

Building an integrated, high-performance production workflow

Optima for Oil & Gas





Summary

In this era of digital connectivity, what sets the winners apart from their industry peers is their relentless pursuit of embedding technology-driven solutions into every aspect of their business.

Oil and gas operators make up one of the largest and most capital-intensive industries in the world; however, despite their impressive growth over the past few decades, that too amid rising price and demand/supply volatility, the players operating in the market have not been able to successfully tap next-generation technologies to integrate, automate, and streamline their workflows and drive efficiencies across the enterprise.

Although O&G companies have embraced digital technologies in bits and pieces across their processes, they now have the opportunity to break free from the inefficiencies and losses caused by data silos and limited visibility into operations. A strategic transition to modern platforms and solutions, like Kellton's Optima, can help O&G operators digitize their production workflows and drive business results.

This whitepaper sheds light on the key challenges that the operators across the oil and gas landscape face and how an innovative IoT-driven platform can help these players reduce costs, improve performance and productivity, and achieve better results.





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Production workflow Explained

In simpler terms, production workflows at oil and gas sites are defined as activities vital to maximizing the output (hydrocarbons), preserving the equipment, and increasing their lifespans.

The companies operated in a highly scattered and inefficient production environment for decades. The disjointed operations and systems ensured that operators had limited visibility into what was going on in the production sites and had limited tools and resources to improve the outcomes. Even now, a significant number of companies depend on legacy-based software solutions that were not designed for the level and volume of tracking and collaboration needed today to maximize value and drive profitability.

It's becoming increasingly crucial for oil and gas operators to rapidly digitize their cores and break down the silos in their production processes. A strategic approach toward a seamless and holistic digital transformation can help these players identify new opportunities and make informed decisions to timely respond to changing consumer demands and market conditions.





The struggle is real. The road ahead is paved with a series of challenges.

Truth be told, the frontrunners across upstream, midstream, and downstream segments are increasingly investing in digitizing their workflows; they are joining forces with technology companies, installing sensors, and collecting data from across the production workflow. However, the O&G industry has many problems that need to be addressed before they can see any substantial improvement in their production workflow.

Data Silos

One major issue is the presence of data silos within different departments or divisions of the company. Data is often stored and managed separately, making it difficult to access, share, and integrate information across the organization. This lack of centralized data hampers collaboration, decision-making, and overall operational efficiency.

Increased reliance on traditional IT systems

Many oil and gas companies still need to rely on updated and manual techniques for managing their production workflow. These conventional systems often involve paper-based processes, spreadsheets, and legacy software that are not optimized for efficiency or scalability. Such systems can lead to errors, delays, and a lack of real-time visibility into production operations.

Limited connectivity and communication

In remote oil and gas production sites, limited connectivity and communication infrastructure can hinder the flow of information between on-site operations and central offices. This lack of real-time data exchange makes it challenging to monitor production processes, respond to issues promptly, and optimize operations effectively. It also affects collaboration among teams working in different locations.

Limited connectivity and communication

Despite technological advancements, some oil and gas companies have been slow to adopt and fully utilize modern digital solutions. This includes technologies such as IoT sensors, data analytics, machine learning, and artificial intelligence. Without leveraging these technologies, companies miss opportunities to automate processes, gain actionable insights, and improve decision-making in their production workflow.

Inefficient data management

The sheer volume and complexity of data generated by oil and gas operations can pose significant challenges to effective management. Without proper data governance, quality control, and integration strategies, it becomes challenging to ensure the accuracy, consistency, and accessibility of critical production data. This can result in inefficiencies, errors, and difficulties in analyzing data for decision-making.

Addressing these problems requires a holistic approach that involves implementing integrated data management systems, adopting digital technologies, fostering a culture of collaboration, and investing in robust communication infrastructure. By overcoming these challenges, oil and gas companies can enhance their production workflow, increase operational efficiency, and achieve better outcomes.



