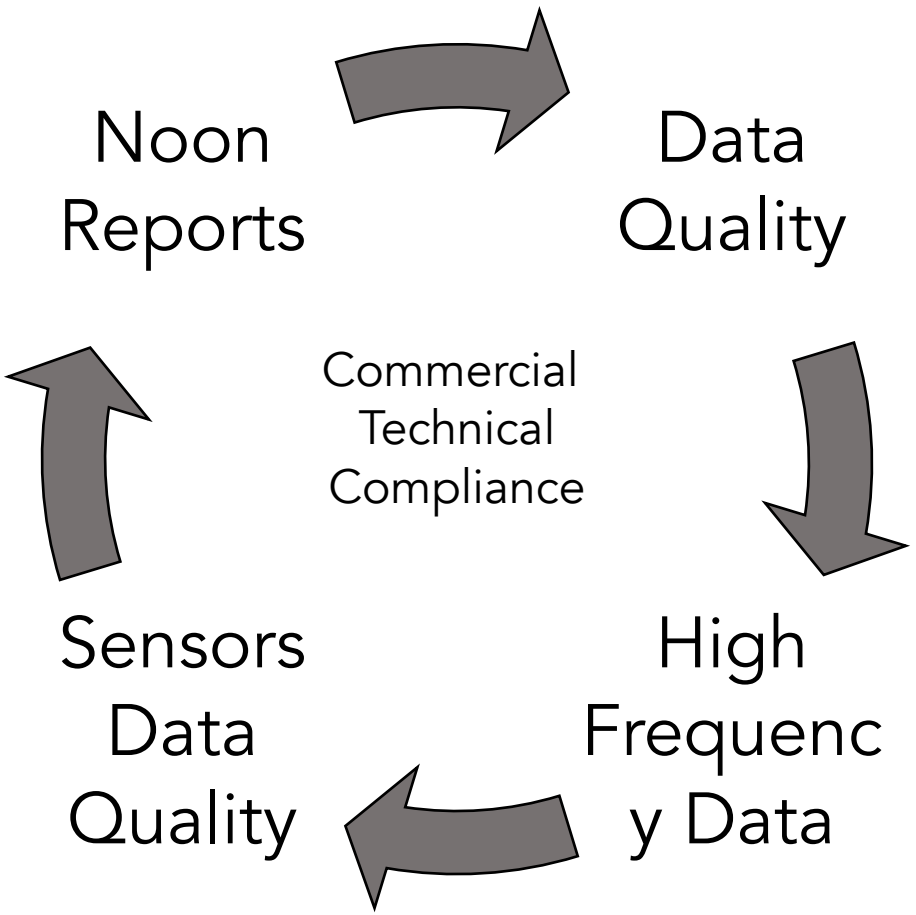
Extracting Valuable Insights

- Data Analytics and Machine Learning
- Predictive Maintenance
- Propulsion Efficiency Optimization
- Safety and Compliance Enhancement

Office Tools

- Data Visualization / Presentation Tools
  - Commercial Products
  - In-house Solutions
  - Interactive Dashboards
  - Augmented Time Series Data
  - Traffic Light Method
- Custom Reports
- Remote Access

Common Performance Strategy



ROI Maximization

Case Study

Export

Number of Vessels with Active DAQ	Total M/E Overconsumption (M/T)	Per Vessel M/E Overconsumption (M/T)	Average M/E (%) Overconsumption	Reported Miles Discrepancy
14	2.3	0.2	0.4%	

