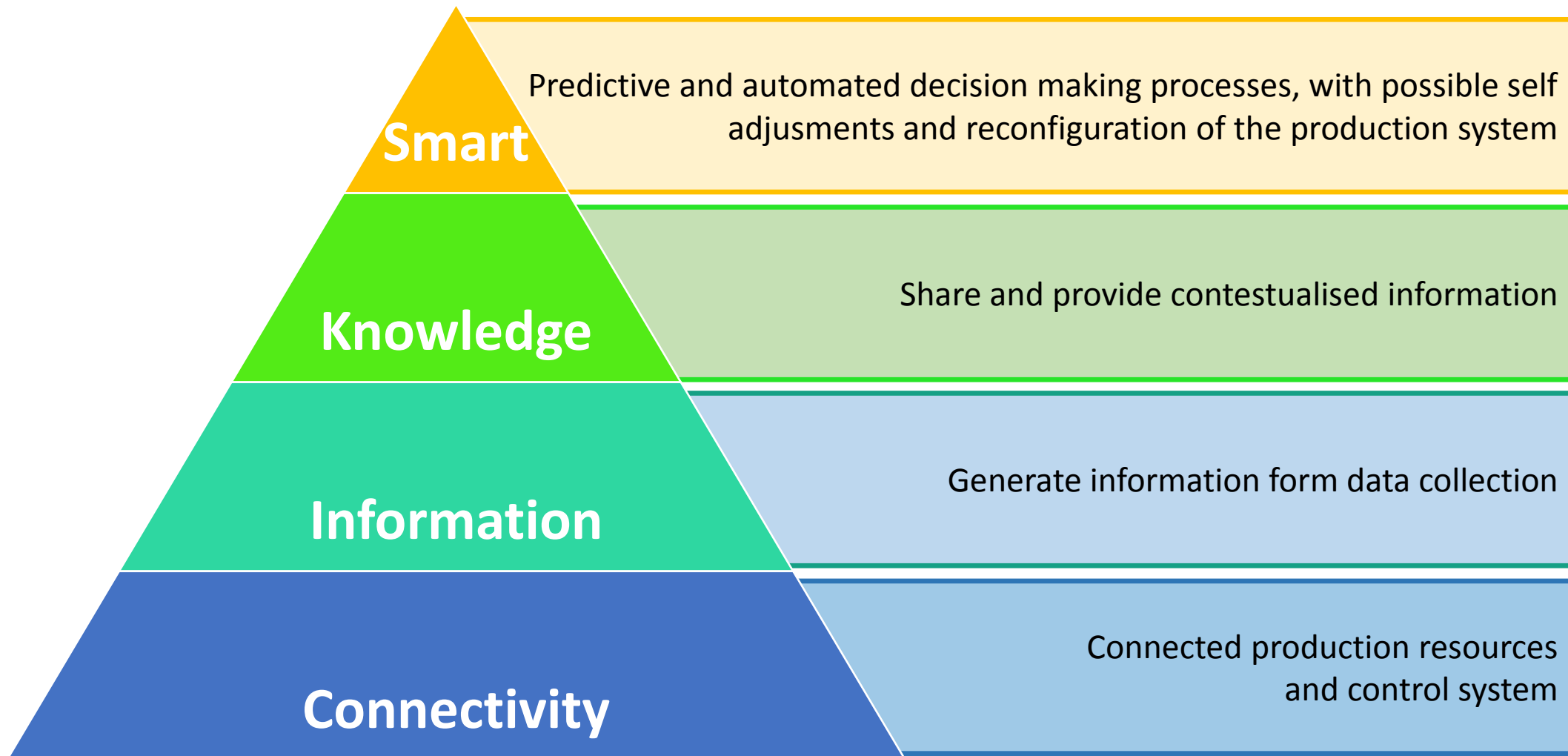




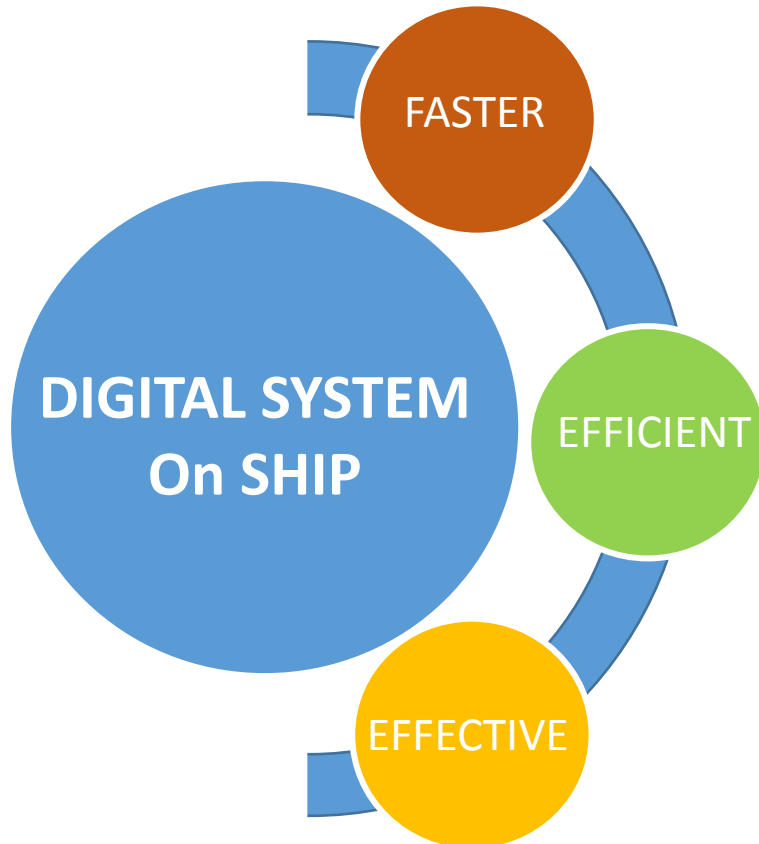
THE ROLE OF SATELLITE COMMUNICATION TO GREAT CONNECTIVITY IN SHIP

PT. Telkom Satelit Indonesia

- Basic Thinking: Road to Industry 4.0 in Vessel
- Satellite Communication on the Sea