Breaking free from the shackles of outdated technology and disparate data sources

Digitizing every possible activity and process within the production workflow is a powerful way to accelerate production, reduce manual errors, and improve business uptime. By integrating every single piece active in the production workflow, O&G companies can harness the true power of data and drive decision-making. Here are some of the most notable advantages of an integrated and automated production workflow:

Dismantling the 'silos' to build a more automated and connected workflow

Disruptive technologies - Industrial IoT, AI/ML, Advanced Analytics, and Edge Computing - can have a transformative impact on how the production workflow functions or delivers results. One of the powerful ways it can revolutionize the production ecosystem is by connecting all the sources or equipment/machinery that collect or process data with the help of sensors and devices. The data moves freely and is no longer trapped in any system or equipment. The data is stored, processed, and analyzed to generate business-critical insights available to all key stakeholders, who can make swift and informed decisions directly impacting their bottom lines.

Effective equipment health monitoring for no or minimal downtime

Equipment used in the well forms a significant investment for the operators. Lack of visibility into their repair or maintenance needs leads to increased costs for the operator and causes frustration and increased downtime that directly impacts their profitability. By proactively installing new-generation sensors both downhole and in surface equipment, operators can gain immediate and improved visibility into their everyday operations and predict their maintenance needs. Achieving this kind of capability then empowers an organization to regain control over its processes and equipment and ensure maximum uptime. This, in turn, translates into increased output and improved profitability.

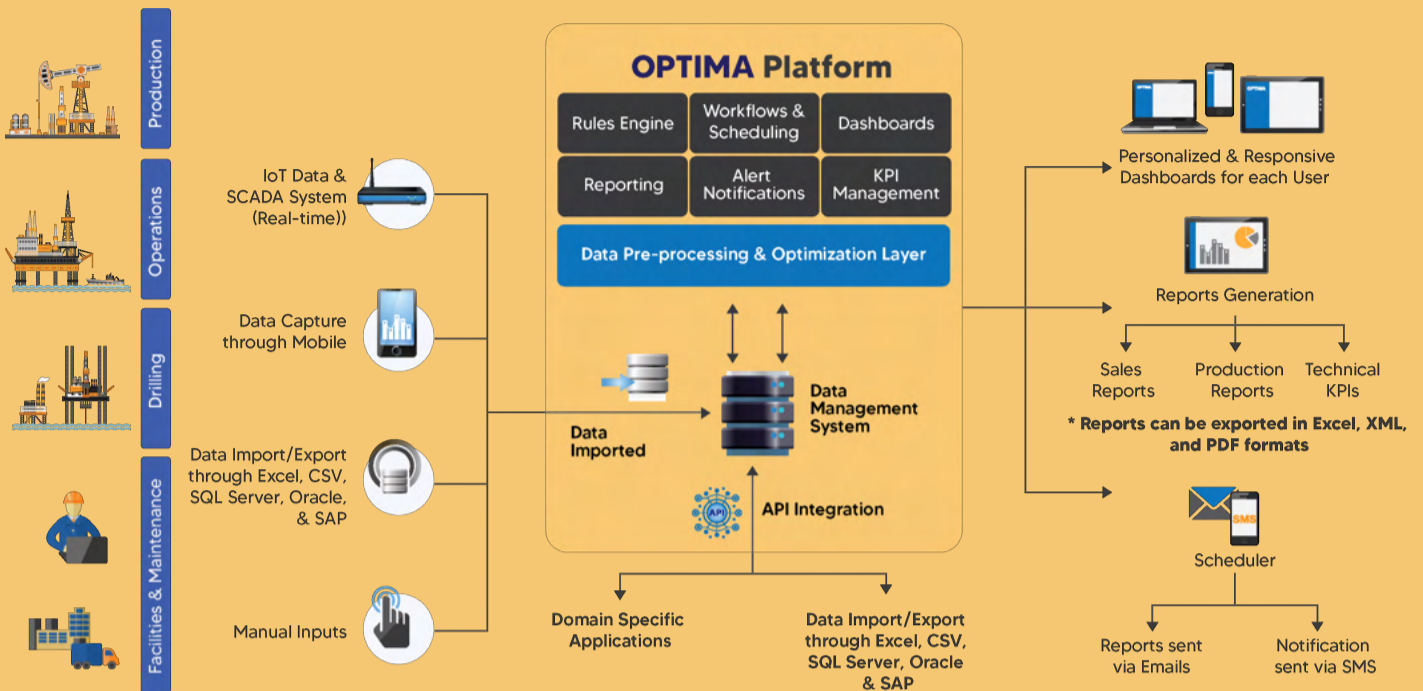
Operators have a myriad of choices - each with its pros and cons

