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ARGOS21 Enabling Predictive Maintenance

ARGOS21 - Enabling Predictive Maintenance

ARGOS21 is an integrated system that allows failure indicators of different natures and technology (operating parameters, fluids, vibrations, thermographs, ultrasonics etc) in the same platform to be analysed, diagnosed and predicted.

Leverage IPMS data

- Introduction of Artificial Intelligence and Big Data analytics tools that allow the data analysis to model equipment and systems performance and efficiency
- A greater capacity for prediction, detection, diagnosis and support to decision making.

Increased Operational Availability: prognostic

- Reducing the time the ship / system / equipment is inoperative
- Preventing situations involving long downtime (catastrophic failure)
- Alerting the crews of potentially dangerous situations
- Avoid performing unnecessary actions
- Reducing downtime dynamically managing the tasks based on an early diagnosis of system status
- Updating operating procedures based on forensic analysis of incidents involving the operation

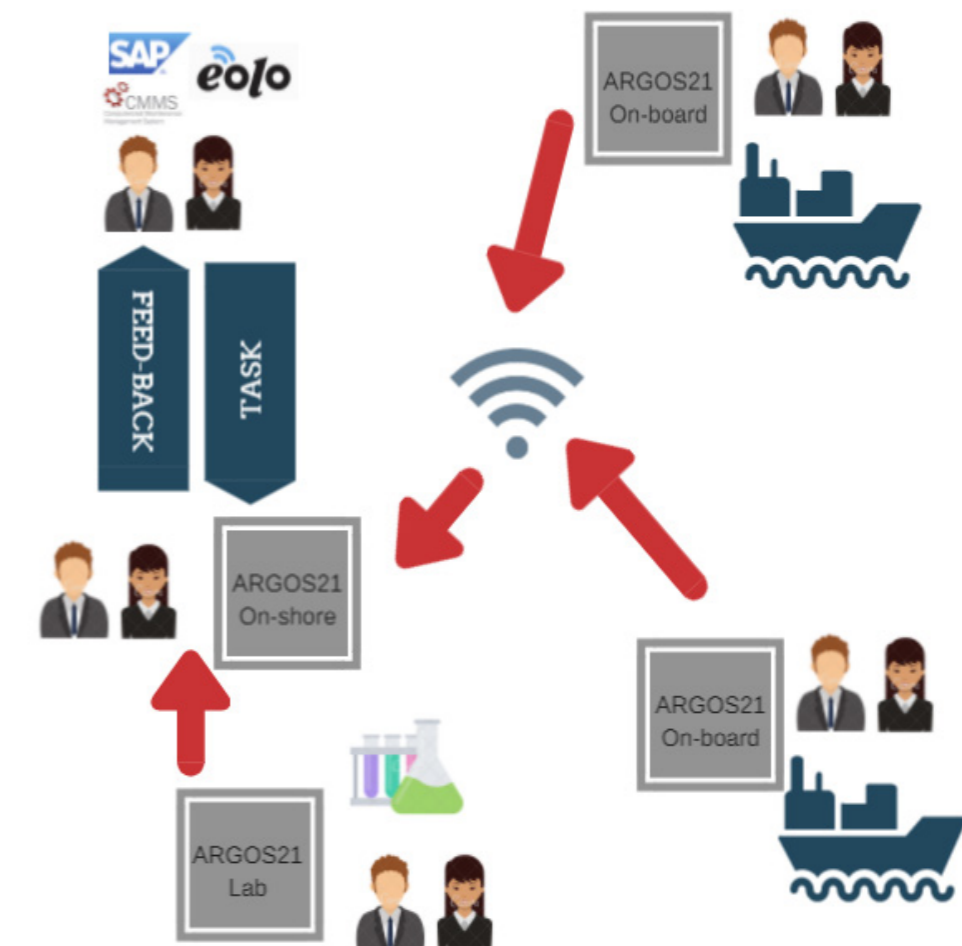
Optimise life cycle costs

- Establishing objective criteria for prioritizing actions
- Preventing occurrence of catastrophic failures
- Avoid performing unnecessary actions

