



HYDROCARBON PROCESSING[®]

IRPC

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How Oil Companies Can Lead in The Energy Transition: Greener Today and Sustainable Tomorrow



Peter Le
Senior Principal Consultant

AVEVA



How Oil Companies Can Lead the Energy Transition: Greener Today and Sustainable Tomorrow

Peter Le, Senior Principal Consultant, AVEVA



"A journey of a thousand miles begins with a single step" -Chinese Proverb



"If the only tool you have is a hammer, you tend to see every problem as a nail."

-Abraham Maslow

Step 1

Embracing existing technology for
emissions reduction today

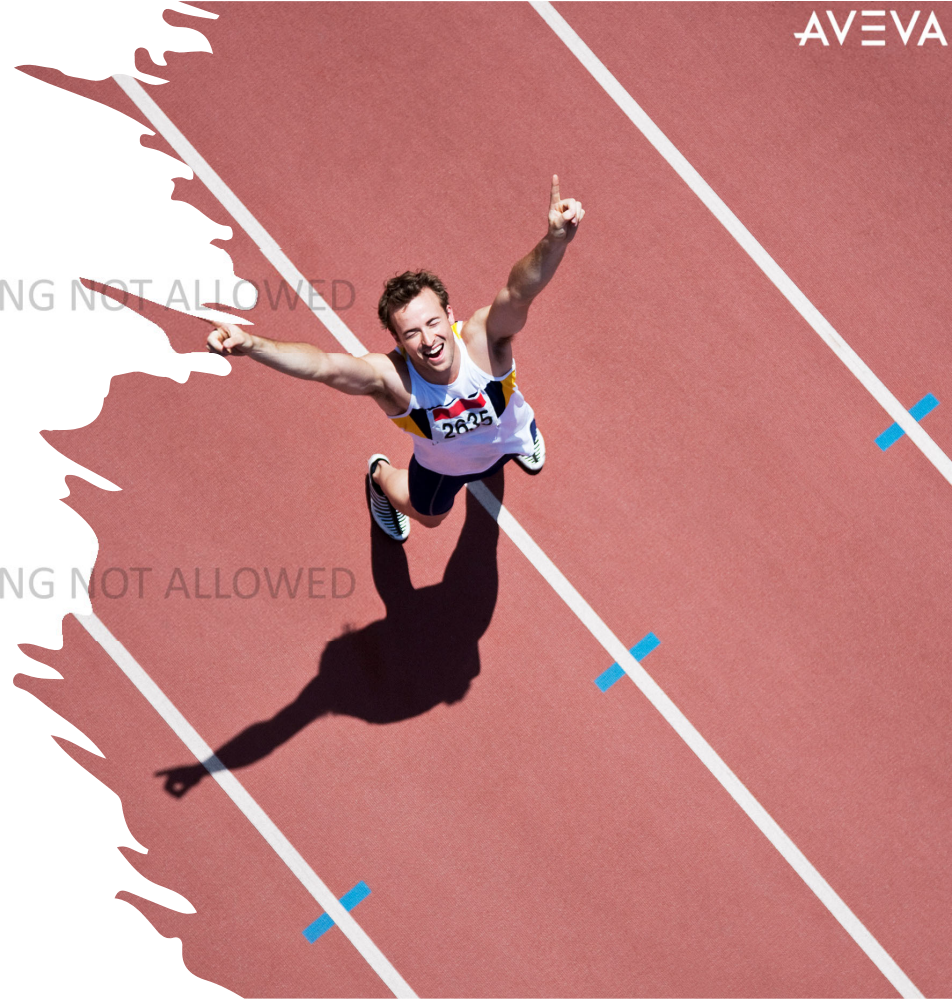
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Step 2

Future-focused investment in
renewable energy technologies





Operational Data Accessibility & AI/ML Analytics



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Suncor is driving its digital transformation journey via AVEVA's AI-driven Process Simulation and ML Predictive Analytics to deliver a warning detection system

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Early diagnosis of equipment health problems drives performance optimization, thus driving down GHG emissions and energy usage

Read More

- <https://resources.osisoft.com/presentations/better-energy-efficiency-and-production-with-an-asset-performance-management-workflow-at-suncor/>



AVEVA



Saudi Aramco

Saudi Aramco remotely implemented AVEVA Unified Operations Center

Early value chain optimization using 3D engineering model

Improved visibility for faster decision making

Installation completed remotely securely & to time, during lockdown

ENERGY INTENSITY KPI

126 (KWh/BOE)
6.3 | 5%

71.0K
2.4 | 4%

13.6K
226.0 | 2%

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DOWNSTREAM

126 (KWh/BOE)
6.3 | 5%

71.0K
2.4 | 4%

13.6K
226.0 | 2%

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UPSTREAM

126 (KWh/BOE)
6.3 | 5%

71.0K
2.4 | 4%

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HYDROCARBON DISCHARGE TO MARINE