Truth be told, O&G operators have long tried to incorporate new-age technological solutions into their ecosystems to improve their outcomes and reduce downtime and costs. However, due to a multitude of factors, they were never able to entirely change the way they would explore, extract, produce, store, refine, and distribute their products.

Digitizing the production workflow in bits and pieces is not worthwhile either. In the absence of a clear strategy and future-proof digital solutions, companies can find themselves in a trap of inefficiencies and losses. A better option would be to consider a digital enterprise solution that is specifically built for the industry and has the potential to transform the whole production workflow.



Optima - An IoT-enabled digital analytics platform



Optima is a Kellton product that O&G operators can implement to integrate all the equipment being used in the wells to collect, store, and make sense of the troves of data they generate and use this mission-critical information for effective operations management. The platform is built upon disruptive technologies such as industrial IoT, Blockchain, Mobility, Edge Computing, and Machine Learning and facilitates:

- Integration and automation of workflows and processes
- Transparency and accountability
- Timely reporting of opportunities and anomalies
- Consistency and standardization
- Data interoperability using dashboards and analytics

Optima features



Integrated Visualization

Empower your data & document management system by connecting workflows, teams, and high-frequency data through a data analytics rule engine, storing data in databases, easy import/export, and document archival system.



Intelligent Alarming

Empower your data & document management system by connecting workflows, teams, and high-frequency data through a data analytics rule engine, storing data in databases, easy import/export, and document archival system.



SCADA Real-time Data

Real-time monitoring by capturing data from a wide range through wireless connectivity with different types of equipment like ESP systems, hydraulic pump systems, rod pumps, PCP, HPS systems, and Digital Analog sensors.



