



AVEVAWORLD

ACCELERATE INDUSTRIAL INTELLIGENCE

**Unleashing the Power of the
PI System: Achieving Real-
Time Stock Monitoring,
Reconciliation and Tank
Integrity for Pertamina
Aviation Fuel Terminal**



PERTAMINA - at a Glance

- Fortune Global 500 energy company with rank 171 on 2025



- Integrated business, from upstream with more than 40 working area, and downstream with 6 refinery and distribution channel all across Indonesia



Vision

To become an energy company that prioritizes energy security, availability, and sustainability



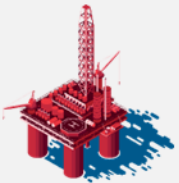
Mission

Providing energy through innovative solutions that create added value for society

Pertamina Has an Integrated Energy Business from Upstream to Downstream



Subholding Upstream



Exploration

Searching for oil and natural gas reserves

Production

Producing oil and gas and bringing them to the surface

Subholding Downstream



Refining

Processing crude oil into fuel and non-fuel products

Trading (Commercial)

Purchasing and selling crude oil and fuel/non-fuel products

Logistics

Managing transportation, distribution, and storage infrastructure (including fleets and terminals)

Subholding Gas



Transmission & Distribution

Managing gas pipeline infrastructure for transmission and distribution

Trading (Commercial)

Selling natural gas to retail (city gas/ gas network) and B2B customers

Subholding PNRE



Geothermal

Developing and utilizing geothermal energy

Renewable Power

Generating electricity from renewable energy sources

AVIATION FUEL BUSINESS - Overview

Pertamina has a network of aviation fuel business services, both domestic and overseas airport.



Within the country, Pertamina serves the aviation fuel (Jet-A1) needs at 72 airports through Aviation Fuel Terminal

AVIATION FUEL BUSINESS - Innovation's Success Story



CHALLENGES

- **Various Brand** of Automatic Tank Gauging (ATG) system
- **Geographical Distance** of Aviation Depot Locations
- **Non-Centralized** Tank Asset Integrity Information
- **Delay input** of Stock Closing Data into ERP System (SAP)



SOLUTION

- **PI OPC Data Access:** Standardizing the connection of diverse local control systems for ATG in aviation depots.
- **PI Data Archive:** A single data historian platform for historical and predictive analysis
- **PI Asset Framework:** Structuring data to provide information and analysis on stock and tank integrity.
- **PI Web API:** Integration stock reconciliation PI with SAP.
- **OPC Server :** Connectivity Tools



BENEFIT

**USD
8.5M/day**

Avoiding Stock Supply Failures
Saving significant costs to prevent stockouts at 26 locations

↓ 87%

Maintenance Cost Savings
reduced downtime & operational disruptions, compared to custom solutions

