ROMeo Process Optimisation

Performance and Optimisation with Rigorous Equation-based Modeling

ROMeo Process Optimisation provides a group of applications for simulation, reconciliation and optimisation of refining, petrochemical and gas processing industries.

The results provided are based on current economic and process conditions, giving operators and engineers the ability and confidence to make informed decisions because the models accurately reflect process behavior

Summary

ROMeo first-principle modeling methods insure real-time operational excellence, and enable accurate offline decision-making and analysis. ROMeo provides optimum sustainable plant performance with maximised returns on investment..

Business value

Optimisation is where operations meets economics. ROMeo Process Optimisation can sharpen plant performance and profits. Typical benefits range from $0.05 to $0.25/ bbl throughput, with a payback period of one year or less.

Maintainable Optimisation

AVEVA proudly offers ROMeo® Process Optimisation, a well-proven, comprehensive solution to today's plant profit optimisation problems. ROMeo is the only software product that has been designed specifically to address the need for real-time, non-linear optimisation of continuous processes in oil and gas processing, refining, and petrochemicals. ROMeo uses real-time process and economic data to determine set points that guarantee maximum operating profit while satisfying all regulatory requirements. ROMeo employs first-principle simulation techniques with proven data reconciliation and optimisation technologies to provide maximum, sustainable plant performance and increased return on investment. Typical benefits range from $0.05 to $0.25/bbl throughput, with payback periods of one year or less.

Integrated Modeling Makes Optimisation Easy

ROMeo is the only complete process optimisation solution that integrates heat and material balance rigorous simulation, data reconciliation, gross error detection, economic optimisation, and performance monitoring into a single user environment. Its Online modeling and optimisation capabilities utilise industry-proven thermodynamic methods and data to generate highly accurate operating information, enabling controls systems and processes to react quickly and precisely to changes in feed and product pricing, energy costs, and equipment performance. ROMeo's integrated interface and drag-and-drop functionality minimises the user's learning curve and accelerates real economic benefits. Its equation-based optimisation engine is unmatched in modeling large processes.
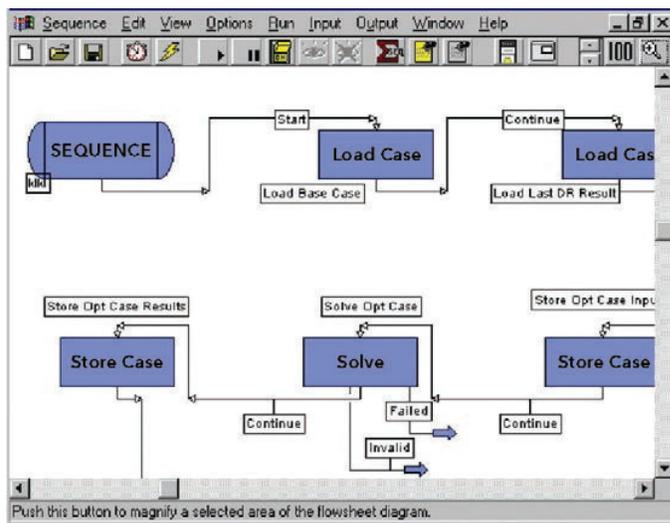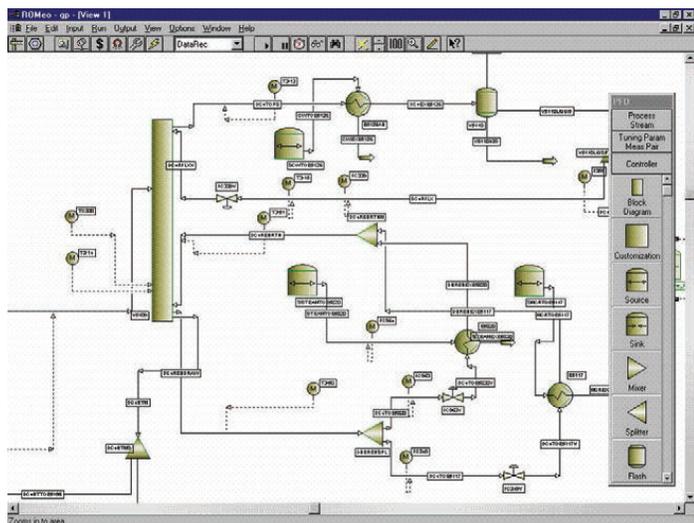
Substantial Benefits of ROMeo

Evaluate "What-If" Scenarios

ROMeo Process Optimisation provides a Microsoft® Excel-based and flow sheet-based interface to enable offline "what-if" scenarios, using precise models that represent your plant's actual operating conditions. ROMeo models can also be used for procurement planning, and for 'evaluating the benefits of process changes.