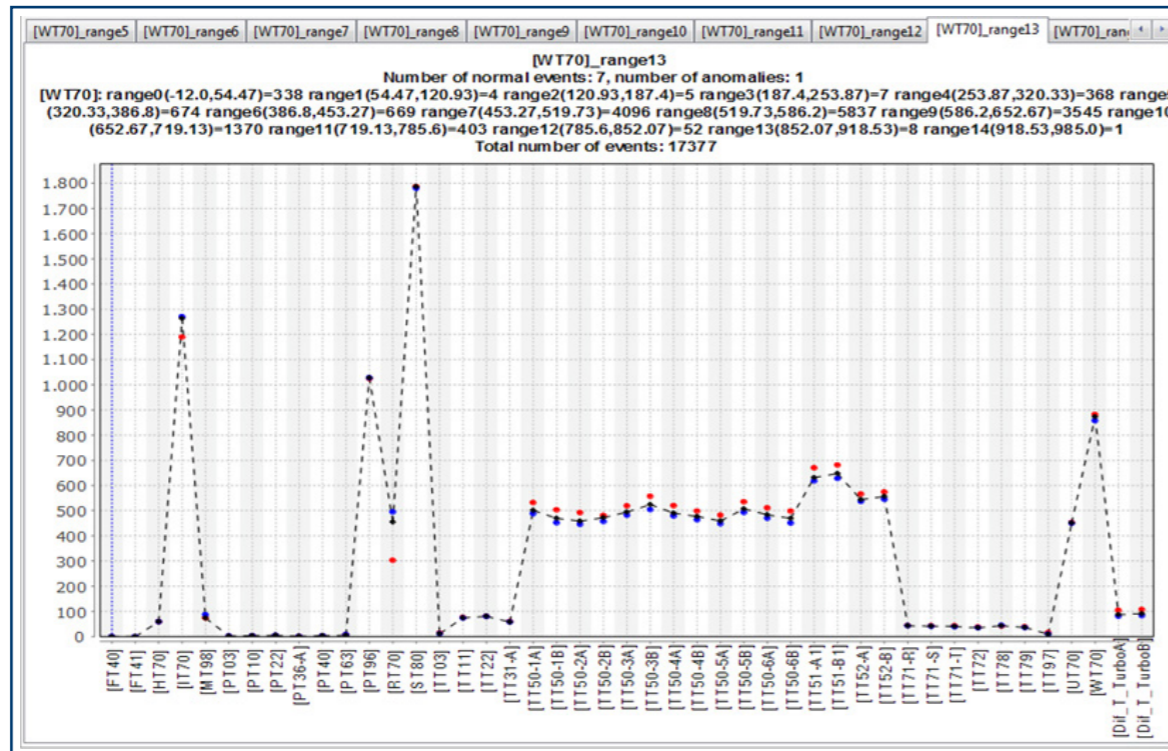
ARGOS21 Main Functions

- Automatic search for equipment malfunctions
- Generation and management of dedicated alarms.
- Expert models
 - Machine Learning (Data-Base)
 - Semi-Physical (Knowledge-Base)
- Integration of third-party systems (vibration, turbine, etc.)
- Crossing of data from different systems
- Limits of content metals in oil
- Failure modes
- Local exploitation (on board)
- Integration with external Logistic Tools

Deployment example



“Clustering” normality model example



According to the design profile, the overhaul of the engine will be at 6000 hours. Based on the real profile, the overhaul may be delayed 50% without risk, going from 6000 to 9000 hours.