- Mobile Apps Vessel Management Systems
- Conclusion



Type of Communication in Vessel



Radio Terrestrial

- Voice Only
- Free air time



Mobile Sattelite System (MSS)

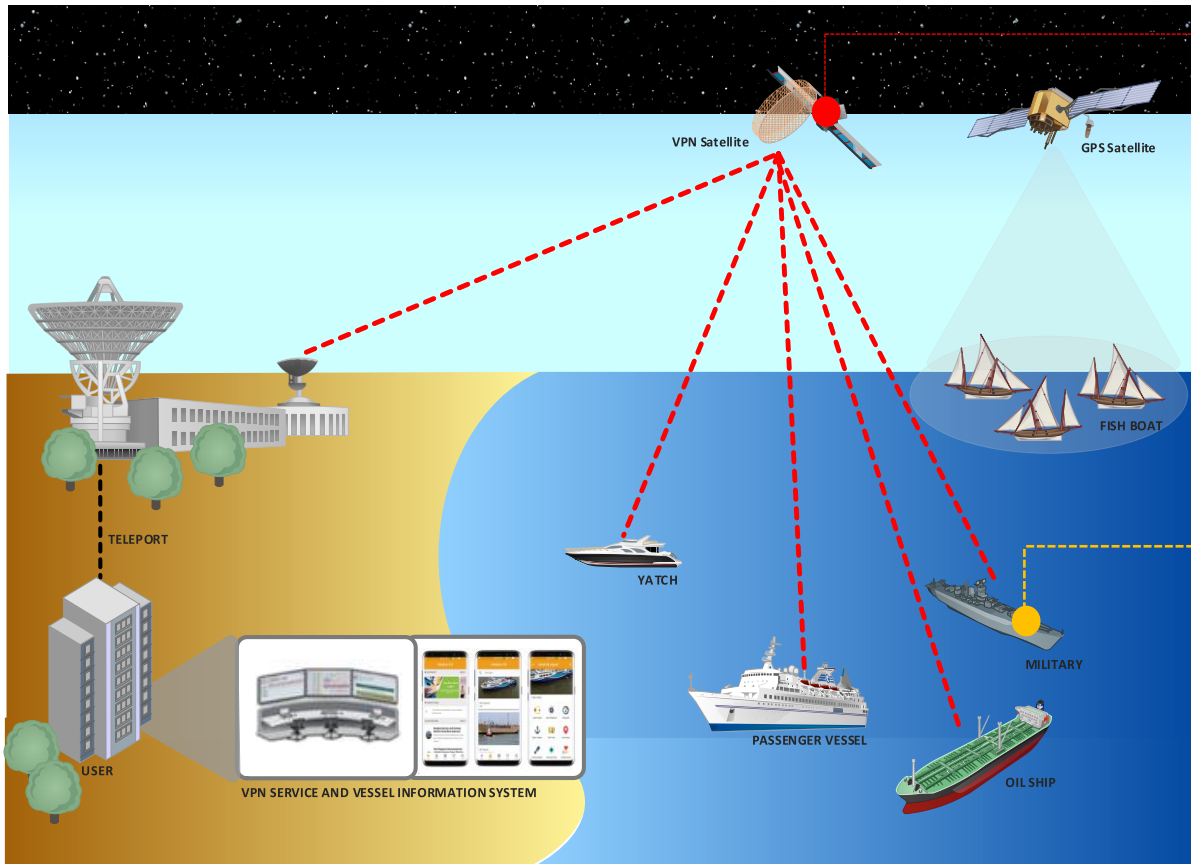
- Voice and Data but narrow band
- Time base charging