Automate Optimisation and Reporting

ROMeo Real Time System provides an integrated, graphical workflow management environment that enables users to automate the optimisation and reporting. Users can define complex event sequences for closed-loop optimisation without manual intervention. Task sequences can be configured to detect operational events or conditions (e.g., steady state), or to run on a scheduled frequency.

Visualise Results and Key Performance Indicators

ROMeo's industry proven results can quickly be visualised using embedded reporting and web page dashboards, displaying key performance indicators and other important operations information.

ROMeo Process Optimisation reporting enables plant staff to:

- Satisfy all physical and quality operating constraints

- Perform "what-if" analyses to improve product yields and quality

- Determine the cost of constraints and the benefits of debottlenecking

- Identify faulty instrumentation and resolve processing problems quickly

- Utilise personnel, inventory, and capital resources more efficiently

- Acquire current information for more accurate short-term and long-term planning

These on-demand reporting features enable ROMeo users to achieve faster operational decisions & enhance the profitability of the process.

Applications

ROMeo's unified modeling environment provides complete flow sheet definition, simulation setup, data reconciliation, and optimisation for refiners, petrochemical companies, and NGL/LNG producers. The average payback period is 6-12 months.

- **ROMeo in Refining:**
  Increase profits by optimising feed train, crude processing, and vacuum units, including hydrocracking and catalytic cracking applications — even entire refineries. ROMeo interfaces with state-of-the-art refinery models to accurately represent kinetic reactor behavior. ROMeo also offers native refinery reactor models that complete the refinery-wide modeling and optimisation capabilities.

- **ROMeo in Olefin Production:**
  Leverages an integrated SPYRO module and Technip's rigorous coil modeling technology to accurately represent furnace operations.

- **ROMeo in NGL/LNG:**
  Increase plant profits by quickly responding to changing market conditions.

- **ROMeo in Utilities:**
  Optimises utilities systems and utility plant flowsheets with the power of Mixed Integer Non-Linear Programming (MINLP) functionality in the solving process.

Easy to Implement

Equation-based modeling enables flexible model specifications, and allows project implementation and optimisation to start at any level and scale.

Easy to Customise

ROMeo provides a powerful graphical mechanism for extending its library of models and correlations. With its integrated algebraic modeling language, ROMeo users can directly customise their models and calculations to fit their purpose.

Easy to Integrate

ROMeo's graphical user interface and open architecture supports OPC, ODBC, and other data communication protocols, as well as direct interfaces to industry-standard process historians. Additionally, ROMeo can communicate with third-party products utilising OPC-UA.

Performance Monitoring and Diagnosis

ROMeo uses validated and reconciled data to calculate performance information including exchanger fouling, catalyst activity, compressor, and column tray efficiencies. Users can efficiently diagnose the root cause of performance degradation and processing bottlenecks. By quickly identifying problem areas before they trigger an alarm, plants can avoid near misses, accidents and unscheduled shutdowns. ROMeo includes methods to prevent inaccurate or faulty information from adversely affecting plant control systems.

Make More Informed Decisions

ROMeo's External Data Interface (EDI) enables the retrieval of process and economic information from numerous sources, including the DCS, laboratory, data historians, ERP, plant instrumentation, or any OPC, ODBC, OPC-UA and other industry-standard compliant applications. It is easy to access complete and accurate information to support optimal decision making and reliable planning.

The Only Complete Choice

ROMeo Process Optimisation is the only scalable solution for maximising profits while minimising plant and processing costs. It is also the only commercial solution that integrates rigorous simulation, data reconciliation, gross error detection, optimisation, and performance monitoring into a single, user-friendly environment. No other product offers greater accuracy or more reliable results. Choose ROMeo when your plant's profitability is on the line.

