

TECHNOLOGY ADVANCES FOR THE **DIGITAL AGE**

 **Industrial Intelligence**

POWERED BY WEATHERFORD

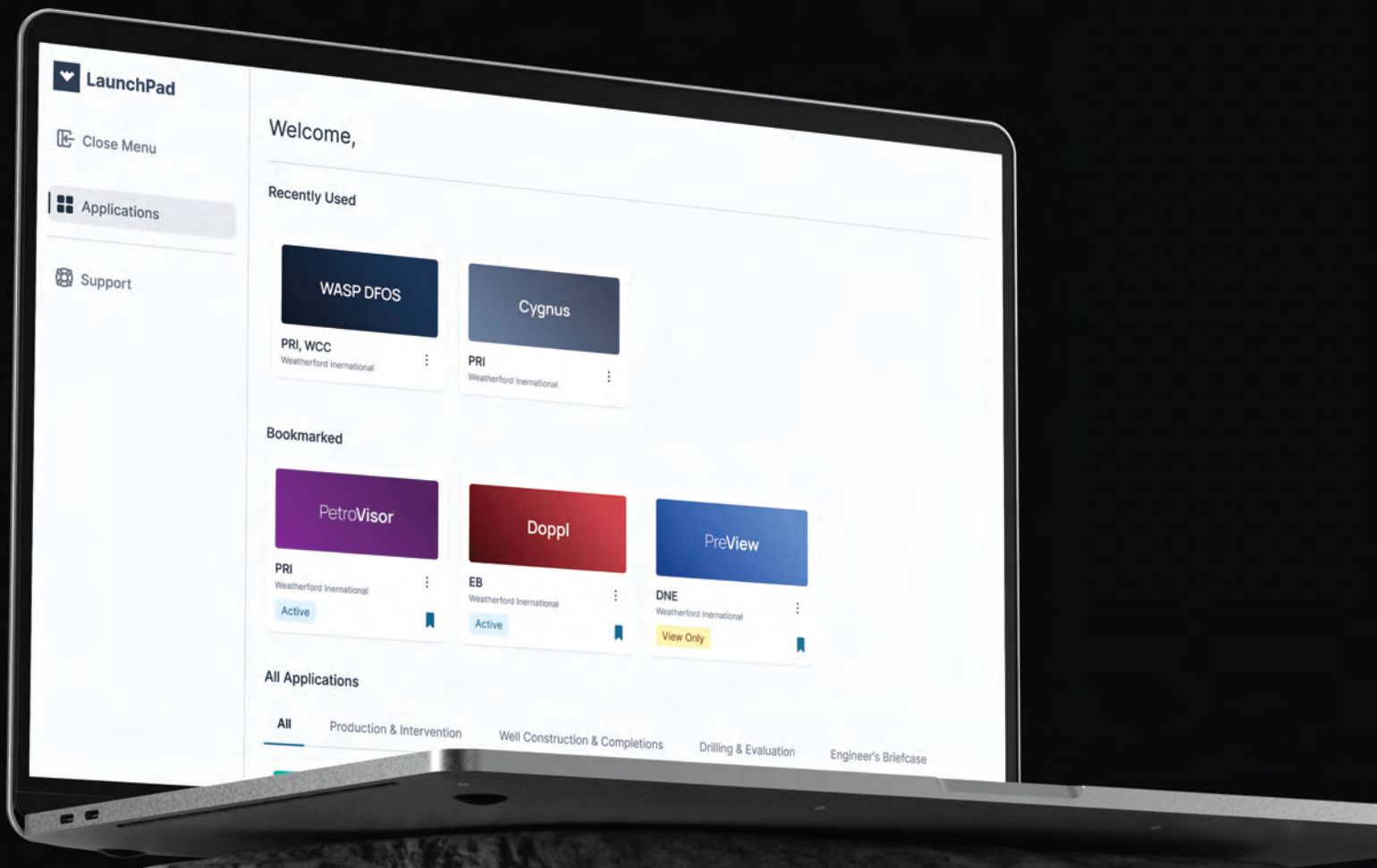
Published by

World Oil

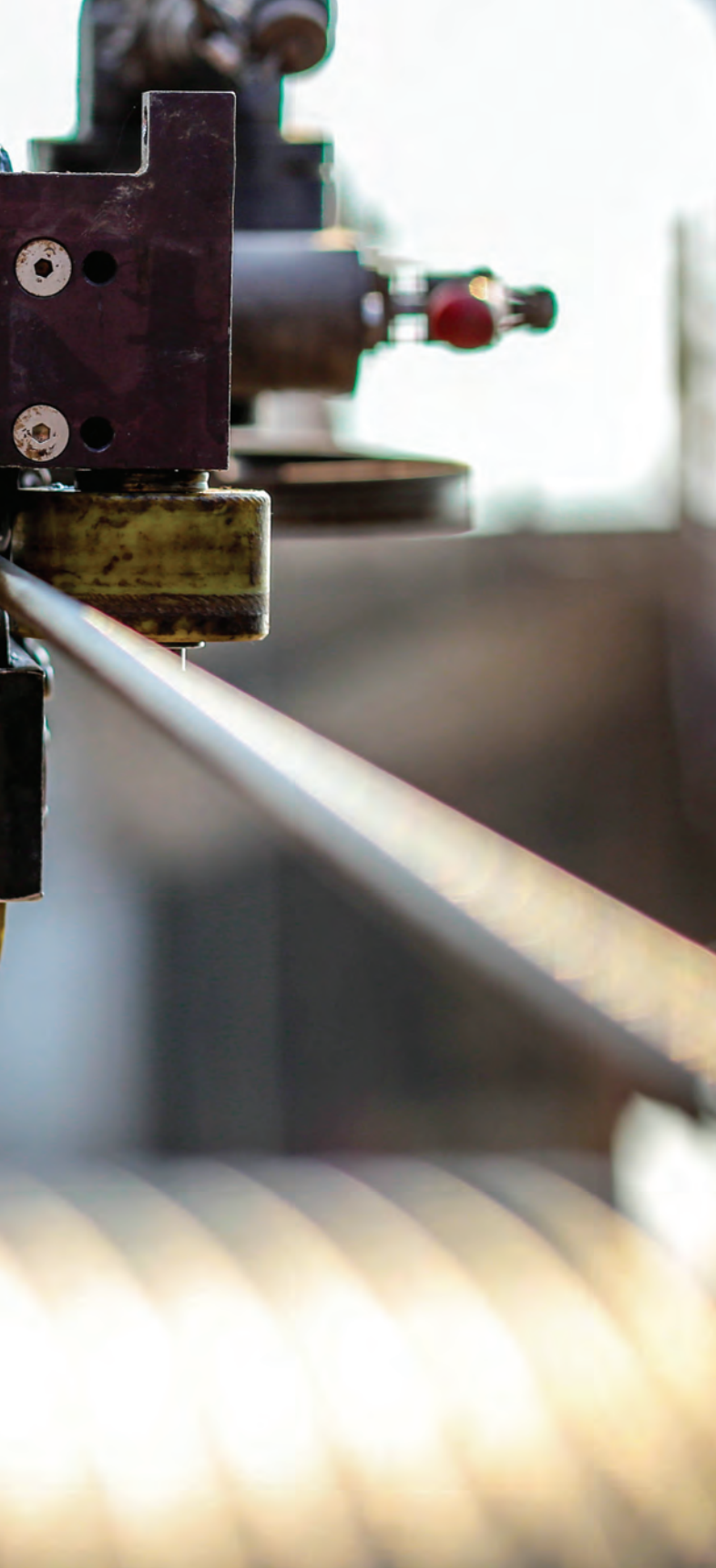
In association with



Weatherford[®]



- 
- 4 Industrial Intelligence**
 - 6 Managed Pressure Drilling to Managed Pressure Wells**
 - 8 A Strategic Approach to Directional Drilling**
 - 10 Completions in the Digital Age**
 - 12 Wireline—Reservoir Management**
 - 14 Well Services—Secondary Recovery**
 - 15 Mature Asset Rejuvenation by Surveillance**
 - 16 Intervention Services and Drilling Tools**
 - 17 Rotaflex® Long-Stroke Pumping Unit**



INTRODUCTION

The Energy of Innovation: Turning data into performance



At Weatherford, we believe our role is more than providing services. It is about creating lasting value for our customers, shareholders, and the communities where we operate. Over the past five years, we have sharpened our focus on technology, operational excellence, and the transformative power of data to deliver measurable outcomes in an increasingly complex energy landscape.

The industry continues to face volatility, shifting policies, and growing expectations for sustainability. Where some see uncertainty, we see opportunity. By combining our engineering expertise, global reach, and digital platforms, we help our customers make smarter, faster decisions that enhance safety, improve efficiency, and advance sustainability goals.

The Energy of Innovation is at the heart of everything we do. It is reflected in our people, who are innovative, collaborative, and committed to excellence. It is embedded in our culture, where technology and data are harnessed to transform challenges into opportunities. And it is evident in our results, where disciplined execution and customer-focused solutions have strengthened performance and delivered long-term value.