**Up to
75%**

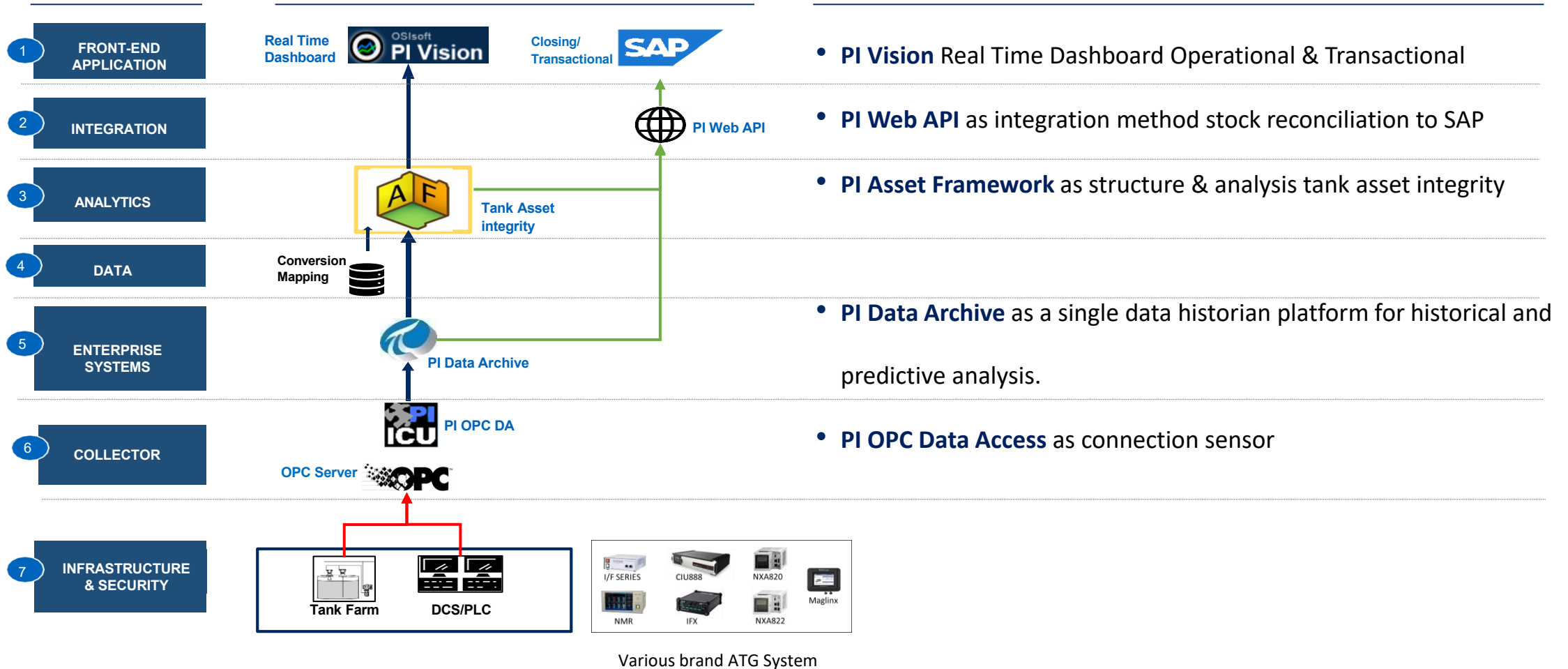
Implementation Cost Savings
compared to custom application solution.

99%



Accurate Stock Data Reporting
improved the visibility into stock levels at each location.

INNOVATION – Architecture Layer



INNOVATION - Result

SITE OFFICE

OPC DA

PI OPC DA

HEAD OFFICE

REAL TIME MONITORING

ASSET INTEGRITY

03 31.03.2023 13:59:00 C A040900041 BB6 L 0 12,346,2

RECONCILE STOCK

INNOVATION – Unleashing Value from Tank Data History

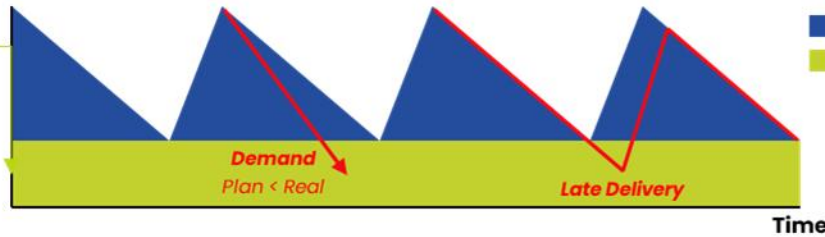


SAFETY STOCK

The required safety stock to anticipate stockouts due to supply and demand variations/uncertainties

$$\text{Safety Stock} = Z(\text{Score}) \times \sqrt{(\text{Avg. Lead Time} \times \text{Stdev. DOT}^2) + (\text{Stdev. Lead Time}^2 \times \text{Avg. DOT}^2)}$$

Inventory Level



TANK CAPACITY

Index 5

Safety Stock 100%
Cycle Stock > 40%

Index 4

Safety Stock 100%
Cycle Stock 20 – 40%

Index 3

Safety Stock 100%
Cycle Stock 0 – 20%

Index 2

Safety Stock 50 – 100%

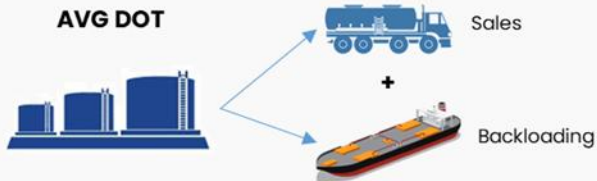
Index 1

Safety Stock 0 – 50%

Stock Condition

Spreading Index uses Safety and Cycle Stock as a basis, not Coverage Days. Each terminal has unique conditions (supply patterns and infrastructure) leading to different safety stock parameters. Coverage Days do not yet show the sensitivity of logistics operations (demand and supply fluctuations).

AVG DOT



AVG LEAD TIME



ROUND TRIP DAYS (A+B+C)