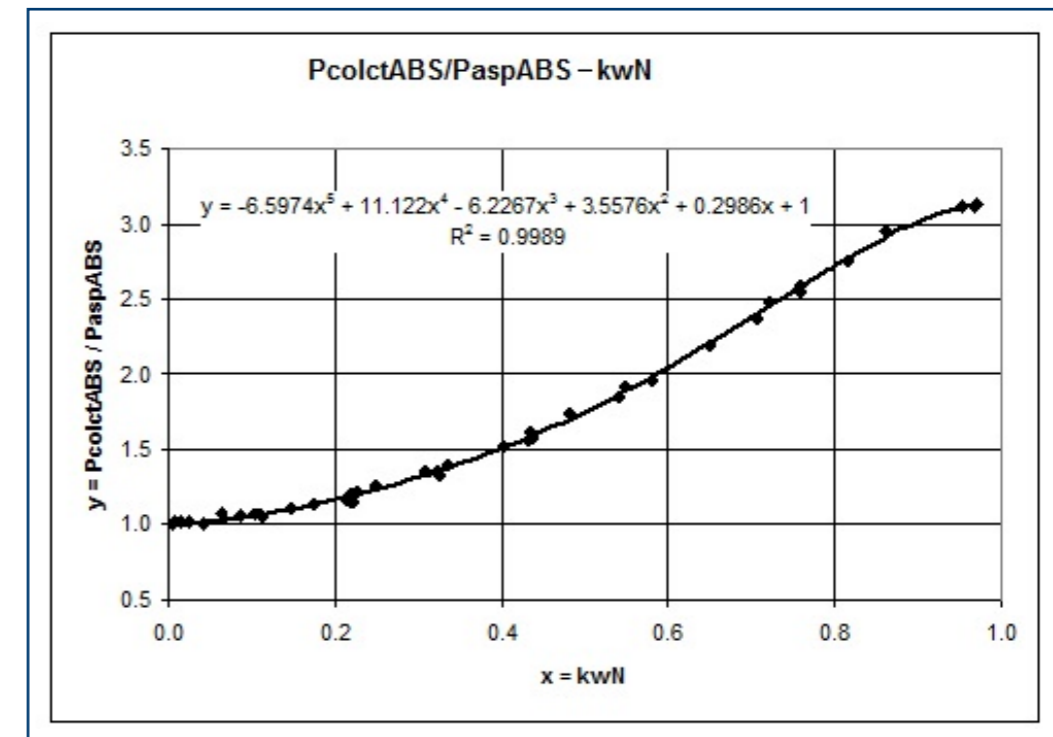
KPI's example



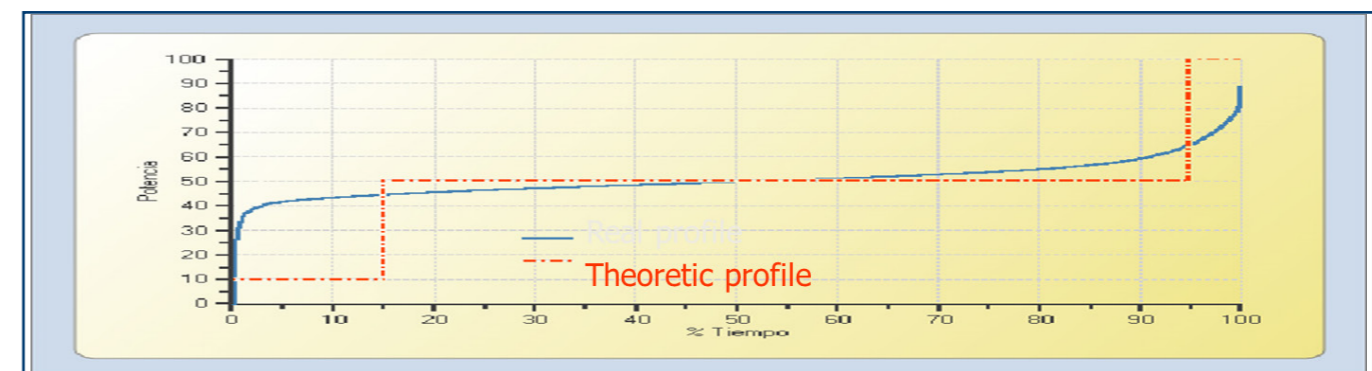
ARGOS21 includes three indicators for ship's equipment:

- **Performance indicator:** it evaluates the performance of the equipment, to see if there is a drop in efficiency.
- **Health indicator:** it evaluates if there is any incipient failure or failure that has been detected, regardless of whether or not, affects the performance of the equipment.
- **Readiness indicator:** Calculated indicator from performance and health indicators. It shows users if equipment is ready for enlistment.

“Semi-physical” normality model example



Diesel engine: Actual/ Design operation profile



NSAG is a joint venture between Navantia Australia and SAGE Automation. It develops, fabricates and provides sustainment support of Navantia's Integrated Platform Management Systems technology in Australia and New Zealand.

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