This is The Energy of Innovation in action: a comprehensive portfolio of solutions where data becomes performance, innovation becomes outcomes, and collaboration becomes lasting progress. We thank our customers and partners for their continued trust and commitment, which make this journey possible. Together, we are building the foundation of our future. **WO**

—Girish K. Saligram

President and Chief Executive Officer

Closing the loop in production operations

Weatherford International has become a leader in automation and advanced control for oil and gas production by virtue of having the most widely deployed control system in the industry. As market pressures intensify, operators increasingly turn to systems that keep assets running at field speed with fewer human interventions and more consistent equipment uptime. Weatherford's approach is pragmatic: sense what matters, decide quickly, and act safely—within a unified control fabric.

ARCHITECTURE AT THE EDGE

The architecture begins at the edge. Smart controllers and an edge-compute layer gather high-frequency signals and perform the first pass of cleaning and feature extraction close to the process. A vision layer can tie camera streams to physical sensors for site-wide awareness. Supervisory control provides reliable command and a stable interface across large, diverse fleets, while an applications layer applies physics-informed

analytics and machine learning to everyday decisions such as lift control, choke management, and process tuning, **Fig 1**.

DATA PLUMBING AND UNIFIED MODELS

Clean data infrastructure underpins the entire approach. A unified data model and open interfaces normalize signals from legacy and modern sources, enabling older equipment and new applications to communicate without custom-built adapters. The operating cadence is straightforward: collect, contextualize, compute, control. Close the loop by pushing only those decisions that require central coordination while leaving time-critical actions at the edge.

REAL-TIME PRODUCTION OPTIMIZATION

In production operations, real-time analytics sustain optimal production rates, as conditions change. Adaptive control trims set points without constant manual input, bal-

ancing drawdown, equipment health, and system stability. Predictive models monitor pumps, valves, and rotating equipment for subtle patterns that precede faults, allowing maintenance to be scheduled before failures occur. Network and facility controls integrate pressure behavior, production metrics, and simulation guidance, so teams can manage injection, pressure maintenance, and flow assurance with fewer upsets and faster recovery when disturbances arise.

TRANSPARENCY THROUGH VISUALIZATION

Operations teams need a single version of the truth, accessible anywhere. Central control rooms and remote users can visualize the same datasets, run what-if scenarios, and intervene when required. Digital twins provide virtual replicas of critical assets for scenario planning and rapid troubleshooting, shortening the time from detection to resolution. The cumulative effect is greater transparency, lower lifting costs, and improved uptime across the asset life cycle.

SAFETY BY DESIGN

Safety is designed into every step. Real-time risk assessment, permissions, interlocks, automated shutdowns, and remote operation capabilities reduce exposure for field personnel and shorten response times during abnormal events. Audit trails and procedural guidance standardize actions and make outcomes repeatable.

A MORE AUTONOMOUS FUTURE

The direction of travel is clear: production control is becoming more integrated, more data-driven, and increasingly autonomous. Weatherford is investing, accordingly, in research and development, workforce training, and partnerships with operators and technology firms to unlock new capabilities. The result is a control environment that moves at the speed of the field, replaces guesswork with evidence, and turns automation into a day-to-day advantage for modern oil and gas operations. **WO**

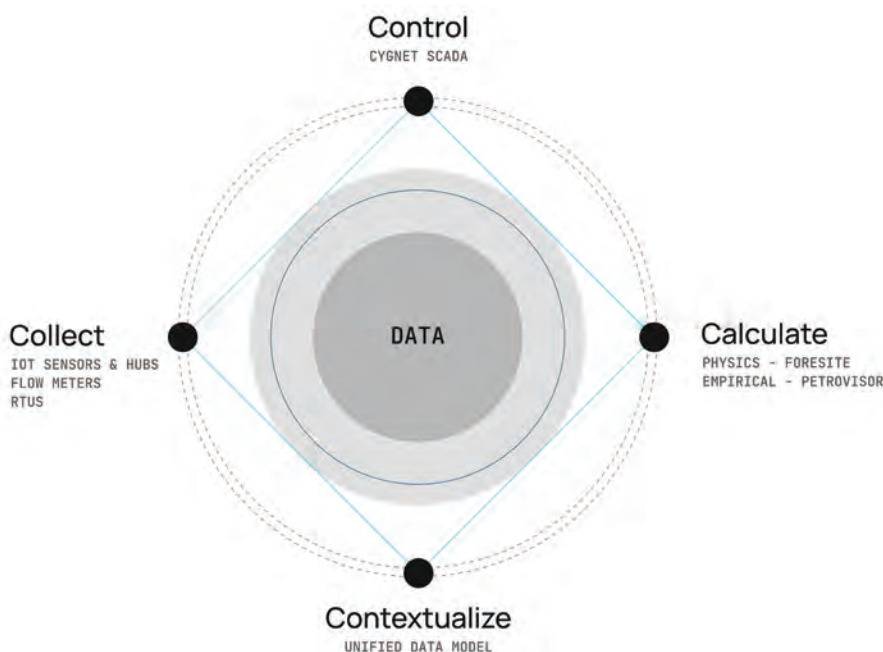


Fig. 1. Weatherford's Industrial Intelligence framework follows a simple four-step loop—Collect, Contextualize, Compute, Control—closing the decision cycle from the field to the enterprise.

At Weatherford, data drives the bit and everything after

Problem-solving is the only constant in oil and gas. Before first production, operators wrestle with weather, geography and geology. Afterward, they are expected to run safely and efficiently across aging assets and volatile markets. Weatherford's answer is simple in principle and rigorous in practice: transform raw field signals into better decisions—at the bit, at the wellsite, and across the asset.

EDGE-TO-CLOUD ARCHITECTURE

The company has developed technology that connects edge data-acquisition systems to a modern software stack that includes supervisory control, production and optimization applications, distributed fiber-optic sensing, and computer vision. The result is tailored, outcomes-based solutions rather than one-size-fits-all tools.

The workflow begins at the edge. Smart controllers and an edge-compute layer collect high-frequency data and perform the first pass of cleaning and feature extraction at the wellsite, where it matters. Distributed fiber sensing adds acoustic and thermal context along the wellbore. A vision system integrates camera feeds with physical sensors for site-wide awareness. Supervisory control provides reliable control and stable human-machine interfaces (HMI) across large, diverse fleets. Above this, the applications layer delivers physics-informed models and machine learning to everyday decisions, **Fig. 1**.

UNIFIED DATA AND OPEN INTERFACES

None of this works without a common language. A unified data model and developer tools normalize signals from both legacy and modern sources, enabling older equipment and new applications to communicate without hand-built adapters. The approach follows a four-step loop: Collect, Contextualize, Compute, Control—with the goal of closing that loop on every pad.

Openness is equally important. Interfaces make it possible to integrate third-party applications, historical systems, or custom platforms. Shared dashboards provide engineers, geoscientists, and field teams with the same picture whether they are at the rig or in a remote center. The architecture runs what must run at the edge while shifting work-

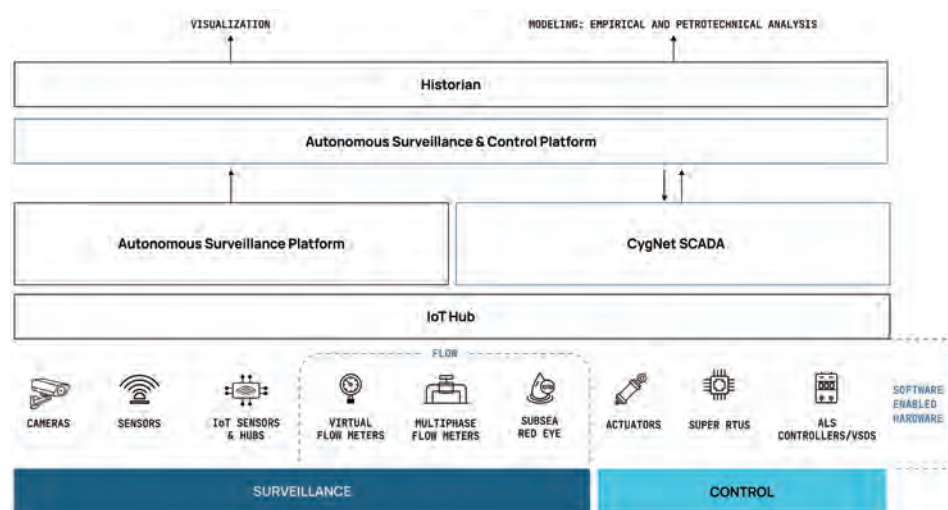


Fig. 1. Weatherford's edge-to-cloud architecture begins at the wellsite, where smart controllers, distributed fiber-optic sensing, and computer vision deliver high-frequency insights for real-time decision-making.

loads that benefit from scale to the cloud—eliminating silos and avoiding lock-in.

DRILLING AND PRODUCTION WORKFLOWS

On the drilling side, real-time signals—pressure, torque, vibration, mud properties, and MWD/LWD—feed analytics that help crews keep the wellbore stable and the rate of penetration steady. Managed-pressure workflows continuously balance wellbore pressure, reducing influx and loss risks. Parameter advisors optimize penetration rate against dysfunction and bit wear. Edge models monitor pumps, top drives, and other rotating equipment for subtle precursors of failure.

