RefineryWise

Transforms business processes for operational excellence in refineries

RefineryWise™ from Schneider Electric transforms refinery operations management business processes to drive consistent and proactive collaboration across functional domains to maximize operations margins and sustain performance. It unifies best-in-class application solutions for supply chain management, operations, production and asset management on a single operations-focused platform that breaks down silos and improves collaboration, business intelligence and agility for operational excellence.

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Achieve operational excellence
Refineries are constantly challenged with sustaining and improving margins and retaining operational knowledge due to changing market conditions and requirements:

- Changes in crude prices and availability
- Changes in product market demand and prices
- Frequent unplanned shutdowns and plant outages
- Declining productivity due to retiring workforce

Embarking on a journey of transformation based on refinery digitization is imperative for improved profitability and sustainability. Due to the complexity and traditions of refinery operations, refineries tend to use diverse software and technologies for each functional domain in an attempt to optimize both plant operations and the supply chain. This may result in poor coordination among operational silos, reducing operational efficiency and increasing operations costs.

RefineryWise transforms your operations to drive consistent and proactive collaboration across functional domains. It maximizes operations margins and sustains performance by implementing best in class, specialized solutions to accelerate profitability and operational efficiencies, using a single, operations-focused performance management platform. Up to 5% incremental revenue, and 10% in cost reductions are achievable with RefineryWise.

RefineryWise for maximizing profitability
RefineryWise maximizes refinery profitability by unifying best-in-class application solutions for supply chain, operations, production and asset management on a Performance Management platform that breaks down silos and improves collaboration, operations intelligence and agility. A Performance Management layer and an Application Integration layer host the specialized RefineryWise modules to address various aspects of refinery operation excellence:

- Unified supply chain
- Operations management
- Production management
- Asset Performance Management

RefineryWise Framework
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Key features & capabilities

1. Solutions approach with continuous lifecycle development rigor
2. Application-driven information using industry-leading specialized applications
3. Automated data cleansing and transformation embedded in trustworthy solutions
4. Cross-domain collaboration console

1. **Solutions approach with continuous lifecycle development rigor** and Global Customer FIRST Premium support for sustaining higher business performance and maintaining lower total cost of ownership.

2. **Application-driven information using industry-leading specialized applications** trusted by the integrated, national and independent refining leaders to constantly derive accurate business insight.

3. **Automated data cleansing and transformation embedded in trustworthy solutions** with advanced analytics for quickly establishing correct context and accelerating operational decisions.

4. **Cross-domain collaboration console** for all the functional teams to manage the operational decision-making lifecycle, to facilitate corrective actions and to sustain best practices and operational knowledge.
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Operations Console: KPIs of entire operations

Operations Console: Detailed KPIs for the process units

Highly-configured data association interface

KPI self-configured panel
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RefineryWise solutions include:

- **RefineryWise Performance Manager**
  RefineryWise Performance Manager offers refineries trustworthy, proactive and prescriptive advice with no “coding” or programming. This solution provides operations management-focused performance monitoring and advanced workflow tools on a single, integrated visualization platform to drive operational excellence by standardizing business workflows and processes, eliminating inefficient work and improving collaboration across functional domains. It includes an Operations Console, KPI Management, Decision Management, “Human” workflow and Model-driven configuration.

- **Supply Chain Management solution**
  Spiral Suite optimizes the supply chain operations by bringing together feedstock data management, planning, scheduling and envelope optimization activities in a single, fully-integrated platform. It enables refineries to explore opportunities, reduce operational risk and reduce deviations between the plan and actual results. It delivers much more trustworthy data with much less effort than other approaches.

- **Operations management solutions**
  SimSci ROMeo Process Optimization enables refineries to respond with agility to changes in key operating parameters and optimize their process units and utilities in the volatile environment due to frequent changes in demand, feedstocks and product specifications. This is the market-leading application which has helped refineries to maintain first quartile performance.

  SimSci Refinery Off-sites Solutions enables refineries to optimize their off-sites operations by providing accurate, reliable and accessible inventory and movement information, movement automation and off-line/on-line multi-blend optimization. It helps refineries to reduce product costs, giveaway and increase operational performance. This is the market-leading off-sites solution which helps refineries to reliably produce the most demanding fuels at a minimum cost.

- **Wonderware® IntelaTrac** brings the field operator into the automation loop by utilizing a combination of workforce management software, mobile handheld computers, monitoring devices and Radio Frequency Identification (RFID) equipment tags or bar codes. It enables refineries to standardize refinery process steps and deliver decision support to field workers to improve operating reliability, reduce maintenance costs and improve safety and environmental compliance. This solution is the standard for integrated oil companies and many national and independent refiners.

- **Production management solution**
  ErrorSolver provides an improved material, yield and unit cost management system that complies with best practices for data reconciliation and production accounting. It can be integrated directly with Off-sites Tank Inventory and Movement Solutions to streamline and improve the quality of data acquisition and help to reduce unaccounted and real losses. It delivers much more trustworthy data with much less effort than other approaches.