Fixed Sattelite System (FSS) Base on Gryo Antenna

Voice and Data ideal for other aplication
Monthly base

Satellite Communication on Sea



Space Segment

- Satellite with Ku Band Frequency

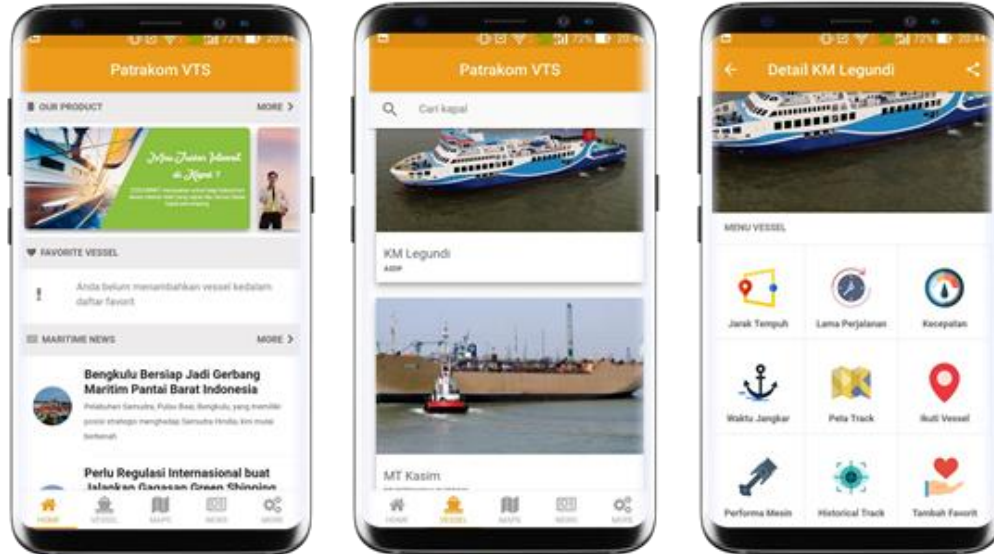
Ground Segment

- 1.2 m Stabilized Antenna
- BUC 4W until 16W
- LNB
- Modem VSAT

- There are no blank spot, Satellite can cover all the world
- Narrow band, bandwidth 2 Mbps can support internet access
- With internet access ready multi services can running on top that
- Support Industry 4.0

- Security and Safety
- Container Monitoring
- Crew Welfare
- Communication for Passenger