Once the well is flowing, the data keeps earning its keep. A hybrid virtual and multiphase flow-metering approach blends first-principles physics with machine learning to estimate phase rates without intrusive meters, even as PVT properties and water cut drift. These estimates inform artificial-lift setpoints and production forecasts. Fiber sensing flags events, such as sand ingress or leaks. Vision layers automate basic site checks, enabling personnel to focus on exceptions rather than routine surveillance.

SAFETY AND OPTIMIZATION

Safety underpins every workflow. Real-time alarms and interlocks catch pressure spikes,

instability, or unexpected influxes early. Optimization reduces fuel burn and waste. Digital procedures and audit trails simplify compliance. The objective is clear: fewer surprises, faster wells, and a lower cost per barrel without cutting corners.

The machine-learning layer is not a black box. Models improve well by well. Anomaly detectors learn to separate noise from real risk. Parameter and trajectory advisors adapt to local rock behavior. Flow models self-correct, as fluid properties change, reducing manual retunes.

CHALLENGES AND ROADMAP

Persistent challenges remain—standardization, cybersecurity, and brownfield integration among them. Weatherford's roadmap emphasizes defense-in-depth security, protocol translation for older assets, and alignment with the Purdue model: from Layers 0–1 (sensors and controllers), through Layers 2–3 (edge control and analytics), into Layer 4 (reporting and optimization). The aim is governance and scalability without sacrificing field pragmatism.

Operators are being asked to do more with less—while raising the bar on safety and environmental performance. Weatherford's portfolio is designed for that reality: stabilize the well, move the bit faster, flow the well smarter, and automate what should be automated. **WO**

Managed pressure unlocks offshore success

Offshore drilling remains one of the most technically demanding sectors in oil and gas, characterized by complex geology, high-pressure environments, and rigorous safety, reliability and regulatory standards. Amid volatile market conditions and rising operational costs, Weatherford International is redefining offshore performance through its pioneering advancements in Managed Pressure Drilling (MPD) and the evolution into Managed Pressure Wells (MPW).

ADVANCING MANAGED PRESSURE TECHNIQUES

Managed Pressure Drilling emerged as a response to the challenges of maintaining wellbore stability in narrow pressure windows. Initially deployed in land-based operations, MPD quickly gained traction offshore, with Weatherford leading the charge through strategic acquisitions and global expansion. By 2011, Weatherford had deployed its first deepwater MPD system, marking a turning point in offshore pressure control.

Today, MPD is a cornerstone of deepwater drilling strategy. Weatherford's MPD systems (**Fig. 1**) are built for demanding offshore conditions, using advanced technology to monitor and adjust pressure during drilling with speed and precision. These systems enable real-time adjustments to equivalent circulating density (ECD), reducing risks such as formation influxes, lost circulation, and wellbore instability. By automating pressure control, Weatherford enhances safety, minimizes non-productive time (NPT), and drives greater efficiency across deepwater operations.

As MPD has matured, Weatherford has expanded the concept into **MPW**, a holistic approach that applies pressure management across the entire well construction life cycle. MPW transforms pressure control from a reactive drilling hazard mitigation into a proactive performance enabler across drilling and completion operations.

A LIFE-OF-WELL STRATEGY

MPW represents a strategic shift in well construction operations. By integrating managed pressure across drilling and completion, operators gain continuous insight into wellbore and reservoir conditions. This real-time visibility enables proactive decisions that ensure well integrity while optimizing well construction operations.

Weatherford's digital platforms aggregate data from multiple sources and convert it into actionable insights via intuitive dashboards and predictive analytics. This seamless connection between planning and execution empowers teams to optimize well performance at every stage.

OPERATIONAL IMPACT AND CASE STUDIES

Managed Pressure Wells are delivering measurable improvements in offshore performance, reducing risk, enhancing efficiency, and driving reductions in total cost of ownership (TCO). Weatherford reports a current non-productive time (NPT) rate of 99.6%, improving from 98.2% in 2018, achieved through targeted process enhancements and technology innovation.

Field-proven case studies highlight the impact:

- **\$12 million saved**, using managed pressure cementing after previous wells required 25 days of remedial work.



Fig. 1. Offshore deployment of Weatherford's deepwater MPD systems reduces drilling risks and enhances operational efficiency.

- **\$17 million saved** during a managed pressure cementing application, where conventional cementing methods were unsuccessful.
- **\$4 million saved** during gravel pack completion operations by maintaining wellbore stability and minimizing losses.
- **\$8 million saved** by optimizing production with solids-free drilling fluid in high-pressure reservoirs.

INNOVATION AND PERFORMANCE ENABLEMENT

Weatherford's commitment to innovation is driving measurable performance gains across deepwater operations. Its automated MPD riser systems-equipped with robotic arms (**Fig. 2**) and predictive maintenance capabilities reduce deployment time from hours to minutes, setting a new standard for efficiency and safety in deepwater drilling. These advancements are part of Weatherford's broader digital transformation, including real-time data centers and condition-based maintenance strategies that enhance uptime, reduce operational costs, and improve well integrity.

Supporting this innovation is the **Managed Pressure Wells Center of Excellence** in Houston, which connects offshore teams with onshore experts through its Remote Operations Center and Global Well Engineering function, ensuring seamless execution from planning through completion. To further enable industry knowledge, Weatherford has partnered with Maersk Training to deliver IADC-accredited MPD courses globally. These simulator-based programs prepare crews for deployment and reinforce best practices across the well lifecycle, aligning technology with operational excellence.

GLOBAL ADOPTION AND MARKET SATURATION

Managed Pressure applications are gaining momentum across offshore markets, with increasing adoption driven by performance optimization, regulatory compliance, and reduced TCO. Deepwater regions, such as the Gulf of America (GOA), Brazil, and West Africa, are leading the way, where managed pressure has become a strategic priority.

Today, approximately 70% of Gen 7 and Gen 8 deepwater floaters are equipped with MPD packages, and industry experts anticipate near-total market saturation within the next five years. This growth reflects a broader shift in operator mindset, from viewing managed pressure as a contingency tool to recognizing it as a core enabler of well performance.

The Gulf of America continues to set the pace in offshore innovation, with techniques like managed pressure cementing and gravel packing becoming standard practice. As success stories accumulate and training initiatives expand, global adoption is ex-

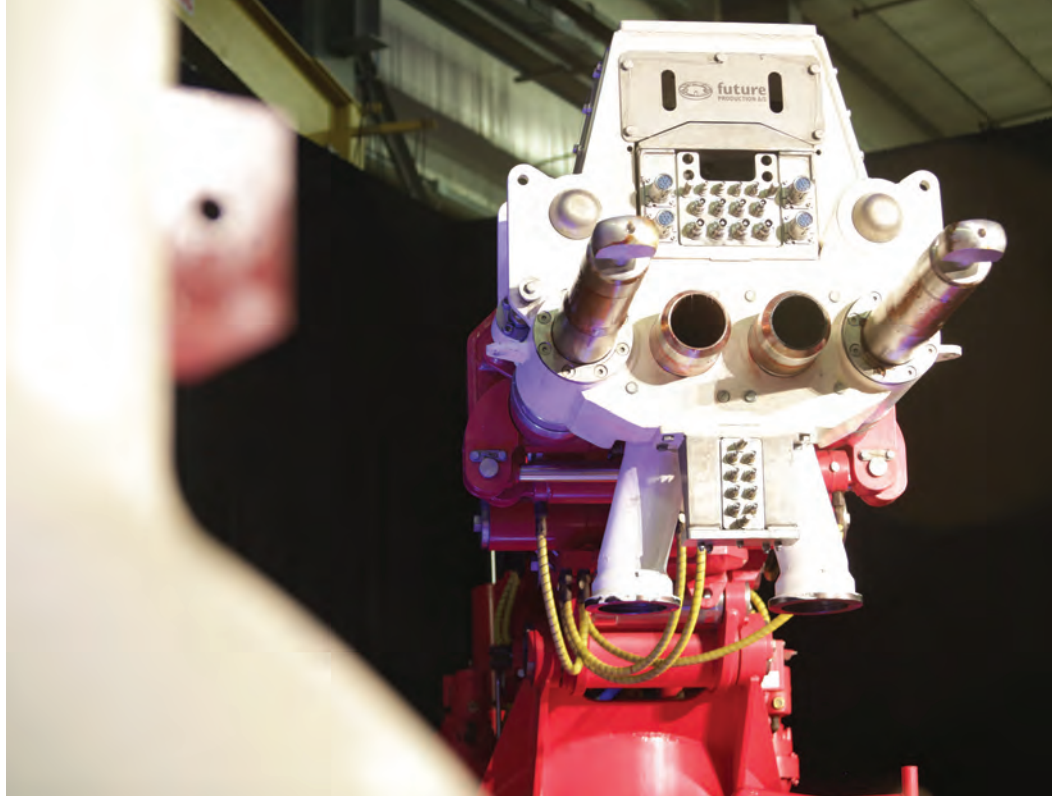


Fig. 2. The Automated MPD Riser System arm enhances safety and accelerates rig-up and rig-down time by 80%.



Fig. 3. Real-time drilling insights powered by Victus™ Intelligent MPD Software, enabling precise pressure control and enhanced operational performance.

pected to accelerate, positioning managed pressure as a foundational element of offshore well design and execution.