36.6
2.4 | 4%

0.0
2.4 | 4%

45.6
2.4 | 4%

70.5
2.4 | 4%

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Read More

- <https://resources.osisoft.com/presentations/saudi-aramco--4irc-pi-system-based-solutions-and-applications/>
- <https://resources.osisoft.com/presentations/saudi-aramco--optimizing-refinery-operations-%E2%80%93-a-digital-transformation-journey/>

Nigeria LNG

Leveraging the AVEVA portfolio to enable enterprise-wide digital transformation for a major player in the global LNG market

Goals

- NLNG is a major player in the global market, with a production capacity of 22mtpa across 6 operating trains. Construction of a 7th train is ongoing with estimated completion by 2026

Challenges

- Complexity and scale of digital transformation required a phased deployment; with plans to start implementation on a first train, and then later scale to other 5 trains

Solutions

- AVEVA™ Unified Engineering; AVEVA™ Asset Information Management; AVEVA™ PI System; AVEVA™ Predictive Analytics; AVEVA™ Unified Operations Center

Results

- Deployed a digital twin using design data, 3D models and other documentation combined with an engineering information repository
- Integrated real-time plant data with predictive analytics, generating increased LNG production output, improved efficiency and early failure warnings
- Visualized operations across 7 collaborative work locations, enabling remote work and improving decision making for field operators and executives, resulting in 50% reduced plant losses, shorter turnarounds and faster, more informed decision making

Read More: <https://www.aveva.com/en/perspectives/success-stories/nigeria-lng/>

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"Digital transformation is about using relevant technology to drive business value. Value is defined by the business, and the business, not technology has to take the lead"

Oluwafemi Lawal, Manager – Digital and Innovation, Nigeria LNG

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Integrated real-time plant data with **predictive analytics**



Visualized operations across **7 collaborative work locations**



50% reduction in plant losses, shorter turnarounds and faster decision making

AVEVA



Value Chain Optimization



BP

Sets up CO₂ emission modelling for refinery operations

Goals

- Use advanced cloud computing and automation for a standardized approach across refinery operations
- Implement an improved planning tool with the capability to model many different scenarios
- Model CO₂ emissions within each bp-operated refinery to provide new insights to track and manage emissions

Challenges

- Providing a single, global tool and data set to align heritage work practices
- Improving planning performance and results visibility across the refineries
- Standardizing modelling of CO₂ emissions globally across the network of bp-operated refineries

Solution

- AVEVA™ Unified Supply Chain

Results

- Simplified decision-making with optimization tool, delivering a competitive advantage
- Margin improvements through improved decision-making capabilities
- Improved CO₂ emissions modelling capabilities

Read more: <https://resources.osisoft.com/presentations/bp-how-digital-transformation-is-enabling-bp-s-journey-to-net-zero/>

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“Modernizing our digital capabilities is a fundamental enabler towards our sustainability goals. AVEVA’s latest software solutions – with more intuitive user experiences, greater levels of automation, and delivery in the cloud – helps what we can deliver and achieve.”

Rob Kelly, VP Digital, Production, Manufacturing & Projects

”



Improved margins, faster data access and decision-making in refineries



Ability to identify the most carbon-intensive aspects of any scenario



Improved CO₂ emissions modelling capabilities

AVEVA

[Oil & Gas Home](#)



Cosmo Oil



Saving \$2 million per business unit every year with the digital twin

Challenge

- Remain competitive in a crowded market, with competitors already deploying real-time optimizations
- Leverage real-time optimizations based on auto-tuned, live data from rigorous simulation technology
- Optimize plant operations through digital innovation

Solution

- Implementation of AVEVA™ Engineering, AVEVA™ Unified Supply Chain, and AVEVA™ Process Optimization

Results

- \$2.3 million/year benefits through CDU process optimization
 - Payback of optimization initiative in less than one year
 - Boosts to energy efficiency and sustainability in plant operations through optimization
- Read more: <https://www.aveva.com/en/perspectives/success-stories/cosmo-oil/>

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AVEVA has a vision for process optimization and a roadmap to take companies from process control to real-time optimization to AI-infused solutions, all oriented around their notion of the Process digital twin.

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\$2.3 million/year savings



**<1 year
initiative payback**

AVEVA



[Oil & Gas Home](#)



Engineering/Asset Information Accessibility

Yinson

Integrating real-time data with AVEVA™ PI System™ and AVEVA™ Engineering to increase efficiency and sustainability

Goals

- Streamline complex vessel design and share with operational partners
- Reduce greenhouse gas emissions by 2030 by 30%

Challenges

- Growing number and size of assets across the globe made it difficult to control data
- Duration and multidisciplinary nature of projects hampered data sharing and collaboration
- Capturing greenhouse gas emissions across operations to calculate baseline for future reductions

Solutions

- AVEVA™ Asset Information Management, AVEVA™ PI System™, AVEVA™ Engineering, and AVEVA™ Diagrams.

