A CHALLENGING MARKET DEMANDS NEW THINKING ON IT

Taking advantage of new technologies and pursuing a more strategic approach to IT, leading oil and gas firms can drive efficiency and create value in a period of prolonged low oil prices.

Oil and gas companies are under enormous pressure to cut costs as the industry downturn appears to be the new long-term reality. Getting lean often starts with cuts to administrative expensive, in particular, information technology.

This trend in the energy industry comes at a time when new technologies, management approaches, and digital capabilities are changing the IT cost-value equation. Advances such as cloud computing, the digital oil field, service-oriented architectures, and industrialisation have dramatically expanded management’s ability to drive down IT costs while increasing the efficiency and agility of the entire business.

Given this, firms must avoid the historic temptation to aggressively slash IT costs in response to the downturn without a clear view and understanding of the value of technology to the business. Making the wrong cuts or foregoing the right investments endangers business productivity and operational performance in an increasingly IT-enabled oil and gas value chain.

In the new normal, leading firms will pursue a smarter, more strategic approach that positions IT to deliver step-change improvement to business efficiency and value.

Exhibit 1: IT value optimisation provides step-change value beyond basic cost-cutting efforts

During boom times, oil and gas managers avoided the tough choices required to fix underlying IT complexity and productivity. But now, there is no waiting out the new normal price environment. Firms that respond wisely to the downturn will outperform in a lower-price environment, recover first, and find themselves in the best position to seize future growth opportunities.
POWERING THE BUSINESS THROUGH THE DOWNTURN WITH IT

The pressure to reduce IT costs across the sector is not new or unwarranted in the face of an unprecedented, severe, and prolonged downturn. However, responding to the current downturn demands a different, smarter response, above and beyond typical cost-cutting approaches. This approach must first improve the productivity of existing platforms and datasets, secondly, must focus on investing and managing portfolios for value optimisation, and third, align IT with the broader business efficiency and strategic objectives of the oil and gas organisation.

The size of the prize is significant. Getting IT-enabled value optimisation right can deliver game-changing financial and operational performance improvement for the typical company in the sector. Benefits include

- 25 percent or more in selling, general, and administrative and operating cost savings.
- 8 percent or higher production rates.
- 2 to 4 percent lower project costs.
- 6 percent or more improvement in ultimate resource recovery.
- And ultimately 10 to 20 percent bottom-line (EBIT) improvement.

Source: Oliver Wyman analysis

This efficiency boost will prove indispensable as current fields are depleted and firms find themselves turning to more complex, remote, and expensive plays to replenish reserves in a period of prolonged lower oil and gas prices.

Exhibit 2: Four-phase approach to IT-enabled business value optimisation

1. **IT value optimization strategy, roadmap, and team**
   - Months 1–3
   - Diagnose
     - Set IT value, cost baseline.
     - Determine value-cost mismatches.
     - Create options.
     - Prioritize and create roadmaps business case.
     - Stand up PMO and team to execute.

2. **IT cost improvement quick wins**
   - Months 3–6
   - Fix underlying productivity and platform issues
     - Fix or address high priority, high value quick wins.
     - Improve short-term personnel productivity, change, and process discipline.
     - Generate momentum and create budget headroom to fund longer term value opportunities.

3. **Platform for long-term IT efficiency and value**
   - Months 6+
   - Standardize and simplify architecture and systems.
   - Use existing business volume (capture scale).
   - Industrialize IT, that is, standardize business volume by simplifying or modularizing the underlying business demand.
   - Realign IT landscape to new business models.

4. **IT-enabled business value optimization**
   - Months 9+
   - Enable
     - Create integrated digital foundation.
     - Scale up field automation and business intelligence.
     - Generate business and IT convergence.
     - Recruit, develop, and retain digital talent for the future.
     - Incubate and apply frontier technologies to innovate for future growth.

Source: Oliver Wyman analysis
1. CREATE AN IT VALUE IMPROVEMENT STRATEGY, ROADMAP, AND TEAM

This first phase of the value optimisation effort is the most critical. It is focused on building a strong foundation and clear path forward by generating a comprehensive IT value-cost baseline, determining and prioritizing value optimisation opportunities, developing a roadmap and business case to guide and fund the change and improvement effort, and standing up a team and project management office to execute the transformation.

The first step in creating a robust and achievable value optimisation strategy is to develop a comprehensive cost-value baseline and landscape map of all IT systems and business processes across the enterprise value chain.

Exhibit 3: Functional mapping and IT-business cost allocation matrix

Cost-value allocation matrix is built at the highest possible level of granularity giving full visibility on the dimensions to be addressed.
- Cost/Value of business processes
- Cost/Value of IT stacks

- Zero based business process IT cost reduction
- Internal and external benchmarking

Source: Oliver Wyman analysis

After a rigorous, transparent, and comprehensive cost-value baseline is set, an analysis of IT systems along the two dimensions of business value and technical fit facilitate identification of cost-value mismatches and options for rationalisation, renewal, and future investment.
After defining the set of viable efficiency and optimisation options, senior executives need to work with cross-functional business and IT teams to prioritise opportunities and build the optimisation business case. They must also develop a self-funded roadmap using an outside-in approach to fully envision the potential business and real options value certain options and decisions could entail.

