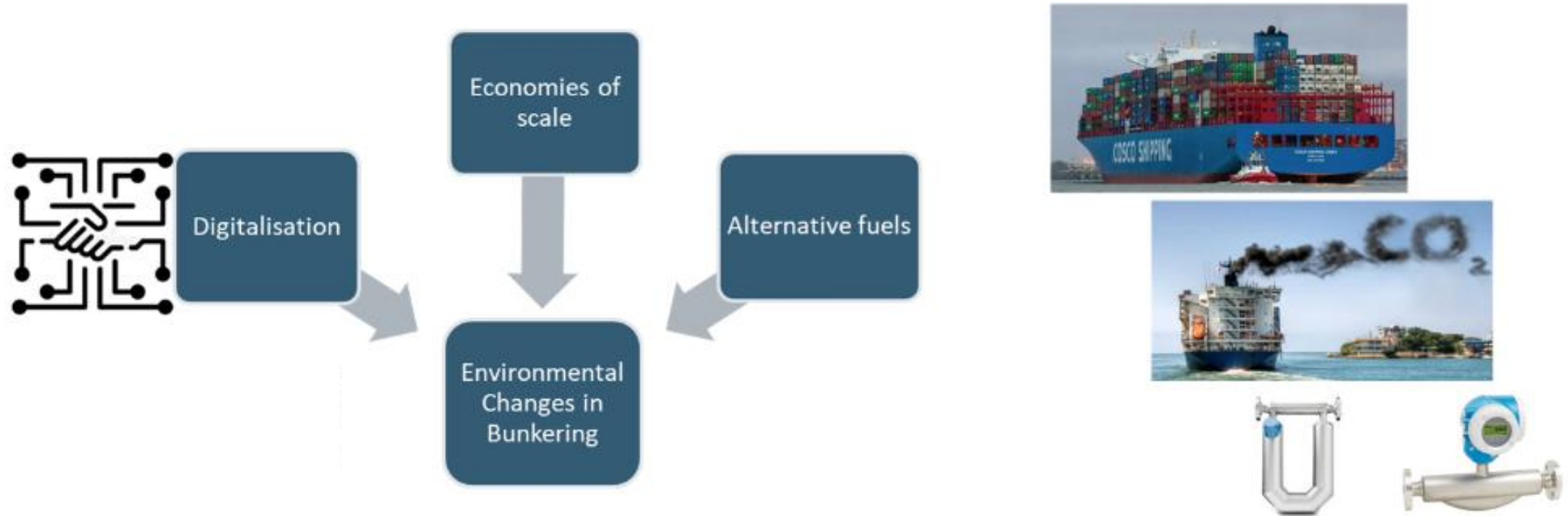


Certification and Governance of Mass Flow Meter (MFM) System across International Ports



Dedicated in Increasing Efficiency, Transparency and Trust

ENVIRONMENT IMPACT ON BUNKER MEASUREMENT



TRUST begins with Data You can Prove: The Power of **TRANSPARENCY** in Bunker Operations!

CONDUCTIVE & SUSTAINABLE IMPLEMENTATION:

SINGAPORE'S JOURNEY on METHANOL

27 Jul 2023: First **methanol** delivery operation to a container vessel in Singapore.



The learning and experience gained from these operations, contributed to setting up **TR129 (methanol bunkering)** & SS709 (digitalisation).

Methanol

Singapore: Golden Island's methanol bunker tanker "Golden Antares" arrives, starting MFM trials



"Our bunker tanker will first undergo port formalities and have its mass flow meter (MFM) unit commissioned in Singapore," Tomohiro Yamano, General Manager of the Marine Fuel Department at Golden Island, told the bunkering publication"

.... "After the above is done, it will discharge green methanol to the Stolthaven Terminal in Singapore port on 15 August 2025 while keeping a portion onboard for the acceptance test of our Mass Flow Meter (MFM) system to ensure it meets the requirements set by Technical Reference for Methanol Bunkering (TR129)" ...