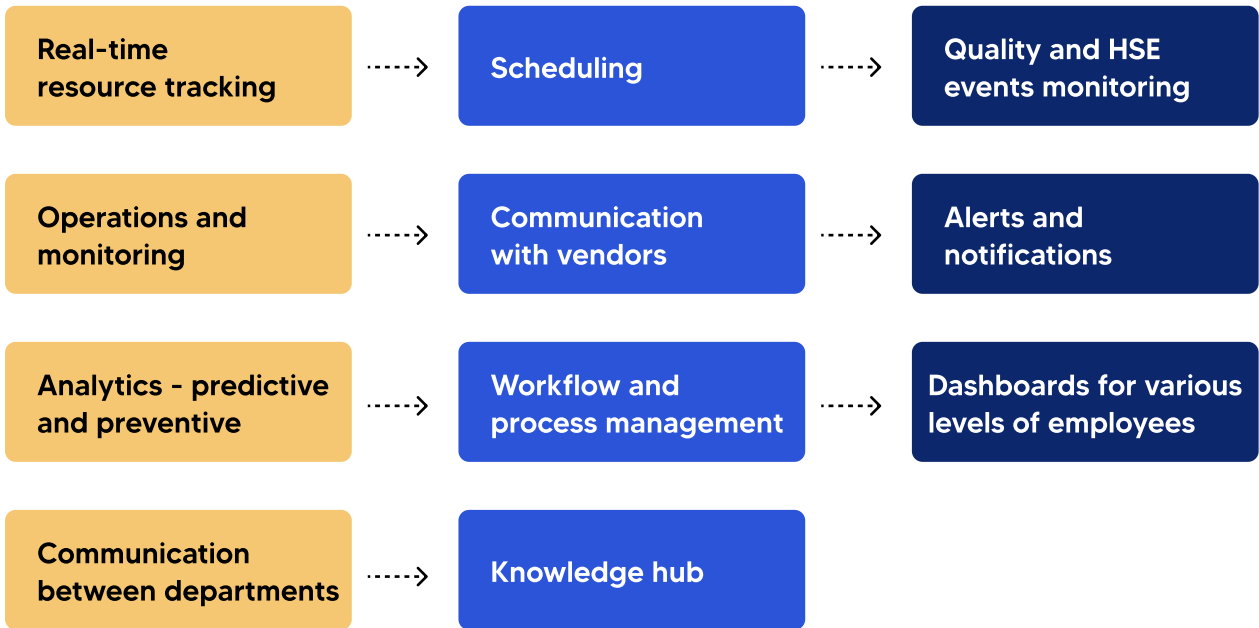
Well Operation Lifecycle

Actively communicate the status of key milestones across the organization and tracks the progress of projects, including well & equipment data, well tests & production levels, and workover / troubleshooting lift operations management.



One platform, many solutions

Optima has been designed to allow operators to transform not only their production workflows but their entire landscape of operations.



* Architecture allows for bespoke development

Optima’s value propositions

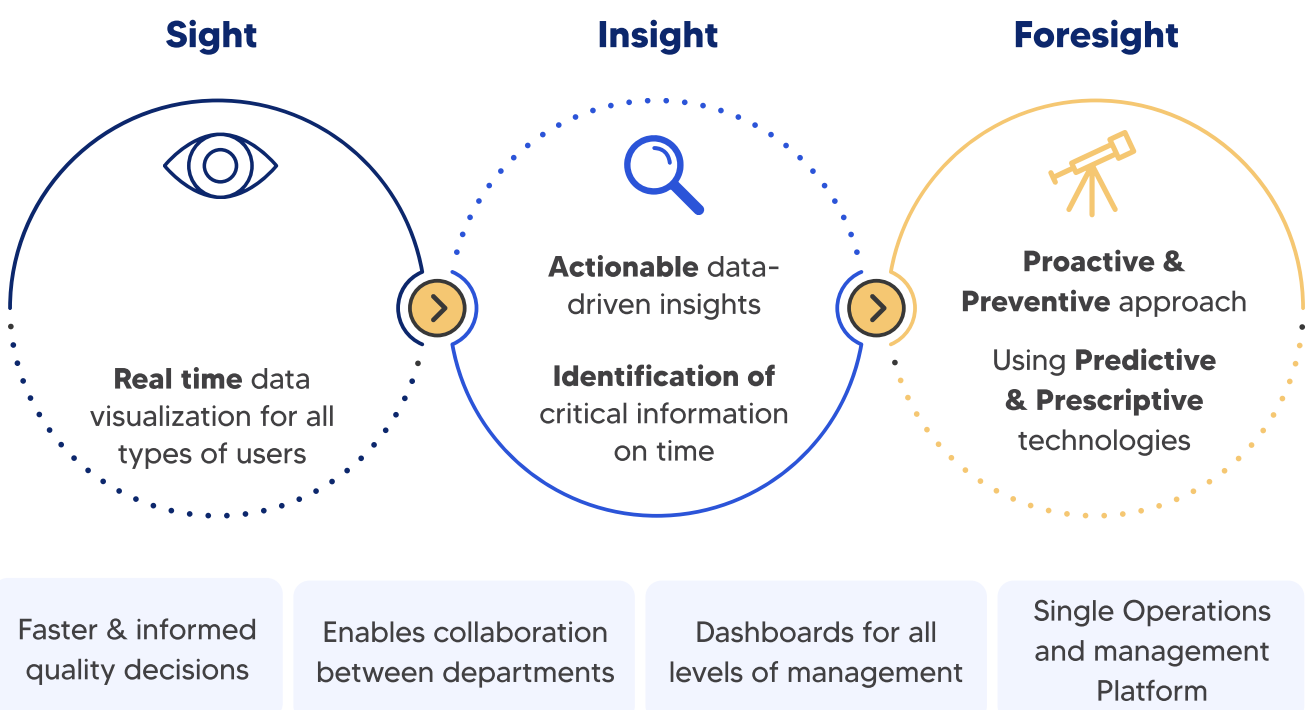
Optima’s value propositions hinge on three pillars: Sight, Insight, and Foresight. With Sight, stakeholders can access data analytics anytime, anywhere, on any device. Real-time data visualization is available for the stakeholders. Insight delivers actionable data and information to these stakeholders to timely identify and capture any opportunity or anomaly.