LOOKING AHEAD: EXPANDING THE IMPACT OF MANAGING PRESSURE

Weatherford continues to invest in the future of managed pressure, focusing on expanding its technology portfolio and integrating digital capabilities that enhance offshore performance, **Fig. 3**.

Beyond drilling and well construction, Weatherford is exploring the application of managed pressure technologies in emerging energy sectors. These efforts reflect a broader commitment to sustainability and operational excellence across the energy landscape.

As industry understanding deepens, and adoption initiatives scale globally, managed pressure is becoming a foundational element of offshore strategy, enabling safer, more efficient, and more profitable wells from planning through completion. **WO**

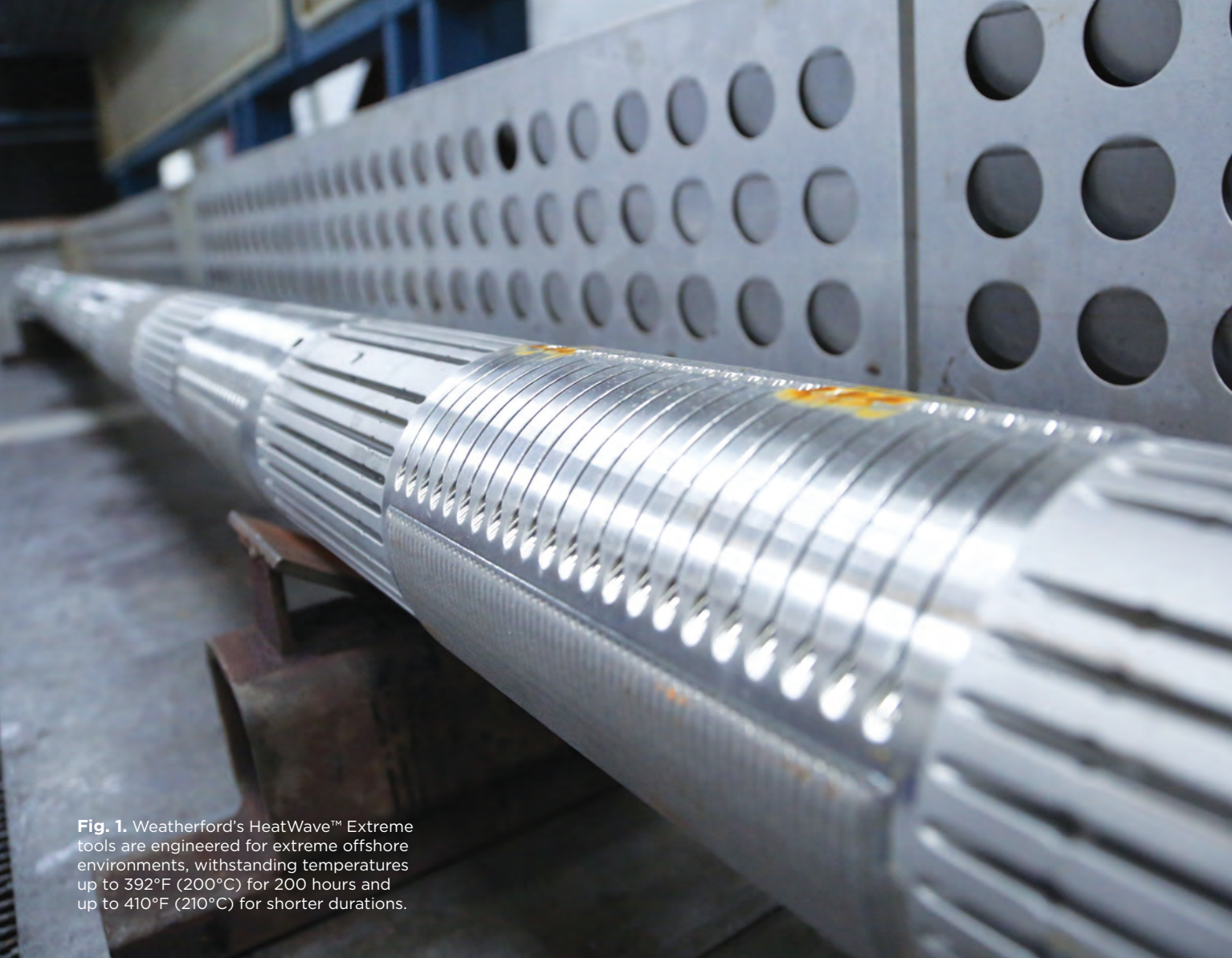


Fig. 1. Weatherford's HeatWave™ Extreme tools are engineered for extreme offshore environments, withstanding temperatures up to 392°F (200°C) for 200 hours and up to 410°F (210°C) for shorter durations.

A STRATEGIC APPROACH TO DIRECTIONAL DRILLING

Weatherford's strategic approach to directional drilling

Weatherford's Directional Drilling strategy is built on a foundation of customer partnership and operational excellence. By focusing on resilient markets and high-temperature environments, we ensure our technology portfolio directly addresses the evolving needs of operators. Our commitment to digital transformation and customer-driven innovation enables us to deliver solutions that consistently add value and improve outcomes in complex drilling scenarios.

WHY RESILIENT MARKETS AND HIGH-TEMPERATURE DRILLING MATTER

Targeting stable, technically demanding regions, such as the Middle East and Gulf of Thailand, Weatherford deploys specialized tools engineered for extreme conditions. This strategic market focus allows us to maximize impact where operators face the greatest challenges. Our proprietary technologies, designed for reliability in high-temperature drilling, are continuously qualified to meet and exceed industry stan-

dards, supporting Weatherford's goal of operational reliability and risk reduction.

Few tools are built to withstand the rigors of high-temperature drilling, where conditions can exceed 200°C. Weatherford has carved out a niche in this space, offering proprietary solutions like the HeatWave™ Extreme Services (**Fig. 1**), with flexible power options that enhance reliability in problematic mud conditions. Ongoing qualification efforts aim to meet and exceed industry standards.

Extreme downhole conditions, including shock, vibration, and elevated temperatures, can present significant challenges to tool performance and reliability. Weatherford's rotary steerable technologies are designed with these factors in mind, incorporating lessons learned from field operations and ongoing customer feedback. Through continuous development and validation, these tools aim to provide dependable performance in demanding environments, supporting operators as they navigate complex drilling scenarios.

AGILE ENGINEERING FOR OFFSHORE AND COMPLEX WELLS

Offshore and high-challenge applications often require rapid engineering responses. Weatherford's agile approach enables quick adaptation, including the creation of multiple tool sizes and enhancements to mitigate corrosion and abrasion. This responsiveness has allowed the company to deliver reliable performance and outperform competitors in complex drilling scenarios.

DIGITAL TRANSFORMATION FOR SMARTER DECISIONS

Real-time decision-making is critical in directional drilling, and digital transformation is making it possible. Weatherford integrates real-time data collection and AI-driven analytics through its Centro® Well Construction Optimization Platform (Fig. 2), enabling seamless connectivity from rig to office. This empowers both Weatherford and its customers to monitor drilling operations and make informed decisions, based on predictive insights.

Reducing non-productive time is a top priority for operators. Advanced software and artificial intelligence support smart alarms and predictive modeling, helping teams respond quickly and efficiently. While automation plays a growing role, human expertise remains essential, especially in complex scenarios where experienced personnel interpret data and coordinate responses.

CONTINUOUS IMPROVEMENT THROUGH ADAPTABILITY

When drilling conditions shift, adaptability becomes essential. Weatherford's engineering teams respond quickly, modifying designs, applying new coatings, and adjusting materials to meet evolving challenges. Each well becomes a learning opportunity, with insights from post-job analysis feeding directly into continuous improvement. This ongoing cycle of learning and refinement helps us strengthen our capabilities and supports

Drilling Service's strategy of continuous improvement and effective knowledge transfer.

DELIVERING VALUE WHERE IT COUNTS

Tool development in today's drilling environment requires a structured approach. Weatherford's strategy is built on five pillars: customer-driven innovation, computer modeling, rigorous lab testing, advanced software and AI integration, and integrated project prioritization. Close communication with customer subject matter experts ensures that tool designs address real-world operational challenges.

Before manufacturing begins, extensive computer simulations predict tool performance and optimize designs. Tools undergo rigorous testing to simulate harsh drilling conditions (Fig. 3). New technologies are

typically validated in lower-risk applications across global operations, allowing teams to demonstrate value and refine performance before broader deployment and more complex environments.

DELIVERING PERFORMANCE THROUGH INSIGHT, PARTNERSHIP AND PRECISION

Meeting the evolving demands of the oil and gas industry requires more than just technology, it takes insight, collaboration, and adaptability. Weatherford's directional drilling strategy combines market awareness, engineering excellence, and customer engagement to deliver solutions that perform in the world's most challenging environments. This approach is fully aligned with our vision for customer innovation and sustainable value creation. **WO**



Fig. 2. Centro connects real-time data with directional drilling to help operators stay on plan and optimize well placement.



Fig. 3. Weatherford's drilling services help operators reduce risk, improve efficiency, and maximize well performance in complex environments.