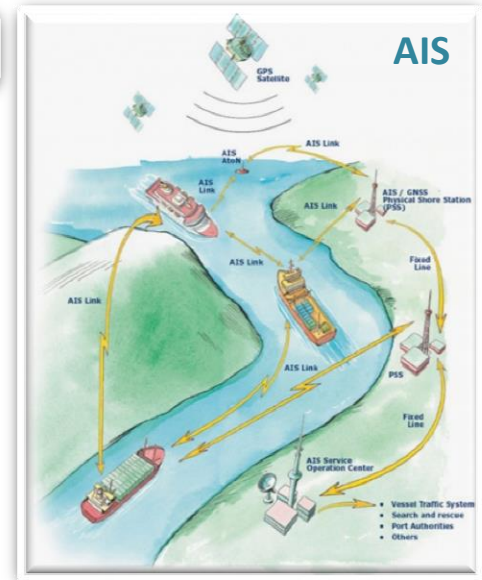
Mobile Apps Vessel Management System



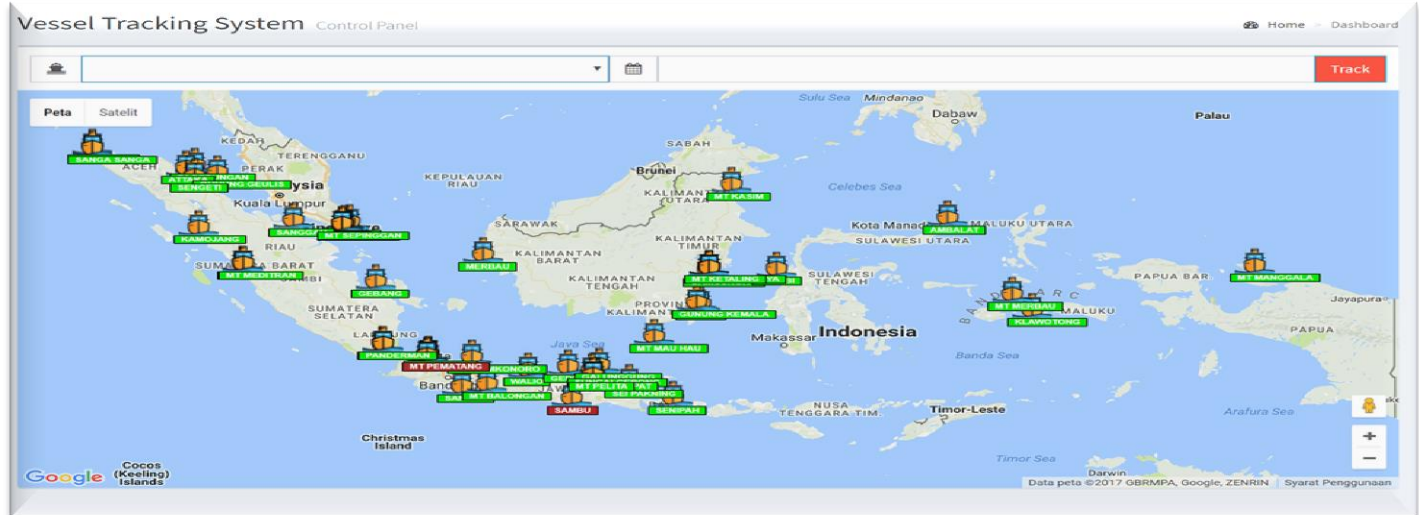
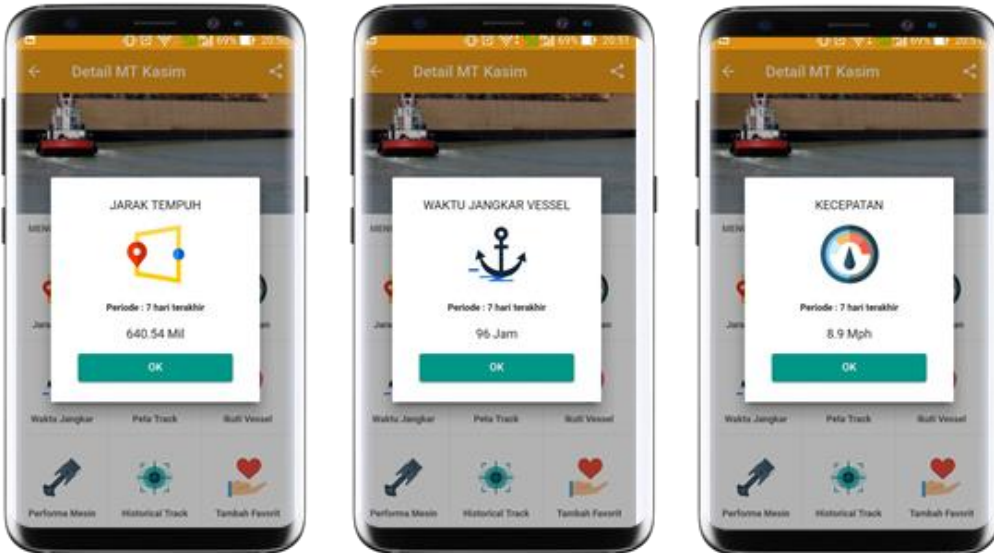
Features System