Source: <https://www.manifoldtimes.com/news/singapore-golden-islands-methanol-bunker-tanker-golden-antares-arrives-starting-mfm-trials/>

TRACEABLE & TRANSPARENT BUNKER MEASUREMENT

- MFM: The Digital Backbone
- More Than a Meter
- Key Benefits
- Built on Standards



From Meter to Standard—**Transparency** is the Foundation of **Trust** in Bunker Operations

MFM SYSTEM IS NOT PLUG AND PLAY

- MFMs are used for bunker fuel measurement since Y2005 in USA, followed by ARA.
- Singapore started the mandate in Y2017
- So why is Singapore successful?
- The key is the right approach in using MFM system with standard guidelines like SS 648 & ISO 22192



STANDARD AND CONFORMANCE

ISO 22192 is not just a standard—it serves as the foundation for certified MFM governance across global ports

Validation
of Integrity

Operational
Confidence

Global
Recognition

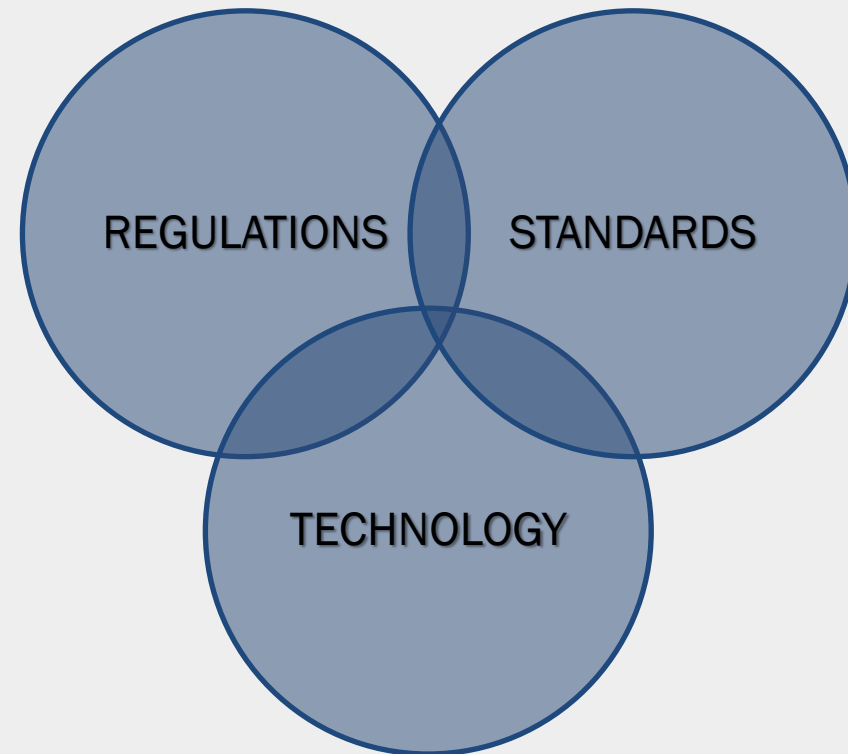
Future-
Ready



Certification & Governance: Adherence to standard guidelines provides **Assurance**

CONNECTED COMPLIANCE FRAMEWORK

- Regulations set the Framework
- Standards Support Transparency
- Leveraging Technology
- Continuous Improvement
- Holistic Integration builds Trust



By aligning regulations, standards and technology, we transform bunkering operations into a **Trusted, Transparent** and efficient ecosystem!

GLOBAL TRACTION | CERTIFICATION & GOVERNANCE OF MFM SYSTEM ACROSS INTERNATIONAL PORTS



**Certification and Governance
transform Measurement into
Trusted Assurance**
– the foundation of fair, efficient
and Transparent bunkering

THANK YOU!



www.metcore.com.sg



Dedicated in Increasing Efficiency, Transparency and Trust