A true end-to-end approach

In the past two decades, the oil and gas industry has faced enormous challenges, but at the same time, these challenges present unprecedented opportunities, driven by the rapid advancement of digital technologies. Through the integration of advanced analytics, automation, cloud computing, in-flow control, and cutting-edge deployment technologies, Weatherford has transformed its completions products and solutions, enhancing reliability, saving cost, and reducing risks for operators.

The success of any completion is not governed solely by flawless execution during the deployment process. Success must be measured equally on the ability for any reservoir to deliver its true potential for a timeframe in line with expectations. The Weatherford approach to ensuring success is two-fold:

- Expanding the use of advanced completion deployment techniques, using industry-leading radio frequency identification (RFID) technology
- Implementing cutting-edge reservoir

surveillance and control technology, designed to aid the decision-making process with the ability to react in real time.

Traditionally, completions have involved a series of mechanical and hydraulic processes aimed at preparing a well for production, including casing, cementing, perforating, and installing downhole hardware. The Weatherford focus is to reduce the overall time taken to complete wells while keeping the focus on the end goal, which is ultimately to ensure wells produce optimally for as long as possible.

Table 1. Five key areas impacting a well's lifecycle.

Key area	Considerations
Design	Develop a full understanding, not only from a reservoir perspective, but also from an in-well technology perspective. What are the mitigations if well performance is not what's expected?
Deployment	Understand the operating environment and consider how technology can increase deployment efficiencies and early lifecycle performance.
Diagnostics	There is no doubt that a particular well will encounter well integrity or production challenges throughout its lifetime. Surveillance strategies must be developed in line with the ability to diagnose potential well challenges.
Decisions	Decisions are made, based on the data provided. Machine learning and AI are becoming widely adopted to help reduce the errors in decision-making.
Actions	In line with the well design process, in order to take action, we must ensure that we have the technology to respond to what the data reveals.



Fig. 1. The TRIP™ single-trip completion system capitalizes on RFID technology to cut rig time, reduce risk, and enhance downhole tool functionality while installing both upper and lower completions.

REDEFINING COMPLETION DEPLOYMENT

If we look at how a conventional multi-trip completion is installed, procedures and technology performance is generally not the cause for concern. What strikes the fear into the drilling and completions world is the time and associated cost it takes to install these completions, particularly in the deepwater space.

Weatherford RFID technology has taken its rightful place within the completions arena as a key enabler to commission wells more efficiently, in a way that promotes optimal reservoir startup. In a nutshell, the Weatherford RFID portfolio (**Fig. 1**) comprises remotely operated devices (i.e., sleeves, barriers, etc.) that promote a completely intervention-free approach to installing completions.

The benefits were clear, and, as a result of successful installations in deepwater in West Africa, the operator realized a rig time reduction of 30+% per well. Since then, we have leveraged the successes and learnings of the campaign to evolve the offerings and expand adoption across numerous regions globally.

DATA DRIVES DECISION-MAKING

Quite simply, data drives the decisions by providing the foundation for understanding subsurface conditions and predicting future reservoir performance. By understanding the data, we can transform any uncertainty into actionable insights that help guide the decision-making process.

As the industry evolves, the importance of fiber optic-enabled downhole data is

showing signs of increased adoption across the energy sector. Weatherford has been at the forefront of fiber optic technology since 1998, when the fiber bragg grating-based pressure/temperature gauge was introduced. The introduction of this technology enabled reliable, high-precision data gathering in both standard applications, as well as some of the more hostile environments. The latter include high-pressure/high-temperature (HPHT), steam-assisted gravity drainage (SAGD), and high-rate gas wells.

Single-point pressure/temperature measurement is the cornerstone of any reservoir model. However, with the increased adoption of distributed fiber optic sensing, the ability to monitor multiple events across the entire length of the well in real time is game-changing. The Weatherford ForeSite Sense portfolio has the ability to monitor single-point pressure/temperature and multiphase flow, in addition to gathering distributed fiber optic data in the form of DAS, DTS and DSS—all on a single cable, **Fig. 2**.

Weatherford is also applying the same measurement philosophy from a predictive failure standpoint. Applications, such as ESP performance and downhole tool health monitoring, are paving the way for operators to plan well maintenance campaigns in advance to help reduce the amount of downtime to a more manageable level.

DESIGNING FOR COST-EFFECTIVE DEPLOYMENT, OPTIMIZED PRODUCTION AND LIFE EXPECTANCY

In order to fully recognize the potential of this technology, we need to address five key areas, and the impact they have on the well's lifecycle, **Table 1**.

TRANSFORMING DATA INTO RESULTS

It would be fair to say that downhole data is most valuable, if you have the ability to act. Without the in-well technology to change the well dynamics relative to what the data is telling you, the likelihood is that well intervention/remediation will be required, which carries a significant cost. Weatherford is acutely aware of the fact that the need for electrification, digitalization and automation has been fast-approaching.

Intelligent completion systems are the pathway to delivering the results at a reservoir level. Weatherford embarked on our intelligent well journey in the early 2000s but made the decision a few years ago to address reservoir challenges by the means of digital/electrification and introduce to the industry a true electrical production optimization platform.

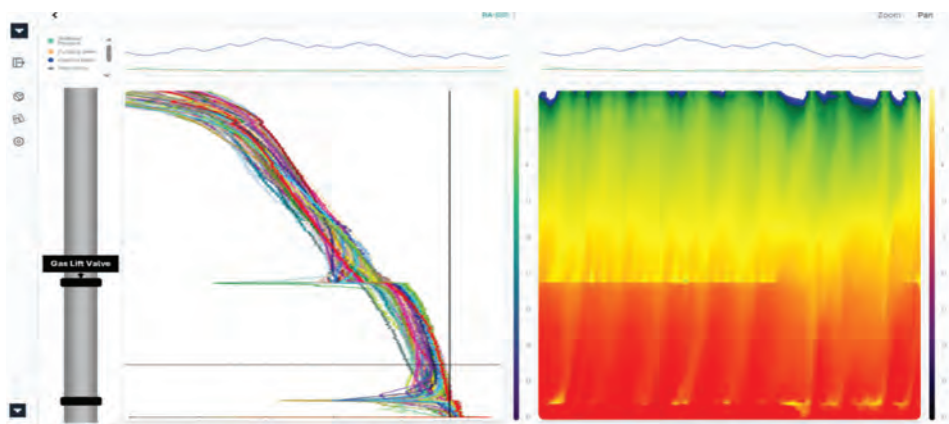


Fig. 2. Distributed fiber optic data provides a complete picture of events occurring in real time across the whole well.

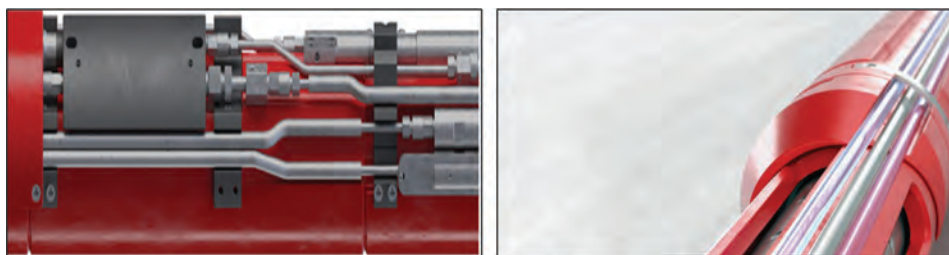


Fig. 3. The Weatherford AMP™ All-Electric Interval Control Valve completion platform built for well production optimization.



Fig. 4. Field of the future.

The AMP all-electric completion system (**Fig. 3**) uses the same fundamental platform to optimize well performance across two specific areas:

- **Inflow Control**—Precise electrical control over the variable choke flow trim, combined with integral pressure/temperature gauges, allows real-time decision-making to tailor the inflow/injection profile to what the reservoir dictates.
- **Gas Lift Optimization**—Utilizes the same customizable flow trim for gas-lifted wells, allowing the operator to optimize gas injection rates through

multiple orifice diameters without the need for intervention.

THE FIELD OF THE FUTURE

Weatherford has a clear vision of the direction in which our digital journey is going to take. The stage is set. From initial completion design, through optimized deployment, diagnostics, decision-making and actioning, the time to recognize the field of the future is here, **Fig. 4**.

The premise is clear: a truly integrated digital oil field designed to enhance asset performance, using real-time, remote operations, and advanced optimization. **WO**

From data to decisions: Weatherford's wireline evolution maximizes reservoir performance

In today's oil and gas landscape, operators face mounting pressure to do more with less. Aging wells, volatile commodity prices, and increasingly complex reservoirs demand smarter, faster, and more cost-effective solutions. Traditional wireline services, once focused on discrete measurements, are being reimagined as strategic platforms for reservoir management. Weatherford International is leading this transformation, evolving its wireline portfolio into a digitally enhanced, solution-based offering that delivers measurable production outcomes.