Foresight fosters a proactive and preventive approach toward machine maintenance using predictive and prescriptive technologies.

Together these capabilities allow the oil and gas companies to connect their disparate systems, generate insights at scale, and drive communication, collaboration, and business growth.

Optuna’s value proposition The irresistible offerings

We’re in the business of streamlining operations and processes, unlocking productivity and achieving massive cost reductions for our clients.





Integrate, automate, and innovate production workflow with Kellton

Kellton has collaborated with some of the most reputed and innovative companies in their quest to transform their digital cores. The Optima team at Kellton brings to the table an unparalleled quest for improvement through connectivity. Thriving on decades of experience in the technology, digital transformation, and O&G space, the consultants and technologists are firmly positioned to help operators analyze their current IT infrastructure and issues that cripple their growth and develop a comprehensive strategy to accelerate their pace of innovation.

The strategic use of the Optima Industrial IoT platform will allow the operators to connect their people, processes, and technology operating in their production workflows in a seamless and rewarding way. The increased visibility and enhanced monitoring and maintenance capabilities will ensure maximum value is derived from the well operations while keeping the operational cost under control

What makes Kellton an ideal partner in the journey towards digitizing the entire production workflow?

For years, Kellton has been helping its clients create infinite possibilities with technology. With a strong team of 1800+ professionals and a global presence, Kellton leverages its long-standing associations with industry-leading partners to deliver cutting-edge solutions to businesses across industries. We draw on our deep domain expertise and a vast ecosystem of partners and platforms to built Optima that’s been designed to digitize the manual processes and help O&G operators innovate at scale.

Here are some more reasons to team up with Kellton:



World-class tech and proven skills

Kellton brings world-class technology and proven skills to help enterprises simplify their oil and gas operations and deliver greater value through new, digital-first models.



Future-proof digital capabilities

Unlocking the next level of customer engagement via end-to-end digital solutions by unraveling distinctive business needs through a dedicated digital core network.



Collaboration benefits

With Kellton as a digital transformation partner on your side, unlock your business’s full potential through digital adoption. We offer flexible engagement models and the shortest implementation time



Global team

A leading team of 1800+ experts working at the bleeding edge of technological disruption that serves 200+ clients globally. We deliver rich business-centric solutions and stay at the forefront of digital innovation.

To further explore the transformative impact that Kellton Team and Optima platform can have on the oil and gas industry, please contact Kellton’s Optima experts.

Kellton is a 'Born Digital' technology consulting and services company founded on the belief of 'Infinite Possibilities with Technology.' The company has helped startups to Fortune 500 clients build disruptive Digital Transformation solutions and leverage technology as a competitive differentiator for their businesses. Driven by deep domain knowledge and technology expertise, Kellton adds value to client relationships by being as a Trusted Partner. A rapidly growing company, Kellton has been placed four times on the Deloitte Technology Fast 50 India list and has been recognized by Forbes Asia as one among the Top 200 companies in 'Best under a Billion' 2017 List. With operations across the US, Europe, India, and Asia-Pacific, we are consistently on the lookout for the next competitive advantage. Please visit our website www.kellton.com

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