



Facility Maintenance Review

Delivering data driven maintenance
optimization

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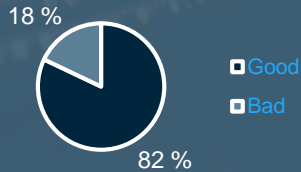
Improvements for Mature Assets – Find the Good Actors

Data provides insight to operational performance.

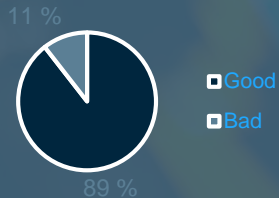
Use this information to improve Preventive Maintenance programs.

Bad actors versus good actors; a minority of the valves has many failures

Amount of equipment

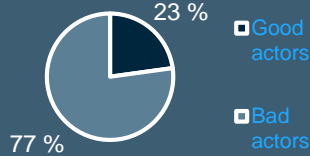


Amount of equipment

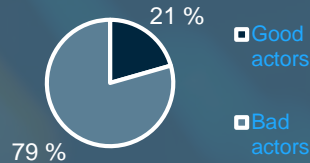


Number of failures; bad actors have many failures

Number of failures



Number of failures



Maintenance programs are made prior to operations and change little



Most equipment will be GOOD actors



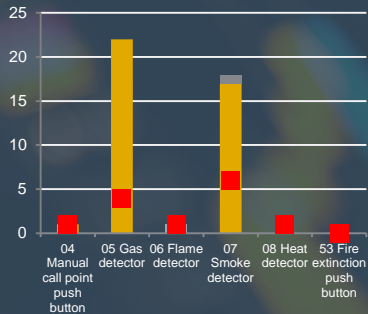
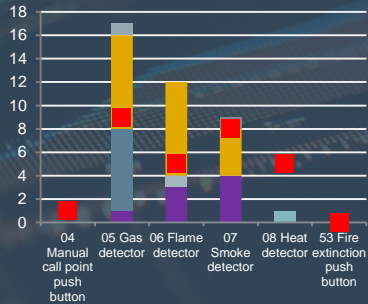
Responsible plans made pre-operation protect against BAD actors



Use available data responsibly and differentiate maintenance plans

Mature Assets and Potential for Improvement - CASE

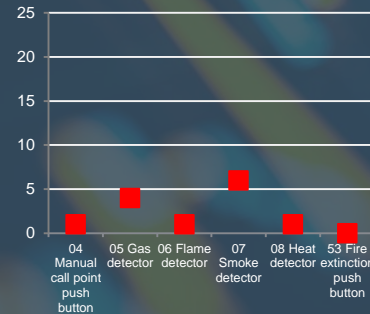
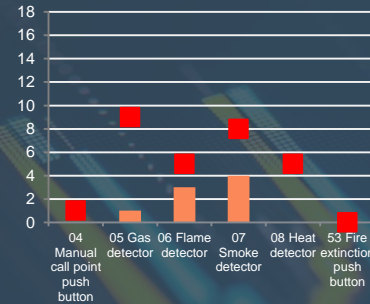
Number of failures compared to failure requirements



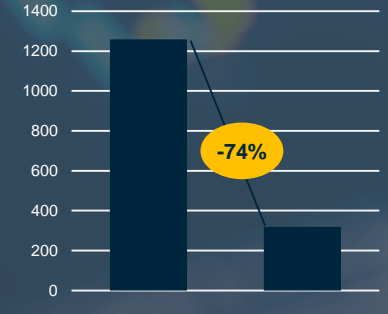
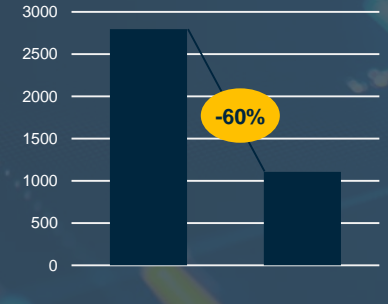
Failures categorized based on risk assessment

Test	Category
ISO Functional Test	Dangerous Undetected
ISO Periodic Maintenance	Quickly discovered failures
ISO Inspection	Quickly discovered failures
ISO Periodic Condition Monitoring	Quickly discovered failures
ISO Continuous Condition Monitoring	Quickly discovered failures
ISO Production Interference	Non, other types of failures
ISO Casual Observation	Non, other types of failures
ISO Corrective Maintenance	Non, other types of failures
ISO on Demand	Non, other types of failures
ISO Other	Non, other types of failures