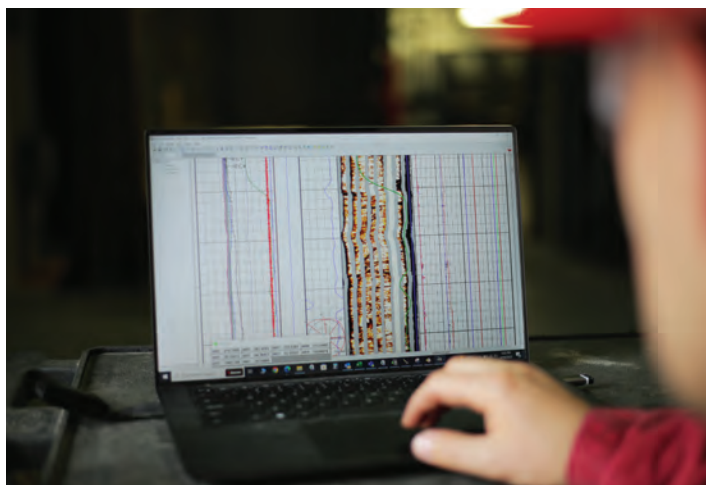


Fig. 1. Transforming static wireline logs into dynamic reservoir models through connected analytics.

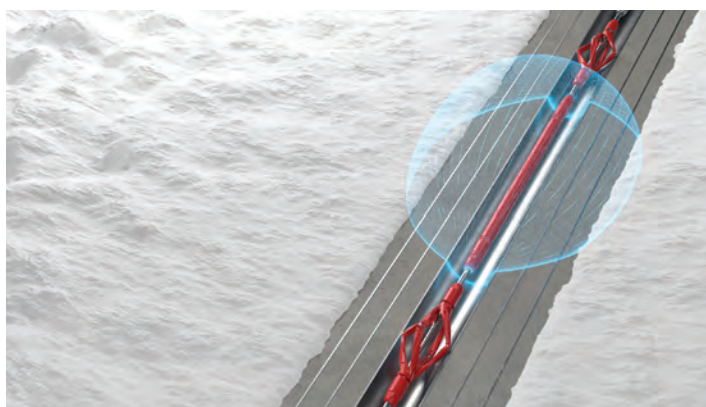


Fig. 2. The MultiView tool is a run-through tubing tool with the ability to simultaneously inspect tubing and the casing behind it.

DIGITAL TRANSFORMATION AT THE CORE

Wireline logging has historically been a data collection exercise, capturing resistivity, porosity, and other formation properties for later interpretation. But Weatherford has redefined this legacy approach, transforming wireline into a digitally intelligent reservoir management platform.

At the heart of this evolution is a shift from tool-centric services to integrated, solution-based diagnostics. Platforms like ForeSite® Production Optimization and CygNet® SCADA now analyze real-time production data to identify underperforming wells, enabling targeted interventions and collaborative planning. Wireline logs have become dynamic inputs that continuously update reservoir models (**Fig. 1**), guiding proactive remediation and maximizing hydrocarbon recovery.

This transformation is powered by cloud-based connectivity and advanced analytics. Wireline data is uploaded to centralized dashboards, where it's synthesized alongside seismic and production logs to build accurate subsurface models. Artificial intelligence and machine learning algorithms enhance formation evaluation by recognizing patterns, flagging anomalies, and predicting reservoir behavior. These capabilities reduce interpretation time and improve recovery, especially in mature basins where maximizing existing assets is critical.

ADVANCED SOLUTIONS FOR COMPLEX CHALLENGES

Today's wells demand more than traditional diagnostics; they require precision insights that drive real production outcomes. Weatherford's wireline solutions are engineered to meet these challenges head-on, helping operators uncover bypassed reserves, evaluate well integrity, and optimize flow performance.

At the reservoir level, the Raptor® 2.0 cased-hole evaluation system delivers high-sensitivity saturation data behind casing, enabling operators to identify untapped zones and pressure-depleted areas with confidence. Proven in thousands of field runs, it supports smarter production strategies and reserve booking, especially in mature assets where recovery matters most.

For well integrity, Weatherford's SecureView™ service provides a unified approach to barrier evaluation and corrosion analysis. With technologies like the MultiView™ multibarrier corrosion logging tool (**Fig. 2**), operators can inspect multiple casing strings simultaneously, without a workover rig, gaining a complete view of mechanical integrity. This proactive insight helps prevent failures, ensures regulatory compliance, and extends well life.

On the production side, advanced diagnostics pinpoint flow



Fig. 3. Weatherford's rigless wireline solutions streamline P&A and gas-lift interventions, reducing cost and complexity without a workover rig.

anomalies, water influx, and leak paths in complex wells. Technologies, such as the Array Fluid Velocity Resistance Capacitance Tool and Fast-Response Temperature Tool, deliver high-resolution data on fluid behavior and thermal profiles, enabling targeted interventions that improve output and reduce downtime.

GLOBAL REACH AND ALIGNED COMMERCIAL MODELS

Weatherford's wireline technologies are deployed worldwide through strategic partnerships, acquisitions, and localized training. By equipping regional providers to operate Weatherford equipment, the company ensures consistent expertise, even in areas where it doesn't have a direct presence. Acquisitions, such as Probe® and Impact Selector®, have broadened the product portfolio and customer base, accelerating global expansion.

In parallel, Weatherford is evolving its commercial models to align with shifting industry priorities. As operators move from CapEx-intensive drilling to OpEx-driven production enhancement, outcome-based contracts, where compensation is tied to well performance, are gaining momentum. In collaborative markets, operators are pooling scopes of work to foster sustainable opportunities and enable more predictable planning cycles.

RIGLESS P&A AND MECHANICAL INNOVATIONS

Plug and abandonment (P&A) operations are also evolving. Rigless campaigns (**Fig. 3**) are emerging as cost-effective alternatives, especially when commodity prices fluctuate. Technologies, such as single-run gas lift valve replacements, enabled by Impact Selector® conveyance systems and Weatherford's Dual Advanced Kickover Tool, support efficient, rigless interventions in gas-lifted wells. These solutions reduce operational time and cost, and in some cases, contrib-

ute to abandonment workflows when integrated with broader well decommissioning strategies.

LOOKING AHEAD: SMARTER, SAFER, MORE SUSTAINABLE

In regions like the Western U.S., Weatherford's wireline data is helping operators repurpose depleted wells for geothermal energy, using terrain-adaptable, heat-resistant technologies that support enhanced and advanced geothermal systems. These efforts extend the life of existing infrastructure while contributing to a carbon-neutral future.

Weatherford also supports the energy transition through its carbon sequestration evaluation capabilities, helping operators assess reservoir suitability for long-term CO₂ storage. These evaluations are critical for ensuring containment integrity and regulatory compliance in emerging carbon capture and storage (CCS) projects.

In addition, Weatherford has developed a patented approach for identifying lithium concentrations using its Raptor 2.0 system. This innovation enables operators to assess subsurface lithium potential with high sensitivity, supporting the growing demand for battery-grade minerals in the renewable energy supply chain.

Looking forward, Weatherford continues to invest in next-generation technologies, including edge computing, augmented reality for remote diagnostics, and advanced AI for predictive reservoir modeling. These innovations promise to further enhance wireline's role in smarter, safer, and more sustainable operations.

In a world where every barrel and every decision count, Weatherford's wireline evolution isn't just about data. It's about delivering actionable insights that unlock new value, extend asset life, and empower operators to thrive in a rapidly changing energy landscape. **WO**

Weatherford Well Services innovations enhance production recovery

As easily accessible oil and gas reserves dwindle and global energy demand continues to rise, maximizing the value of existing oil fields becomes increasingly vital. Secondary recovery is critical to extending field life, boosting production, reducing environmental impacts, and optimizing recovery rates.

Typically, only about 30% of oil reserves can be recovered with primary production. Secondary recovery techniques, like waterflooding, thermal recovery, and gas injection, are employed to maintain reservoir pressure and access additional hydrocarbons.

But operators considering secondary recovery face substantial challenges. Enhanced recovery technologies are traditionally capital- and resource-intensive; complex geological features may hinder accurate modelling; thermal recovery methods consume significant energy; and environmental concerns, like greenhouse gas emissions and water use, can drive up costs. In addition, global market realities, such as fluctuating prices, rig availability, supply-chain limita-

tions, and a shortage of trained personnel, complicate maximization of mature assets.

These challenges highlight the need for innovative approaches to maintain or increase oil production effectively. Employing a combination of advanced technologies, extensive field experience, and a commitment to digital innovation, Weatherford International offers an extensive suite of well services specifically tailored for secondary and tertiary recovery operations, focusing on finding the right solution.

Effectively unlocking trapped hydrocarbons begins with a clear understanding of subsurface characteristics. Integration of digital technologies into Weatherford production recovery operations is the key. Cutting-edge reservoir evaluation tools, including wireline logging, formation testing, and advanced petrophysical analysis, provide critical data on reservoir properties, fluid distribution, and rock mechanics, enabling operators to design effective strategies.

Production enhancement can also be hampered by a lack of data—many mature reservoirs around the globe are not well understood and limited well data makes assessment difficult. Weatherford employs a suite of data acquisition tools (Fig. 1) to obtain reliable information, which is then analyzed, using advanced modelling software to craft precise solutions. Field teams often discover that actual results surpass initial projections.

Among the cutting-edge technologies now redefining well monitoring is distributed fiber optic sensing. This approach enables continuous, real-time measurement of temperature and acoustic signals along the entire length of the wellbore. By deploying fiber-optic cables, operators gain unprecedented insight into reservoir dynamics, fluid movement, and injection conformance, detecting issues, such as water breakthrough or leaks with remarkable speed and accuracy. These high-resolution datasets empower engineers to fine-tune recovery strategies and optimize interventions, enhancing production while reducing risk.

