



The Role of  
Ports and Logistics:  
Waves of Paradigm  
Shift

24<sup>th</sup> Sept 2021

# Transformation of Product Offerings by Equipment Manufacturers

# Key Criteria of Future Equipment for Ports and Logistics

## Future Equipment must fulfil the “GESS” Model

### G: GREEN

- Cleaner or ZERO emission commitment
- Alternative driveline to substitute diesel engines
- Green policy varies from countries, regions and companies
- Options Available: Cleaner Diesel Engine (Stage 5); LNG drive; Full Battery EV; Hydrogen Fuel Cell; Hybrid Drive

### E: EFFICIENT

- Meet or exceed industry performance requirement with minimum idling time
- Cost Efficient with lower overall owning and operating costs
- Minimize unproductive hours from maintenance
- Longer product lifespan ready with new technology upgrading

### S: SMART

- Autonomous / Driverless operation
- Artificial Intelligence / Machine Learning
- Reduce dependency on human involvement
- Telematics, Remote Monitoring and Fleet Management

### S: SAFE & SUSTAINABLE

- Safety features with fool proof control when equipment gets more complex and sophisticated
- Eliminate risks due to weather, negligence and fatigue during operation
- Minimum human interaction during operation





**Thank You**

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