



## DIGITAL SOLUTIONS

# SENSITIVITY MANAGER

## Effectively finding the optimum

The dynamics of the global oil and gas market are subject to many factors. Understanding the risks associated with these factors are of vital importance. This detailed understanding comes from two words: "What if?"

A particular maintenance strategy for an offshore unit might be suitable for a specific period of the year, but might face challenges when, for instance, one takes into account an expected seasonal constraint such as repair tasks during the freezing winter season in the North Sea.

One question arises from this discussion: "What if the intended maintenance strategy is affected by a weather related bottleneck?"

This is one question of a few dozen a maintenance engineer would ask in order to find the optimum strategy. Testing all the possible outcomes for a single parameter can be a lengthy and laborious process.

Sensitivity Manager enables this crucial step of RAM analysis.

Sensitivity Manager includes the Maros and Taro simulation engine. The simulation engine combines more than 30 years of experience in assisting oil and gas companies to identify the optimum design configuration, maintenance strategy and risk associated with the operation of upstream, midstream and downstream oil and gas assets.

### **Sensitivity Manager benefits include:**

#### *Extensive*

Sensitivity Manager includes a number of pre-defined sensitivities. The list of sensitivities can be easily extended on demand.

#### *Usable*

Sensitivity Manager includes a new, very usable interface for rapid deployment and adoption. In addition, intuitive reports clearly inform industry professionals by representing reality in a recognizable format.

#### *Long Experience*

The Maros and Taro simulation engine has been developed for over 30 years to solve problems faced by our global user base in the oil and gas industry worldwide.

Continuous efforts into addressing industry-specific problems have made Maros and Taro uniquely well suited for the oil and gas industry.

#### *Extendable*

Typical results can be exported to more commonly used software tools such as Excel and Word.

## Successful screening

By loading a base case from either Maros or Taro, Sensitivity Manager empowers analysts to thoroughly investigate different options with a pre-defined set of sensitivity types.

Performing RAM sensitivity analysis offers significant benefits at all asset lifecycle stages:

- **Conceptual design**
  - High level availability analysis of several concepts
  - CAPEX comparison for different conceptual approaches
- **Front-end engineering design (FEED)**
  - Identification of production-critical equipment, resources and design options to improve availability
  - Optimisation of system performance by analysing optional design approaches
- **Detailed engineering design**
  - Further detailed analysis of design options including equipment, operational strategies, logistics and economics
  - Quantification of technical and economic risk
- **Operational stage**
  - Industry standard and live asset specific modelling
  - Information to support asset operations such as:
    - Benchmark performance
    - Probabilistic forecasting
    - Top shortfall contributions
    - Maintenance strategies
    - Definition of new benchmark & assessment of new RAM position
- **Rejuvenation**
  - Identify focus areas for rejuvenation
  - Evaluate impact on performance from revamp and de-bottlenecking
  - Assess the need for modification
- **Decommissioning**
  - Identify cut off for venture economics

After running a number of sensitivity cases, the analyst can compare results from all scenarios and find the best balance between investment and return.

### FEATURES AVAILABLE

- Based on a powerful, discrete event driven simulation
- Highly intuitive graphical user interface with newly implemented ribbon tabs
- More than 10 sensitivity types extendable on demand
- Equipment and scheduled grid to manage all reliability data and planned maintenance events
- Sensitivity view compiling all changes performed to a study in one place
- Results view listing all the key performance indicators for the base case
- Comparison view used to compare the main key performance indicators
- Extendable graphical and tabular output
- Batch run - to run multiple parallel studies using each core of a multi-core processor, a powerful benefit for sensitivity analysis