Weatherford evaluates each scenario and finds solutions that focus on rigless interventions (Fig. 2)—like fishing operations, managing water cuts, and corrosion injection—significantly reducing downtime to

days, instead of weeks or months, and allowing operators to avoid costly capital expenditures, while reducing formation damage, enhancing production, and increasing their return on investment.

Waterflooding remains the most widely used secondary recovery technique. Weatherford offers turnkey waterflood management, including surface and downhole equipment, real-time monitoring, and flow control devices. Injection well completions are engineered to optimize water placement and minimize channeling or early breakthrough. In addition, chemical treatment solutions—such as scale inhibitors and biocides—help maintain injectivity and protect infrastructure from corrosion or plugging.

In addition to waterflooding, gas injection is a proven method for secondary recovery. Weatherford provides specialized well services to support gas injection projects, including high-integrity tubulars, packers, and real-time downhole monitoring, ensuring safe, efficient injection. Their expertise in well intervention and remedial workover services also allows for the retrofitting of existing wells for gas injection, minimizing capital expenditure, and project timelines.

Recovery operations often require ongoing well intervention to address changing reservoir conditions, mechanical failures, or declining injection/production performance. Intervention services include coiled tubing, wireline, snubbing, and hydraulic workovers, enabling operators to perform cleanouts, stimulations, and repairs with minimal disruption to field operations. Furthermore, Weatherford artificial lift systems can be tailored to handle increased water cuts and fluctuating production rates typical of secondary recovery projects.

Sustainability and safety underpin Weatherford production enhancement solutions, which are designed to optimize water use, reduce chemical consumption, and prevent unintended releases. Rigorous safety protocols and continuous training ensure that personnel and assets are protected throughout the lifecycle of recovery projects.

With a proven track record and a commitment to innovation, Weatherford continues to set the standard for well services in production enhancement. **WO**

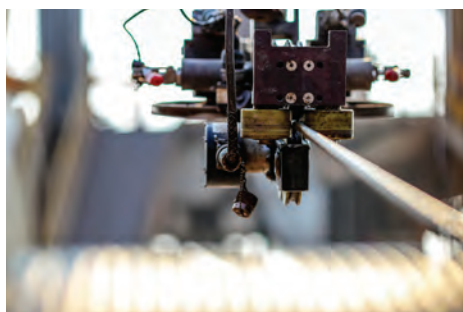


Fig. 1. Weatherford employs a suite of data acquisition tools including wireline, slickline, and distributed fiber optic sensing.



Fig. 2. Flexible conveyance capabilities, including coiled tubing and capillary units, eliminate the need for a rig.

MARS: Maximizing value from aging wells

THE CHALLENGE OF MATURE ASSETS

The rejuvenation of mature oil and gas resources is a complex global challenge. As the oil and gas industry faces increasing pressure to maximize output from existing assets, optimizing the performance of aging wells has become a priority.

Mature oil fields, often decades old, present a host of challenges: declining production rates, increased water cut, aging infrastructure, and most importantly, lack of real-time data needed to uncover the hidden issues. Traditional approaches to field rejuvenation have relied on diagnosing problems with conventional single-point logging methods, periodic well interventions, and scheduled maintenance, which can be inefficient, time-consuming, costly, disruptive, and often reactive, rather than proactive. As the industry seeks to extend the life of aging fields and extract untapped reserves, there is a growing need for smarter, data-driven, integrated asset management strategies.

AN INTEGRATED SOLUTION TO MATURE ASSET CHALLENGES

Combining advanced diagnostics and rigless intervention, the MARS Mature Asset Rejuvenation by Surveillance System breathes new life into aging wells, reducing costs and downtime while improving efficiency. Harnessing real-time data, advanced analytics, and integrated asset management ensures mature assets remain productive, safe, and environmentally sustainable.

The MARS system offers an innovative through-tubing and retrievable distributed fiber optic sensing technology, **Fig. 1**. With the use of distributed acoustic sensing (DAS) and distributed temperature sensing (DTS)—advanced technologies that convert fiber-optic cables into continuous sensing arrays along the wellbore—the MARS System collects acoustic signals along the entire length of a well, with the option to simultaneously deploy conventional logging sensors alongside optical pressure and temperature sensors within the bottomhole assembly (BHA).

Traditional diagnostics rely on point-based measurements that offer limited snapshots of well performance, often resulting in incomplete data that fails to capture the full picture of the phenomenon. The MARS system employs distributed sensing, which provides continuous, high-resolution data along the full wellbore, precise identification of

problem areas, early detection of issues, and real-time understanding of well dynamics.

The fiber optic sensing technology can be conveyed, using capillary tubing and coiled tubing. This allows a wide range of options for various well conditions. Capillary tubing, with a slim 0.25-in. cable, can be deployed in less-deviated wells with smaller completions, while coiled tubing is suitable for more complex well trajectories, harsher environments, and wells requiring fluid circulation.

The MARS system offers a wide range of applications across oil and gas, CCS, and geothermal reservoirs, including well integrity, gas-lift monitoring, production and injection monitoring, vertical seismic profiling (VSP), and hydraulic fracturing.

Distributed sensing technology can identify and locate a wide range of well issues in aging wells, such as detecting leaks and equipment failures, identifying zones where unwanted water or gas is entering the production stream, pinpointing fluid migration between reservoir layers, and locating obstructions that reduce production efficiency.

Mature wells often face complex, overlapping problems. With distributed sensing, operators can prioritize interventions and address more critical issues earlier. By providing actionable data in real time, the MARS system gives operators the opportunity to employ targeted rigless interventions, identifying issues and precisely pinpointing where interventions should occur.

TARGETED, RIGLESS INTERVENTION

When issues are identified, the MARS system provides rigless options for remediation, including:

- Capillary tubing for chemical injection and pressure monitoring—Best suited for continuous well conditioning, scale inhibition, and localized pressure buildup issues, providing targeted chemical treatments and pressure control without requiring a full rig, **Fig. 2**.
- Slickline—Ideal for wells with minor obstructions or valve malfunctions, offering a lightweight, cost-effective method for deploying simple mechanical interventions like setting plugs, retrieving valves or gauges.
- Coiled tubing—Provides greater flexibility and control for more complex operations, such as wellbore



Fig. 1. Distributed fiber optic sensing—enabling high-resolution acoustic and temperature data acquisition along the wellbore—is a foundational element of the MARS system's integrated diagnostics for mature asset rejuvenation.



Fig. 2. Capillary tubing unit deployed for chemical injection—enabling precise, rigless well remediation as part of the MARS system's targeted intervention capabilities.

cleanouts and acid stimulation, or deploying advanced tools like perforating guns, milling systems, and logging tools. Preferable for severe blockages, high-angle wells, and multi-zone interventions.

CONCLUSION

By providing a clear understanding of wellbore conditions, the MARS system gives operators certainty, leading to reduced diagnostic time, lower intervention costs, increased recovery, extended well life, and optimized resource allocation. Continuous monitoring enables predictive maintenance, reducing future disruptions and ensuring sustained revenue growth.

As digital transformation accelerates in the oil and gas sector, technologies like the MARS system will be a necessity for mature asset management. The integration of artificial intelligence, cloud computing, and edge analytics will further enhance the system's capabilities, enabling even greater automation, insight, and operational agility.

For operators seeking to maximize the value of their mature fields while meeting the twin demands of profitability and sustainability, embracing advanced surveillance and rejuvenation technologies is essential. **WO**

Weatherford intervention services and drilling tools drive efficiency and lower costs

As oil and gas operators seek out better ways to manage their assets, operational efficiency, and safety, innovative solutions have become paramount. Weatherford International and its leading-edge plug-and-abandonment and slot-recovery technologies have made it the premier, single-source, well-solutions provider with the most reliable, efficient, and incident-free operations in the world. Its comprehensive intervention services and advanced drilling tools can reach hidden energy reserves and sustainably abandon nonproductive wells within complex environments.

Well intervention services are essential for maintaining, enhancing or restoring well productivity. These operations, which can be performed on live wells, are crucial for troubleshooting, repairing or upgrading well components without the need for full workovers. Weatherford provides an extensive suite of intervention services, designed to address the diverse and complex challenges faced by operators through to end-of-life obligations.

The oil and gas sector also faces extensive late-life well challenges. More than 2.6 million wells have been drilled globally, and tens of thousands are nearing or past the end of their productive lives. Industry analysts forecast that global decommissioning costs will exceed \$80 billion to \$100 billion by 2030. Well plug-and-abandonment (P&A) typically represents approximately 25% to 30% of total field decommissioning costs, making it the single largest line item on the balance sheet for numerous mature assets. For many operators, these liabilities often exceed the remaining value of the field, a significant financial burden.



Fig. 1. Weatherford offers the industry's most comprehensive portfolio of plug-and-abandonment and slot-recovery solutions, designed to extend productive well life and maximize asset value before final decommissioning. This portfolio simplifies and de-risks operations by fulfilling the vital need for late-life well management to reach untapped energy reserves and sustainably abandon nonproductive wells.