- Tracking History
- Position
- Speed Monitoring
- Bunkering
- Fuel Consumption
- Engine Running Hours
- Engine RPM
- Auxiliary Engine

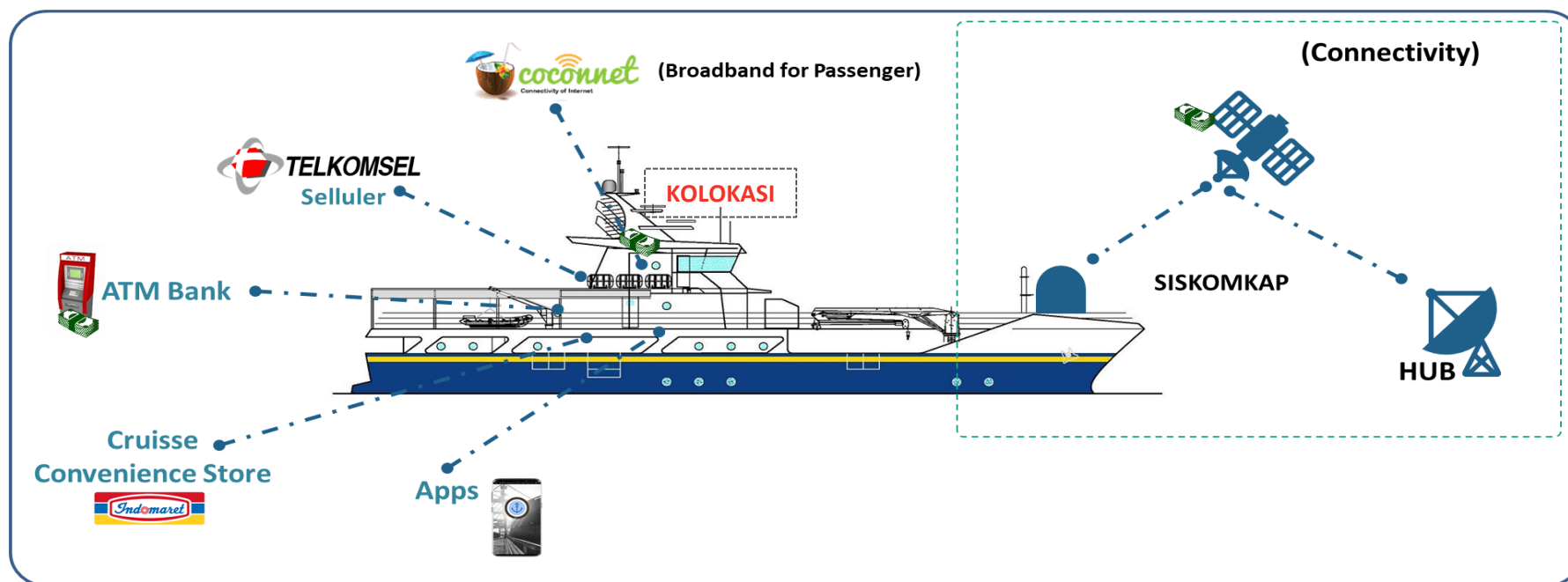
- Compatible for Android Version 5.0 & IOS Version 7.0
- User Login Approval by Patrakom: Show Customer Own Vessel Only



Dashboard Network Monitoring System

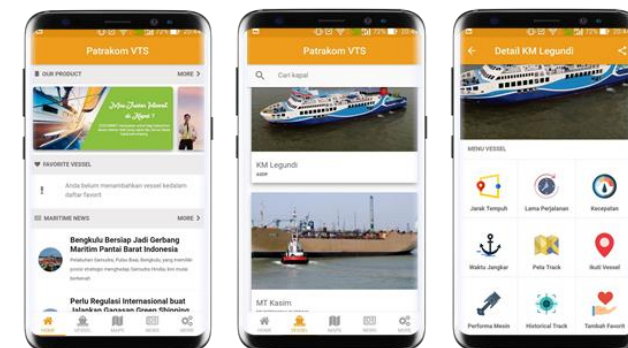


Multi Services in Vessel



Rp 25.000	Rp 45.000	Rp 15.000
Kuota 50 MB+ Extra Bonus 30MB	Kuota 100 MB+ Extra Bonus 30MB	Kuota 20 MB+ Extra Bonus 30MB
Expired 3 Hari	Expired 7 Hari	Expired 2 Hari
		