Lastly, executives must think smartly about removing organisation barriers and standing up a project management office and cross-functional team to deliver the roadmap.
2. DELIVER QUICK WINS

The second phase of strategic transformation involves pursuing low-hanging, quick-hit cost reduction and value optimisation opportunities identified in phase one.

Oil and gas firms, coming out of a period of sustained high oil prices and significant IT investment, have the opportunity to sharpen their pencils and generate significant and immediate value and IT cost savings by:

- Aggressively streamlining project portfolios and improving change delivery.
- Reviewing and aggregating IT license and procurement spending.
- Reducing supplier costs through vendor consolidation, renegotiation of take-or-pay contracts, and lowering factor costs by using lower-cost contractors and more offshore and outsourced resources.
- Re-thinking and re-negotiating service level agreements.
- Streamlining and removing redundant IT processes and staff.
- Integrating existing data sets to improve analytics and business intelligence.
- Consolidating and increasing utilisation of legacy infrastructure assets.

The savings freed up in phase two can be used as both credits to near-term corporate cost efficiency targets and as self-funding for longer-term value optimisation efforts.

Exhibit 5: Techniques to free up funding for the requisite IT value optimisation program

<table>
<thead>
<tr>
<th>FUNDING OF IT VALUE OPTIMISATION PROGRAM</th>
<th>TECHNIQUES TO REDUCE SPENDING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Reduction in capital expenditures (change)</strong></td>
<td>Consolidation of assets</td>
</tr>
<tr>
<td>• Consolidation of assets</td>
<td>Create efficiencies, such as through automation</td>
</tr>
<tr>
<td><strong>2. Reduction in operating expenditures (run)</strong></td>
<td>Project portfolio rationalisation, including terminating failing projects</td>
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<td>• Project portfolio rationalisation, including terminating failing projects</td>
<td>Reviewing and improving strategic sourcing</td>
</tr>
<tr>
<td>• Reviewing and renegotiating contracts</td>
<td></td>
</tr>
</tbody>
</table>

Source: Oliver Wyman analysis
3. BUILD A PLATFORM FOR LONG-TERM IT EFFICIENCY AND VALUE OPTIMISATION

The third value optimisation phase is focused on engineering and building IT platforms that enable longer-term business efficiency and value optimisation through industrialised approaches to IT. The essence of industrialised IT is configuring services from standardised components to facilitate low cost, high quality, flexible, and rapid fulfillment of business demand.

This phase includes pursuing and implementing a wide range of IT efficiency initiatives focused on creating tighter alignment between IT and the business and fixing the often intractable data and technology platform challenges prevalent across the industry. Companies can do so by:

• Instituting integrated business and IT governance and operating models with better demand-and-supply planning, sourcing, and delivery options and frameworks.
• Virtualising, outsourcing, and centralising servers, databases, and applications to eliminate fragmentation, complexity, and waste.
• Implementing on-demand, output-oriented managed-services.
• Simplifying and integrating the IT and business architectures and operating models to ensure IT can handle future industry challenges. Increasing the use of cloud, data analytics, and self-service tooling to improve collaboration and decision making across the value chain.

Additionally, the third phase focuses on creating greater transparency and manageability of cost, quality, and service level tradeoffs by deploying a detailed set of metrics and value management and investment frameworks such as DCF, risk-adjusted return using Sharpe ratios, and real options valuation.

4. DELIVER IT ENABLED BUSINESS VALUE OPTIMISATION

Phase four is focused on driving IT-enabled value optimisation through digitalisation, increased business process automation, greater business intelligence, better workforce management, improved reliability, and optimised production. Oliver Wyman has identified five technology and management levers to drive both short- and long-term value optimisation success across the oil and gas value chain.

• Create an integrated digital foundation. Digital transformation demands that Oil and Gas companies build the infrastructure required to fully capture, use, share, and exploit existing and new forms of data across the integrated value chain to create data-driven organisations that are truly predictive, agile, and hyper-aware. These traits will enable oil and gas firms to innovate faster and drive greater levels of business efficiency. Digital success requires new forms of governance, business-IT integration, and capability across technology, data, people, and process domains.
• Scale up automation and business intelligence. Digital and analytic infrastructure that drives automation will improve decision-making across disparate assets and business units to bolster field economics. More accurate
and timely information from wells and rigs can be used to optimise well performance and rig uptime, improving asset utilisation and bringing down production costs. A comprehensive reporting infrastructure for supply chain management, drilling, and safe operations will help oil and gas companies avoid delays and cost overruns by highlighting discrepancies early on.