Results

- Data integration empowers increased collaboration across teams / available to all stakeholders
- Moved from monthly calculations of greenhouse gas emissions to daily monitoring
- Read more: <https://resources.osisoft.com/presentations/yinson--integrating-real-time-operational-data-with-engineering-data-to-increase-efficiency-and-sustainability/>

“ All operational data should be shared with operational partners, and we achieved that through AVEVA Asset Information Management. We manage more than 100,000 assets and more than 25,000 documents, all of them are structured in AVEVA Asset Information Management and collaborate better with all the stakeholders in one place.”

- Ms. Kari Berte Daasvatn Bye, Project Manager Digitalization- Yinson



Managed more than 100,000 items structures and 25000 documents in one place



Data integration empowers increased collaboration across teams



Increased real-time data enables more efficient maintenance

AVEVA

Wood

wood.

Unlocking lasting value from assets using a lifecycle approach to digital twin strategy

Goals

- Create a digital twin strategy that captures the needs of operations teams
- Build an operating digital twin alongside the physical asset

Challenges

- Applying 'right-to-left' thinking, beginning with OPEX considerations, rather than CAPEX to determine strategic capital investments required to transform project and operating performance
- Identifying the needs of operating teams
- Define value drivers, and develop use cases and initiatives

Solution

- AVEVA™ Asset Information Management, AVEVA™ Work Tasks, AVEVA™ Asset Strategy Optimization, AVEVA™ Predictive Analytics, AVEVA™ Process Simulation, AVEVA™ Advanced Process Control, AVEVA™ Insight, AVEVA™ Mobile Operator, AVEVA™ E3D, Design, AVEVA™ Electrical and Instrumentation, AVEVA™ P&ID, AVEVA™ Engineering, AVEVA™ PI System™, AVEVA™ Operational Safety Management

Results

- Creation of class-leading digital twin ecosystem
- Integration and contextualisation of the data layer
- Ensure shared ownership with operations

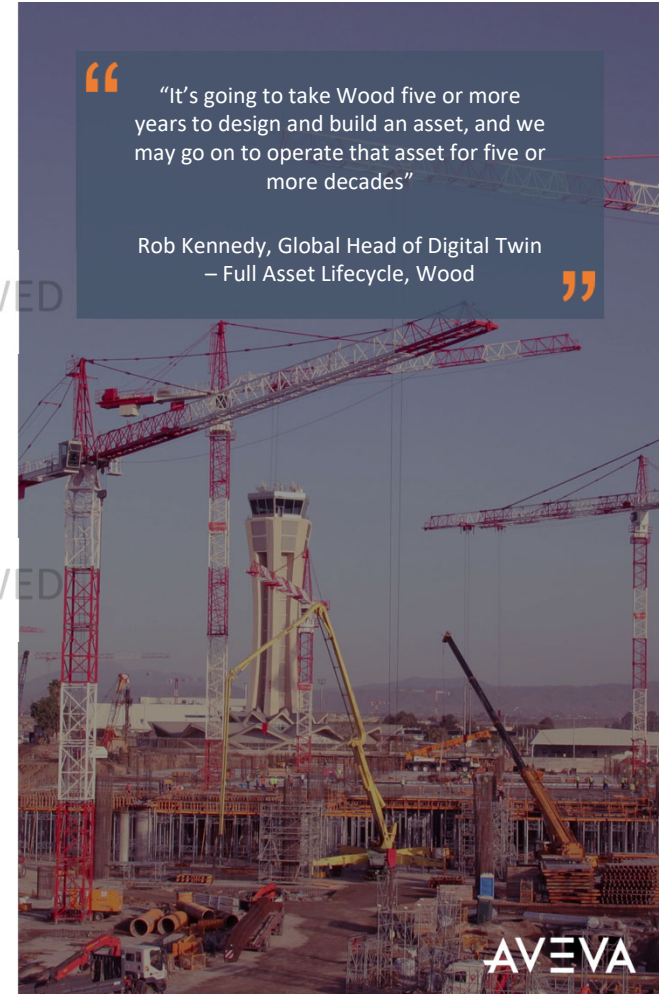
Read More: <https://resources.osisoft.com/presentations/wood--unlocking-lasting-value-from-your-asset-%E2%80%93-a-lifecycle-approach-to-digital-twin-strategy/>

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“It’s going to take Wood five or more years to design and build an asset, and we may go on to operate that asset for five or more decades”

Rob Kennedy, Global Head of Digital Twin
– Full Asset Lifecycle, Wood

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EPC Home



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Strike a Balance: Embrace Existing Technology While Investing in Future Innovations

Questions?

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