

Integrated Analysis & Optimization Tool

CMOST AI

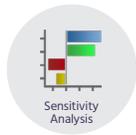
Benefits

- Leverage neutral, non-biased data interpretation with human expertise and analysis to identify the best solution
- Achieve a new level of machine learning & intelligence in simulation studies
- Calculate and reduce operational risk for new or existing fields
- Improve decision making capabilities
- Generate accurate forecasts through automated workflows

New Features

- Achieve faster and more accurate predictions with the Multi-Layer Neural network
- Easy-to-use workflow for integrating geological data directly into CMOST
- SR3 integration for reduced project storage requirements and read/write times
- Several analysis, performance and usability related enhancements

CMOST is now Artificial Intelligence (AI) and machine learning enabled. CMOST AI extends your capabilities and potential to improve business decisions and processes. Identify the best solution for your reservoir by combining advanced statistical analysis, machine learning and non-biased data interpretation with your engineering expertise.



Sensitivity Analysis (SA)

Use the Sensitivity Analysis workflow to confidently identify and assess the relationship between reservoir parameters/objective functions and how they impact the history match and production forecasts.



Augmented Intelligence History Matching (HM)

Augmented Intelligence history matching involves adjusting the simulation model properties to accurately reproduce past reservoir behavior and to simulate future behavior with increased confidence. The automated workflow finds the optimal solution using minimal engineering time, and in as few runs as possible.



Optimization

Leverage AI and the modern experimental design to vary dozens to hundreds of parameters simultaneously to find an optimal solution. CMOST optimizes operational and completion strategies to increase production, Net Present Value (NPV) and ultimate recovery.



Uncertainty Analysis (UA)

Automatically incorporate all uncertainties into a model, while running hundreds of simulations to quantify and understand the impact reservoir and operational uncertainties will have on project economics and enable them to manage risk and identify opportunities.

Probabilistic Forecasting

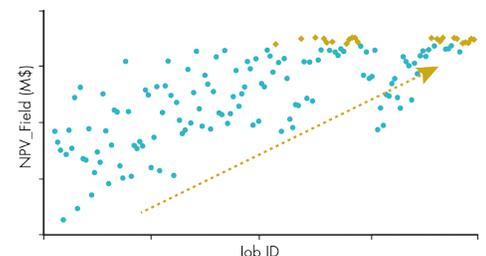
Use Probabilistic Forecasting to identify several possible solutions, rather than only one, and generate accurate forecasts thereby reducing risk and leading to better business decisions. CMOST™ applies CMG's proprietary Proxy-based Acceptance-Rejection (PAR) sampling to define the posterior probability density function by using the "misfit" simulation results and measured production data.

- Capture uncertainties in forecasts while honouring observed production/injection data
- Reduce computational costs and significant project turn-around time using CMG's PAR algorithm
- Use multiple history matched models to generate P10, P50 and P90 forecasts to determine the expected range of results during field application

Robust Optimization

Solve the industry-wide issue of geological uncertainty by utilizing multiple geological realizations to create a risk-weighted optimization solution for a field development plan. The automated Robust Optimization workflow enables companies to make better informed decisions, leading to a higher probability of success and profitability.

- Increase accuracy by considering as many geological realizations as appropriate
- Utilize the simple Robust Optimization workflow wizard to set up "master" and "dependent" studies



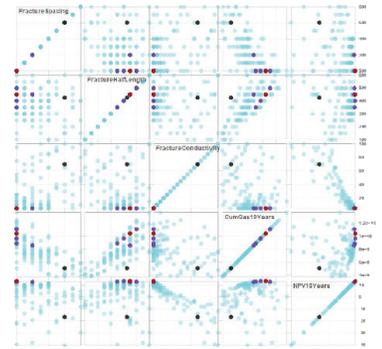
Increase NPV and ultimate recovery using CMOST's powerful optimization algorithms



Powerful Analytics

CMOST employs machine learning algorithms to learn reservoir behavior and the response of cumulative oil, water and gas when parameters change. Engineers will value the extensive analysis tools which present organized data to immediately gain an understanding of, discover trends in, and make informed decisions based on large amounts of simulation results.

- Achieve instantaneous prediction response with the interactive proxy dashboard
- Visualize the power of proxy using various analysis tools provided
- Build multi-layer neural network proxy models for analyzing objective function results
- Create experiments manually and use filters to analyze results
- Easily and intuitively create new cross plots with a single click
- Use an advanced calculation engine to create experiments with classical experiment design, Latin hypercube plus proxy or user-defined parameter values



Quickly identify trends between all parameters and objective functions using the scatter matrix.

Easy to Use

Engineers can effortlessly optimize the placement of wells, fracture spacing, infill drilling plans, injection rates and pressure maintenance, using virtually any reservoir model parameter to improve economics, reduce risk and quantify uncertainty.

- Organize multiple simulation studies to easily compare information and improve productivity
- Create user-specified grouping criteria for individual experiments
- Continuously update/change parameters and utilize include files as parameter values
- Intelligent job submission to improve accuracy of results
- Export results to MS Excel[†], or open in Builder[™] or Results[™]

Open & Extensible

Customize CMOST to meet project/company requirements, enhance optimization results, and generate more realistic models for history matching and sensitivity analysis.

- Formula editor improves usability and helps to interactively define variables
- Create user-specified grouping criteria for individual experiments, using a 0 to 5-star rating to organize results in a more intuitive manner
- Create and plug-in user-specified optimization algorithms
- Coupled to geology & geophysics packages (Petrel[†] & GOCAD[†]) for generating realistic geological models



Contact

For more information
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R&D Investment

CMG reinvests 20% annual revenue back into R&D, to further innovation and drive technology forward



Superior Software

CMG delivers easy to use software that provides the most accurate results



Dedicated Support

Experienced technical sales & support personnel, deliver high-quality, timely and personalized customer support



Relevant Training

CMG's industry renowned reservoir software training provides the skills to improve productivity and efficiency