- Generate business-IT convergence. Oil and gas firms will only improve end-to-end business efficiency when they fully align and integrate business, IT, and people strategies. Companies must develop new governance models that embed IT more deeply into operational processes to improve decision making across the entire oil and gas value chain. Full convergence will allow oil and gas firms to more quickly and efficiently scale exploration and production IT infrastructure in a more uncertain and complex operating environment.

- Recruit, develop, and retain digital talent for the future. To compete in the digital era, a firm’s workforce must possess an optimal mix of IT and technical skills, industry knowledge, and business acumen. With talent shortages due to the great crew shift, oil and gas firms need to make bold moves to transform their workforce strategies including mentoring, collaboration, and automation. The war for talent is intense and crosses multiple industries. Oil and gas firms should begin preparing now to attract this talent or risk being left behind.

- Apply frontier technologies to innovate for future growth. Once oil and gas firms have used digitalisation to drive the efficiencies and value optimisation referenced throughout this paper, they can begin to think about incubating and applying other frontier technologies to foster further innovation and growth. These include predictive and prescriptive analytics, autonomous field vehicles, smart robots, wearable user interfaces, and cognitive computing.

REALISING BENEFITS AND VALUE OPTIMISATION SUCCESS FACTORS

In the past, oil and gas executives have aimed solely to control IT costs in the face of oil price downturns. However, new technologies, management approaches, and digital capabilities are fundamentally altering the IT cost-value equation.

Furthermore, the business case for efficiency and value-based IT investment is now stronger and easier to prepare than ever before due to reduced up-front costs, cost structures variability, and the ability to rapidly deploy new technology capabilities.

By implementing the phases of value optimisation in parallel, senior executives can transform their IT functions and businesses into lean, agile, efficient operations. These phases should be evergreen, iterative processes through which organisations can continue to innovate and drive further business efficiencies, creating virtuous, self-funding loops.

Oliver Wyman has identified five key success factors for oil and gas IT-enabled value optimisation programs.
### Exhibit 6: Critical IT-enabled value optimisation success factors

<table>
<thead>
<tr>
<th>SUCCESS FACTORS</th>
<th>KEY ELEMENTS</th>
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<tbody>
<tr>
<td>1 Business – IT partnership</td>
<td>• Put the right incentives in place to create alignment between business and IT and to ensure strong commitment from top management.</td>
</tr>
<tr>
<td>2 Greater IT cost-value transparency</td>
<td>• Accurately map cost and value drivers and introduce new techniques and metrics for evaluating IT-business value, such as DCF, risk-adjusted return using Sharpe ratios, and “real options” valuation.</td>
</tr>
<tr>
<td>3 Ability to execute</td>
<td>• Remove organisation barriers and put in place PMO, processes and the “A” cross functional team to monitor and execute the envisioned change.</td>
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<tr>
<td>4 Better technology “visioning”</td>
<td>• Take an inside and outside view to determine needs and force executives and operating teams to think more broadly about the “art of the possible”.</td>
</tr>
<tr>
<td>5 Fund the change</td>
<td>• Build achievable business cases with both short-term and long-term wins, possibly reinvesting funds for ongoing improvement. Measure and communicate progress and successes.</td>
</tr>
</tbody>
</table>

Source: Oliver Wyman analysis

### CONCLUSION

Oil and gas companies must rethink their core IT strategies, investment priorities, and operating models in response to the fundamental changes in the market. When the price of oil was greater than $100 per barrel, there was hardly any need for need for oil and gas firms to improve operational and capital efficiencies. However, in the current downturn – the new normal – delivering increased efficiency and optimising business value from IT has become a strategic imperative that will determine both survival and competitive advantage.
This article is part of a series that explores the impact of the 2015 market disruption on the global oil and gas industry.

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  - Using M&A in the downturn to reposition the business

- **Managing Risk, Driving Efficiency**
  - Blending operational excellence and risk management to drive value

- **Optimising JV’s**
  - Creating more flexible joint venture approaches

- **The Talent Continuum**
  - Using a data approach to drive strategic human resources delivery

- **Innovative Supply Chains**
  - Redesigning and cutting risk in supply chains

- **Process Standardisation**
  - Driving for repeatable, low-cost processes

- **Regulatory Change**
  - Influencing regulators to reflect market changes

- **Right-Sizing IT**
  - Driving performance from existing investments

**OIL’S WILD RIDE REDESIGNING THE OPERATING MODEL**
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FOR MORE INFORMATION ON THIS REPORT, CONTACT

JOHN BOOCHEVER
Partner
Oliver Wyman
john.boochever@oliverwyman.com

STEPHAN VOGEL
Associate
Oliver Wyman
stephan.vogel@oliverwyman.com

KERIC MORRIS
Partner
Oliver Wyman
keric.morris@oliverwyman.com

MATTHEW HILLIKER
Engagement Manager
Oliver Wyman
matthew.hilliker@oliverwyman.com

www.oliverwyman.com

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