DECIDE remote decision support
to enhance human decision making
in gas turbine operation & maintenance

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Every day gas turbine plant managers, operators, maintenance engineers and procurement officers face many decisions on how to run their plant in the best possible way.

The profitability of a gas turbine operation depends largely on the quality of the day-to-day decision making by all these people involved.
Remote monitoring & diagnostics

Many companies have tried to improve their operational results by implementing remote monitoring & diagnostic systems that promise immediate improvement of GT operation & maintenance.

Operators who have worked with these systems have experienced that they do not always bring the value they had expected from them.
From remote monitoring & diagnostics to remote decision support ...

Remote monitoring & diagnostics often focus on technical data presentation ...

Remote decision support works from the perspective of human operator understanding.
Key factors for effective remote decision support

The value that remote decision support can bring will depend largely on two factors:

- quality of input data
- usability of output data
Usability of output data

For many operators and maintenance managers the preferred way of working is:

▪ to have 24-7 overviews of the overall status of their operation

▪ to receive timely and correct signals when something is about to happen

▪ to receive easy-to-understand practical recommendations how to act on these signals in the most effective way.

Usability is like oxygen —you never notice it until it is missing...

Anonymous
The right decision at the right time

Effective decision support enables gas turbine operators & maintenance managers to take:

- the right decision
- at the right time
- every time again
DECIDE remote decision support – four steps

The four process steps of DECIDE remote decision support are:

1. Connect & collect all relevant engine data.
2. Automated analysis & intelligent diagnostics to transform raw engine data into useful information & smart alarm management.
3. Professional interpretation to draw conclusions from the information & insights gained.
4. Feedback to customers by recommendations, easy to understand dashboards & periodic reports.
DECIDE remote decision support – step 1

Step 1

Connect & collect all relevant engine data by means of cybersecure 100% one-way acquisition of engine data.
Step 2

Automated analysis & intelligent diagnostics to transform raw engine data into useful information & smart alarm management.

Acquired engine data are compared with the outcomes of a tailor-made digital engine model (digital twin) to detect deviations from the ideal operation modus.
DECIDE remote decision support - step 3

Step 3

Professional interpretation to draw conclusions from the information & insights gained.

Experienced specialized engineers draw conclusions from the enriched engine data, automated analysis and smart alarm management info.
Step 4

Feedback to operators and maintenance managers in the form of recommendations, easy to understand dashboards & periodic reports.
Case study DECIDE decision support 1: temperature deviations in thermocouples

Customer: Oil & Gas operator in the North Sea.

Monitored: minor temperature deviations in two thermocouples with no indication on the HMI.

Assessment: potential issues with fuel lines and fuel nozzles.

Recommendation: inspect fuel lines and nozzles at next scheduled stop and bring sufficient replacement parts to perform repairs.

Outcome inspection: nozzles damaged, fuel lines clogged.

Decision: perform required repairs & replacements.

Benefit: trip on temperature spread prevented.
Case study DECIDE decision support 2: deviations in actuator positions

Customer: Oil & Gas operator in the North Sea.

Monitored: small deviations in actuator positions with no indication on the HMI.

Assessment: potential actuator damage.

Recommendation: inspect deviating actuators at next scheduled stop and bring sufficient replacement parts to perform repairs.

Outcome inspection: actuators damaged.

Decision: perform required repairs and replacements.

Benefit: failed start on actuator problems prevented.
Summary

Human decision making in GT operation & maintenance can be effectively enhanced by implementing DECIDE remote decision support for Gas Turbine Operation & Maintenance.

The entire GT operation needs to be in a good and reliable technical condition to provide reliable input data for the initial engine health condition monitoring.
DECIDE remote decision support video
Thank you for your attention!