Mobile Apps Vessel Information System



Vessel Information System

SYSTEM OVERVIEW



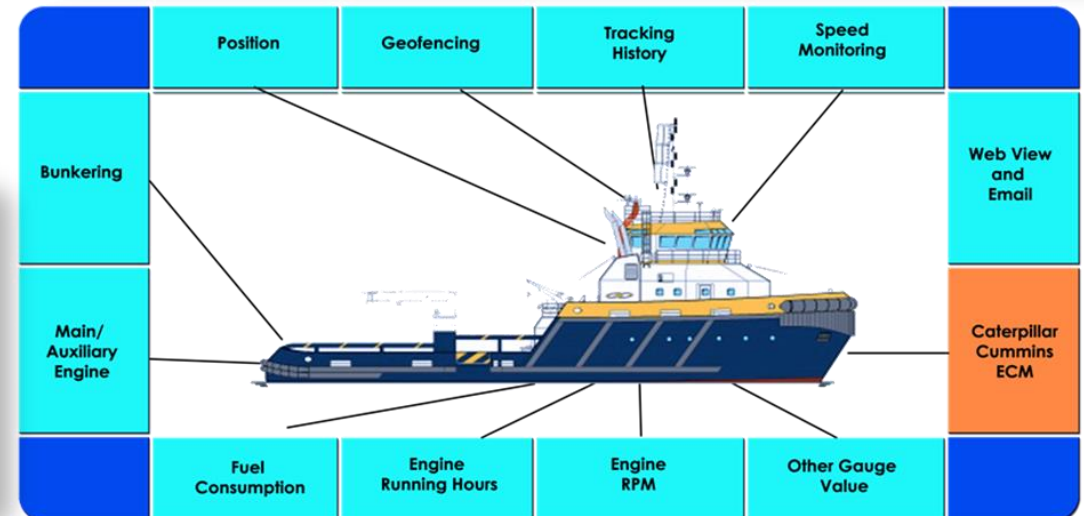
CONTENTS

- Tracking
- Geo-Fencing
- Live & Historical Information
- Alert via Email or SMS
- Comprehensive Report
- Preventive Maintenance System

FEATURES SYSTEM

Monitoring Platform Provides Real Time Engine Information Including:

- Speed & Heading information
- Total Fuel Used
- Engine Torque
- RPM
- Engine Running Hours
- Coolant Temperature
- Throttle Position
- Engine Boost
- Engine Load
- Oil Pressure
- Exhaust Temperature
- Fuel Burn Rate
- Main Battery Voltage
- Bunkering



CUSTOMERS IN SERVICE



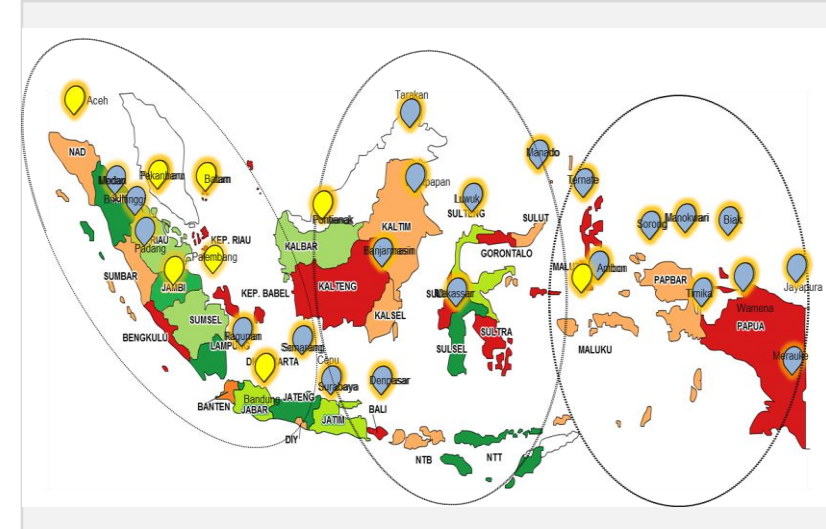
OUR BENEFIT



Expert Engineer



24/7 Network Operating Control



Standby Technician

Thank You



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