Export

Date / Time	Vessel	Report	TimeZone	Draft	Voyage No	Next Port	Attained CII	Report CII	Sailing Time	Total Miles	Speed GPS	Total Cons/24H	M/E Cons/24h	A/E Cons/24h	Boiler Cons/24H	M/E RPM	T/C RPM	Pump Mark	Slip	F/W ROB
2023-10		Noon	3	B	246B	SUEZ	D	C	25	327	13.08	40.8	37.5	3.3	0	71.8	8200	44	3.17	199
2023-10		Noon	2	L	180L	GIBRALTAR	C	C	23	265	11.52	38.0 / 0.0	33.7 / 0.0	4.3 / 0	0	69.2 / None	6980	50	10.65	165
2023-10		Noon	-3	L	173L	SINGAPORE	D	E	24	225	9.38	27.5	23.3	3.9	0.3	81.11	11910	54	25.61	266
2023-10		Noon	3	L	72L	SINGAPORE	C	E	24	242	10.08	40.0 / 39.4	34.8 / 34.4	5.0 / 5	0.2	67.05 / 67.1	6879	52	19.3	258
2023-10		Noon	8	L	31L	FANGCHENG	E	C	24	265	11.04	40.5 / 40.7	37.0 / 37.1	3.5 / 3.6	0	65.3 / 65.2	8550	52	15.7	630
2023-10		Port Noon	2	L	172L		C	B	0	35	0					0	0	0		282
2023-10		Port Noon	5.5	L	35L		B	Idle	0	0	0		0			0	0	0		191
2023-10		Noon	8	L	52L	LUOYUAN	C	C	24	271	11.29	27.5 / 26.9	24.6 / 25.2	2.9 / 2.6	0	73.13 / 72.5	7900	48	4.74	289
2023-10		Noon	8	L	197L	CAOFEIDIAN	D	D	13.5	151	11.19	43.5	38.9	4.6	0	71.79	8040	50	12.45	265
2023-10		Noon	8	L	39L	DALIAN	C	C	24	270	11.25	40.1	35.3	4.8	0	62.01	8979	55.8	6.78	377
2023-10		Port Noon	2	L	128L		C	Idle	0	0	0		0			0	0	0		408
2023-10		Noon	2	L	106L	SINGAPORE ANCHORAGE	D	D	24	261	10.88	39.9 / 39.9	36.2 / 36.0	3.7 / 3.7	0	70.36 / 70.5	7900	65	13.15	313
2023-10		Port Noon	11	B	163B		D	Idle	0	0	0					0	0	0		263
2023-10		Noon	3	B	95B	OWENDO	D	C	24	278	11.58	40.1 / -2.4	36.5 / 36.3	3.4 / 3.1	0.2	68.0 / 67.5	7100	44	13.09	511
2023-10		Port Noon	1	L	26L		D	Idle	0	0	0	nan / 3.0	0.0 / None	nan / 3	0	0.0 / 0.0	0	0		307
2023-10		Port Noon	8	L	30L		B	E	0	18	0	nan / 0.0	nan / 0.0	nan / 0		0.0 / None	0	0		271
2023-10		Noon	4	B	2B	ITAGUAI	A	A	25	343	13.72	40	35.8	4.2	0	56.9	9567	61	-2.05	453
2023-10		Port Noon	-3	B	260B		C	Idle	0	0	0		0			0	0	0		230
2023-10		Noon	11	L	211L	JINGTANG	C	C	25	286	11.44	40.2	34.9	5	0.3	68	7051	61	9.72	331
2023-10		Noon	-11	L	177L	RIZHAO	C	C	25	292	11.68	27.1	23.5	3.3	0.3	71.04	7500	44	-1.44	123
2023-10		Noon	0	L	212L	GIBRALTAR	C	A	24	295	12.29	35.1 / 34.5	31.0 / 32.0	4.1 / 2.4	0	68.6 / 68.6	6682	62	3.85	246
2023-10		Noon	-12	L	269L	PRAIA MOLE	D	C	24	284	11.83	39.4 / 37.5	35.8 / 36.2	3.6 / 1.6	0	69.63 / 69.6	7400	65	4.33	366

Compliance and Regulatory Considerations

- GDPR and Data Privacy
- IMO Regulations
- Emission Monitoring and Reporting
- EU ETS / Carbon Trading

Return on Investment (ROI)

- Cost Reduction
- Revenue Generation
- Environmental Benefits

Challenges and Risks

- Data Security
- Integration Complexity
- Onshore & Onboard Personnel Training
- Upfront Costs
- Black-box solutions

Best Practices

- Cross-functional Teams
- Universal No Blame Policy
- Continuous Training
- Regular Independent Data Audits
- Partnering with Experts

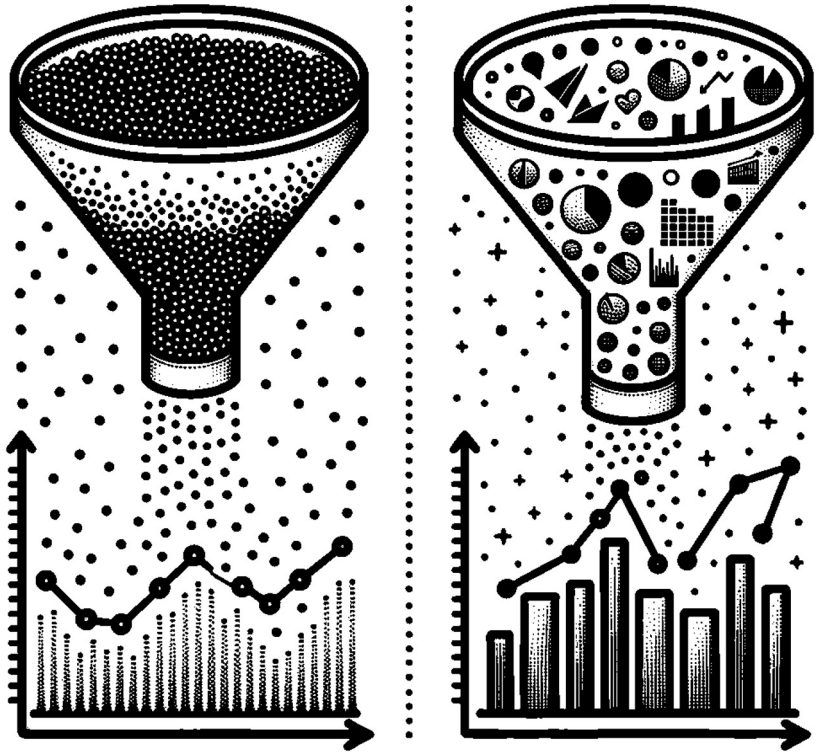
2020 - 2050

- Environmental Sustainability
- Artificial Intelligence and Automation
- Autonomous Shipping
- Alternative Power Sources

2020 - 2050

- Systems as a Service (SaaS)
- Blockchain for Transparency
- Data-Driven Decision making

Conclusion



Questions & Answers

Thank you

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