Weatherford features a late-life well management portfolio that is built on three central commitments—reduce rigtime, adapt with agility, simplify and de-risk (**Fig. 1**)—that shape the company's technology development, service delivery, and integrated solutions focus. The overarching philosophy is to find solutions that drive value through reducing rigtime and minimizing human intervention through automation.

Weatherford offers comprehensive solutions, and by combining casing recovery, section milling, re-entry, and conductor removal into a single execution model, operators can make numerous interventions in a single run and eliminate handovers between contractors to ensure consistency across the entire lifecycle. This results in consistently delivering reduced rigtime, operational agility, and simplified, de-risked campaigns. In addition, case studies demonstrate the value, with multimillion-dollar savings, shorter schedules, and reduced CO₂ footprints.

The Weatherford suite of intervention products includes:

- **Well Integrity and Remediation:** State-of-the-art diagnostic tools can accurately assess well conditions and deploy targeted solutions to prevent leaks, corrosion, or mechanical failures.
- **Conveyance and Deployment:** Wireline, slickline, and coiled tubing deliver intervention tools precisely where needed. These flexible deployment methods enable interventions in challenging environments, from deviated wells to deepwater operations.
- **Production Enhancement:** Mechanical, chemical and hydraulic interventions help operators boost production rates and extend well life. Matrix stimulation, sand control, and water shutoff are tailored to meet specific reservoir challenges.
- **Plug and Abandonment:** Innovative P&A solutions ensure safe, compliant and cost-effective decommissioning of wells, with efficient reservoir isolation and environmental protection.

Weatherford is also known for integrating leading-edge technology into its intervention portfolio. Automated pipe-handling systems, digital wellsite monitoring, and real-time data analytics are just a few examples of the company's commitment to operational excellence. These technologies not only streamline interventions but also enhance safety by reducing manual exposure and enabling remote decision-making.

As assets mature and industry continues to evolve, Weatherford remains committed to developing innovative solutions that ensure operators can maximize productive life, minimize P&A costs, and exceed environmental standards. **WO**

Digital innovation and the transformation of Rotaflex®

Digital innovation has become a central force in the evolution of oilfield technology, redefining how companies approach efficiency, reliability and safety. Among the leaders in this revolution stands Weatherford International, whose Rotaflex® solution for artificial lift in rod-pumped oil wells—has undergone significant transformation through the integration of digital technologies.

Weatherford's Rotaflex elevates artificial lift technology to new standards of reliability, efficiency and safety. By integrating smart sensors, automated controls, predictive analytics, and Cloud-based management, Rotaflex units deliver superior performance in demanding oilfield environments.

As the energy sector embraces digital innovation, Weatherford remains at the forefront, ensuring that its products not only meet the technical challenges of today but also drive the future of sustainable, data-driven oil and gas production. Rotaflex exemplifies how digital transformation can unlock new levels of operational excellence, empowering operators to enhance production, lower operating costs, reduce energy consumption, and decrease well servicing—while safeguarding resources, people, and the environment.

The Rotaflex long-stroke pumping unit is a flagship offering from Weatherford, designed to optimize artificial lift in deep, challenging wells, **Fig. 1**. Traditionally, artificial lift systems have relied on mechanical solutions to extract hydrocarbons from wells with declining reservoir pressure. Rotaflex units are engineered to deliver longer strokes and higher capacities than conventional beam pumps, reducing wear and increasing production from high-volume wells. Historically, these systems operated primarily through mechanical controls and periodic manual intervention, limiting their responsiveness to changing well conditions.

Increasing demands for efficiency, sustainability, and cost control are driving the need for smarter, data-driven solutions in

the oil and gas sector. Technologies, such as advanced sensors, Cloud computing, and predictive analytics, are now fundamental to modern oilfield operations. Weatherford recognized this shift and embarked on a journey to digitally transform

its products, integrating smart components and data-driven solutions to enhance performance and reliability.

Weatherford also began integrating permanent magnet motor (PMM) technology into its artificial lift products in 2022,



to provide an efficient, reliable, safe, and environmentally responsible drive solution for production systems, **Fig. 2**. Compared to conventional induction motors, PMMs incorporate rare-earth magnets placed on the rotor surface to produce a continuous magnetic field. This direct-drive approach removes rotor slip, allowing the motor to operate efficiently over a wide speed range and providing greater torque per unit of current. Additionally, omitting sheaves and belts can decrease mechanical losses and enhance operational safety.

By integrating digital technologies into the Rotaflex product line, Weatherford has



Fig. 1. The Weatherford Rotaflex® long-stroke pumping unit delivers a stroke length from 180 in. to 366 in. (4.6 m to 9.3 m) for efficient pumping in deep, high-volume and problematic wells. Its long, slow pump stroke allows more time for fluids to enter the pump intake, which increases pump fillage and lifting efficiency.



Fig. 2. Weatherford PMM-RF for Rotaflex® provides an AC synchronous, direct-drive motor that uses magnets embedded on the surface of the motor rotor to create a continuous magnetic field. The PMM-RF delivers up to 95.2% efficiency with a 0.95 power factor than can provide up to 30% less energy consumption, compared to conventional induction motor systems.

delivered substantial operational benefits for operators, transforming the way artificial lift systems are managed and maintained:

- **Smart Sensors and Real-Time Monitoring:** Advanced sensors continuously monitor critical parameters, such as stroke length, load, pump speed, and motor performance. This data is transmitted in real time to centralized control systems, enabling operators to track performance and detect anomalies instantly.
- **Automated Control Systems:** Digital controllers allow for precise adjustment of pumping parameters, based on real-time well conditions. Automation reduces the need for manual intervention and ensures optimal operation, even in remote or unmanned locations.
- **Predictive Maintenance and Analytics:** Machine learning algorithms and historical data can predict potential failures before they occur. Maintenance schedules shift from reactive to predictive, minimizing downtime and reducing costs associated with unscheduled repairs.
- **Cloud-Based Data Management:** Operational data can be stored and analyzed in the Cloud, providing operators with secure, scalable access to performance metrics across multiple assets and locations.
- **Remote Diagnostics and Optimization:** Field engineers can diagnose issues and optimize system performance remotely, reducing the need for site visits and improving responsiveness to operational challenges.

Continuous monitoring and predictive analytics allow operators to identify potential issues—such as abnormal wear, motor overheating, or rod string sticking—before they lead to failure, enabling timely intervention and significantly reducing unplanned downtime. This proactive approach increases asset uptime and ensures consistent production, especially in wells with complex operating conditions.

Digital control systems allow Rotaflex units to dynamically adjust pumping parameters to match changing reservoir conditions. By optimizing stroke length, speed and load in real time, these systems maximize fluid recovery while minimizing energy consumption. The result is increased production rates and lower operating costs, supporting the economic viability of mar-

ginal wells and extending the productive life of mature assets.

Traditional artificial lift systems often relied on scheduled maintenance or responded only when breakdowns occurred. With predictive maintenance, Rotaflex units can operate for longer intervals between service events, focusing maintenance efforts where they are most needed. This targeted approach lowers overall maintenance costs and reduces the risk of catastrophic failure.

Remote monitoring and automation reduce the need for personnel to access hazardous locations, enhancing safety for field workers. Additionally, early detection of leaks or mechanical issues helps mitigate environmental risks, supporting regulatory compliance and corporate sustainability goals.

Rotaflex units are designed to interface seamlessly with broader digital oilfield platforms, including SCADA (Supervisory Control and Data Acquisition) systems, enterprise asset-management software, and remote operations centers. This integration allows for centralized oversight of multiple artificial lift assets, enabling data-driven decision-making and efficient resource allocation across entire field operations.

While the benefits of digital innovation are clear, implementing these technologies presents certain challenges. Ensuring cybersecurity for connected devices, managing large volumes of operational data, and integrating legacy systems with new digital platforms requires careful planning and investment. Weatherford addresses these challenges by providing robust security protocols, scalable Cloud solutions, and comprehensive training for field personnel.

Looking ahead, Weatherford continues to invest in research and development to further enhance the digital capabilities of its Rotaflex product line. Emerging technologies, such as artificial intelligence, advanced Edge computing, and digital twins, are poised to revolutionize artificial lift systems. For instance, future Rotaflex units may leverage AI-powered optimization algorithms to autonomously adapt to reservoir changes, maximizing production efficiency while minimizing human intervention.

Integration with digital twins—virtual representations of physical assets—will enable operators to simulate performance scenarios and plan maintenance activities with unprecedented accuracy. These advances will further reduce operational risks and costs, supporting the long-term sustainability of oilfield operations, as the industry moves closer to autonomous oil production. **WO**



YOUR WELL. **BETTER MANAGED.**

You know your well, operation, and environment better than anyone.

Our deep knowledge as the pressure professionals have redefined what you can achieve by managing pressure. We help you create a comprehensive pressure management strategy that enhances safety, lowers your well-construction costs, reduces well-control risks, and increases production.



weatherford.com/ManagedPressureWells



THE ENERGY OF **INNOVATION**

As a leading global energy service company, Weatherford delivers innovative solutions that integrate proven technologies with advanced digitalization to create sustainable offerings for maximized value and return on investment.

To learn more visit weatherford.com