- **Asset Performance Management solution**
  Avantis® PRiSM is a predictive asset analytics solution that can provide early warning notification and diagnosis of equipment issues before failure. It helps refineries reduce unplanned downtime, increase reliability and improve availability.

- **RefineryWise Application Integration**
  RefineryWise Application Integration solution, based on a Service-oriented architecture (SOA) reduces overall cost and skill of integration by utilizing common integration components to reconcile different data structures and fields across multiple applications on a single platform. This is implemented with a minimum amount of programming. Based on market-leading software from Schneider Electric and Microsoft.
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RefineryWise Values

1 Maximize refinery profitability by driving proactive teamwork based on trustworthy data from best-in-class application solutions for supply chain, operations, productions and asset management on a single, operations-focused performance management platform, that breaks down silos and improves collaboration, operations intelligence and agility for operational excellence.

2 Improve refineries’ business performance using a self-service, intuitive operations-focused portal with consistent and actionable information visible across multiple disciplines (planning, scheduling, operation and maintenance). No “coding,” programming or scripting is required.

3 Eliminate wasted work, automate and transform work processes around people, processes and assets by enabling prescriptive analytics, fast decision making, close cross-discipline collaboration and the creation, accumulation and retention of operational wisdom for operational excellence. Data cleansing and economic benefit calculations are automated.

4 Improve revenue by up to 5% and reduce operations costs by up to 10% with industry-proven performance platforms in merging IT (information technology) and OT (operations technology) for many major oil and gas companies.

5 Supported by experienced teams from Schneider Electric globally to ensure continuous and high-quality support for customers to reduce total cost of ownership (TCO) and drive operational excellence.
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RefineryWise™ Benefits
Results for a typical refinery with 310,000 bpd, $50/bbl

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<tr>
<th>$300M/year</th>
<th>$250M/year</th>
<th>$200M/year</th>
<th>$150M/year</th>
<th>$100M/year</th>
<th>$50M/year</th>
<th>$0M/year</th>
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Benefits based on typical refinery performance

- **Wise Operations Management:** Reduced unplanned shutdowns, increased yield, reduced hydrogen and steam consumption, increased throughput
- **Wise Energy Management:** Reduced energy conversion cost, reduced energy consumption cost, reduced cost of crude for energy
- **Wise Crude Purchases:** Reduced cost of purchases, reduced maintenance
- **Wise Reliability:** Reduced unplanned shutdowns, reduced HSE incidents, reduced maintenance
- **Wise Blending and Oil Movements:** Reduced giveaway, reduced rework, minimized inventory, minimized downgrades, higher fuels agility
- **Wise Planning & Scheduling:** Reduced cost of crude purchases, increased throughput, increased yield
- **Wise Process Performance:** Reduced energy yields, longer equipment life, increased availability, increased quality, increased yields
- **Wise Production Management:** Reduced accounting losses, reduced inventory, reduced hydrogen and steam consumption, increased throughput

RefineryWise transforms operations management business processes and enables operations improvement in the following key areas:

- **Wise blending and oil movements** – reduced giveaway, no rework, minimum inventory, minimum downgrades, and higher fuels agility
- **Wise operations management** – reduced unplanned shutdowns, increased yield, reduced hydrogen and steam consumption, increased throughput
- **Wise production management** – reduced accounting loss, reduced hydrogen and steam consumption, increased throughput
- **Wise reliability** – reduced unplanned shutdowns, reduced HSE incidents, reduced maintenance
- **Wise planning and scheduling** – reduced cost of crude purchases, increased throughput, increased yield
- **Wise process performance** – reduced energy, longer equipment life, increased availability, increased quality, increased yield
- **Wise energy management** – reduced energy conversion cost, reduced energy consumption cost, reduced cost of crude for energy
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RefineryWise leverages both ROMeo and PRiSM for its functionality

Conclusion
Whether you are implementing a single or multiple RefineryWise solution, the true value of Schneider Electric’s RefineryWise Suite is that you can implement the industry-leading specialized solutions in a logical step-wise fashion, as economics and resources allow. This allows you to build value as additional solutions are implemented, allowing each solution to pay for the subsequent implementation. RefineryWise guides you in executing operational excellence that drives overall business excellence in your enterprise.

Customer FIRST Software Maintenance and Support Program
Our Mission: Your Success
RefineryWise offers the award-winning Customer FIRST Software Maintenance and Support Program. Customer FIRST is a flexible portfolio of services that help protect and extend the value of your Schneider Electric Industry Solutions across the entire lifecycle. A Customer FIRST Agreement establishes a formal service relationship with Schneider Electric, enabling access to the latest software upgrades and providing expert technical assistance, optional services and self-help tools to help you improve your operational effectiveness.

For more information on Customer FIRST for Industry Solutions, please visit: software.schneider-electric.com/support/customer-first

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