Categorize failures based on risk to see real risk picture



Eliminate functional testing with low return on effort



Facility Maintenance Review

Capturing the potential to drive improvement



Use consistently available data



Require little data manipulation



Focus on equipment and maintenance activities with high potential for optimization



Careful scoping to ensure delivery



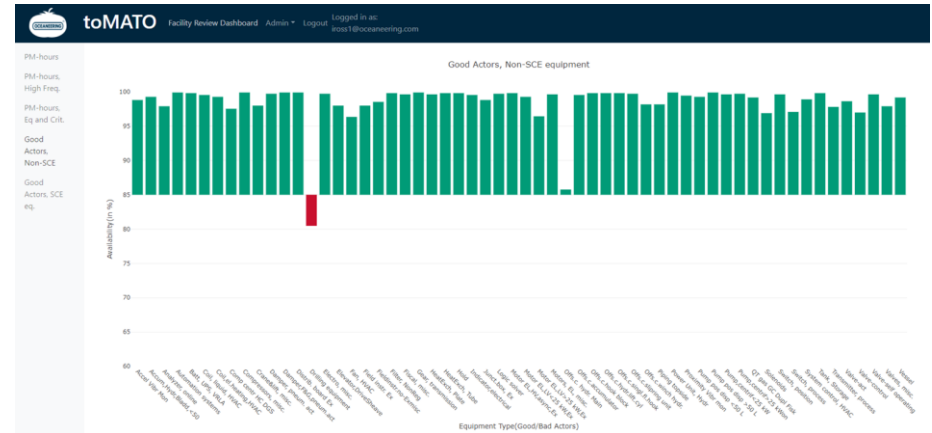
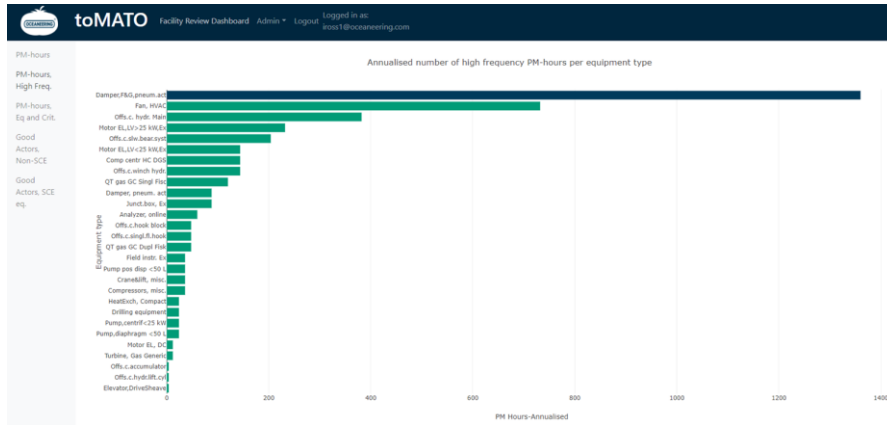
Follow defined rule-sets to identify and highlight potential OPEX reduction

Be agnostic to CMMS type, asset registers and terminology

Delivering Data Driven Maintenance Optimization

Streamlined Asset-based Maintenance Optimization

- Limited engagement with operator, no interface with the CMMS, and no software licenses or fees
- Support analysis and scope determination with an analytics tool
- Rapid analysis and delivery of results
- Expedites implementation of maintenance optimization
- Select scope to secure timely delivery of improvement in CMMS



Achieve results

Streamlined Asset-based Maintenance Optimization

Prototype Maintenance Review Tool and Process applied to a European offshore asset in Q4 2019

Use analytics tool to identify and communicate about potential and scope

Careful selection of scope for fast delivery

Operator implemented our recommendations in January 2020 with significant results



27% reduction in
updated maintenance
plans

Summary

Streamlined Asset-based Maintenance Optimization



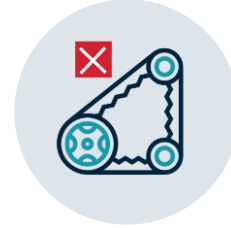
Planned & corrective burdens



Equipment criticality



Good actor equipment



Bad actor equipment



High frequency maintenance

Apply a structured approach to optimization analysis:

- Identify maintenance and inspection optimization opportunities that can be readily implemented to reduce asset maintenance burdens
- Pinpoint core crew, specialist, and vendor maintenance that can safely be deferred
- Make your POB count by focusing on critical tasks and optimizing work effort
- Support a robust, structured deferrals strategy for non-critical maintenance activities
- Help understand and reduce your backlog



Connecting What's Needed with What's Next™