Material Balance	Heat & Material Reconciliation	Rigorous Data Reconciliation	Performance Monitoring	Optimisation Online or Advisory
Mass & Volume Balance	Mass & Heat Balance	Mass, Heat & Equilibrium	Reconciliation & Simulation	Optimisation
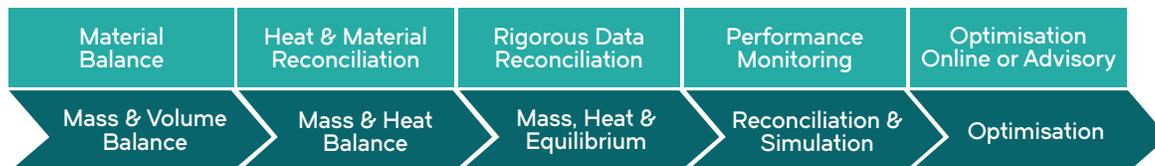
ROMeo Overview

ROMeo Process Optimisation is a set of application modules that deliver the latest generation of rigorous model-based solutions to help users obtain peak performance from their operating units.
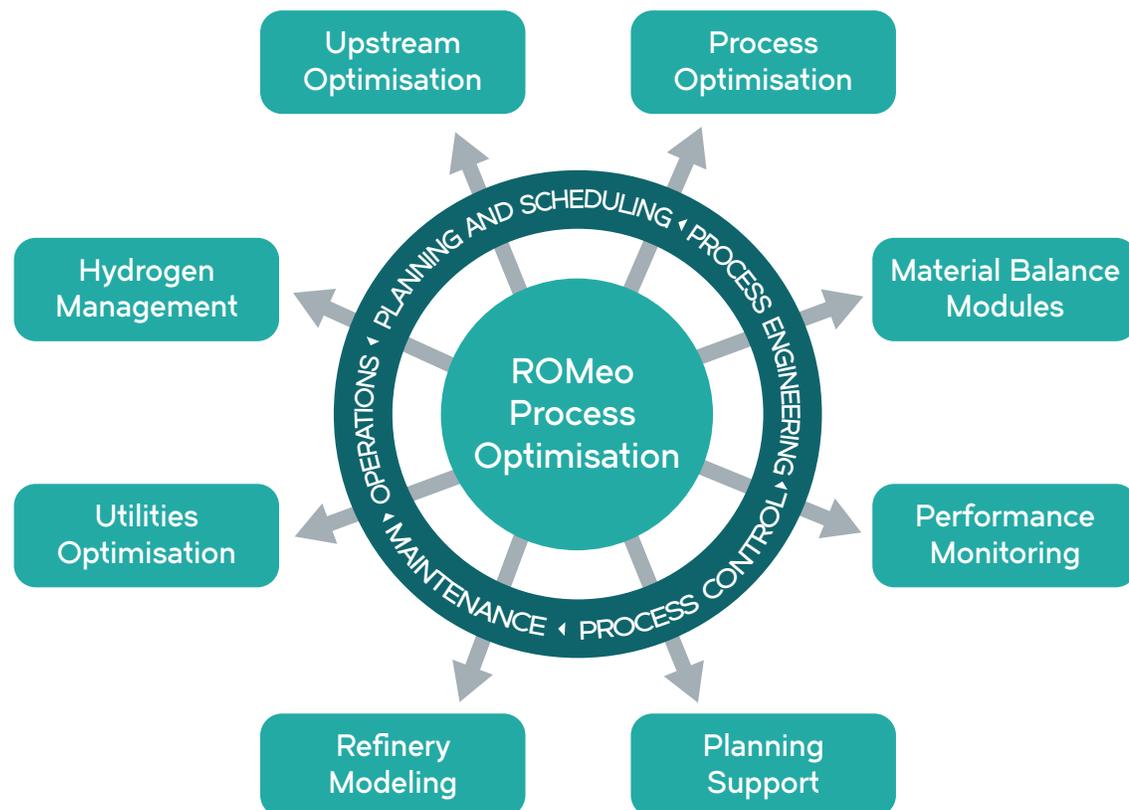
Design–Operate–Optimise a Safe and Profitable Plant

Since 1967, AVEVA advanced applications have improved asset performance and utilisation with integrated simulation, optimisation, training, and process control software and services. Spanning the entire lifecycle of modern processing facilities, customers range from novice users to executive experts within a variety of industries, including oil and gas exploration and production; petroleum refining; petrochemical and specialty chemical manufacturing; power generation; EPC; and more. Benefit from software products, solutions, and services that minimise capital demands, optimise facility performance, and maximise investment returns.

For more information on ROMeo, please contact your local AVEVA representative, or visit our website at: sw.aveva.com/operate-and-optimise/optimise-operations/romeo-process-optimisation

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