

WHAT'S DRIVING THE OIL AND GAS MARKET TO CLOUD?

A large, stylized graphic on the right side of the page, consisting of a green chevron pointing right and a blue chevron pointing left, overlapping each other.

To understand the oil and gas industry's relatively cautious entry into cloud adoption, we must grasp the market context. Lower oil prices over the past few years have driven the need for oil and gas companies to transform their operating models by significantly reducing costs while increasing operational excellence.

Oil and gas companies are facing increased pressure on both their CAPEX and OPEX spending. They're also highly aware of the advantages of cloud and Everything-as-a-Service offerings. In fact, Accenture's 2017 [digital trends survey](#) in the upstream industry revealed a key finding: companies fear that not keeping pace with the rate of change will make them non-competitive. Nearly 40% of respondents are worried about the risk of being left behind if they don't continue to invest in digital.

And they're seeing the benefits digital technology can have on core pieces of the business—from exploration to production. In particular, data and insight gathering will likely have the greatest impact on oil and gas. Our research shows that while big data and analytics is today the industry's second-largest investment, it will become the industry's largest investment over the next five to six years.

The expected benefits of digital today and over the next few years include faster and better decision making, as well as reducing the time from exploration to production and first oil and gas. As oil and gas compa-

nies work toward embracing more digital capabilities, cloud is a requirement—and even a prerequisite—for making the shift.

At the same time, oil and gas companies are seeking to refine their operating models, realizing the value in:

- Agile with digital as a catalyst for greater flexibility
- Evolving alliance strategies, resourcing and technical capabilities
- Aligning operations more closely with portfolio decisions

Oil and gas companies around the world are now seeing cloud as a powerful enabler. It's helping to increase the lifespan, uptime and reliability of plant and infrastructure, which ultimately increases returns. This is particularly true as companies face five critical and largely universal issues:

1. Data management
2. Older plants and refineries with maintenance and operational challenges
3. Abrupt failures leading to losses, attributable mostly to downtime
4. Integrating old and new infrastructure
5. Challenges in managing the workforce

The pivot

To be sure, the pivot to cloud is a challenging one, and the oil and gas sector faces its own set of complications. Forward-looking CIOs see cloud not only as a catalyst for stronger computing power and higher performance, but also as the path to faster application deployment, lower cost of service and fuel for their digital transformation. They're finding new sources of value driven by cloud-enabled capabilities such as advanced analytics, artificial intelligence (AI), machine learning, Internet of Things (IoT) and automation. According to our [digital trends survey](#), more than 70% of companies plan to invest "more" or "significantly more" in new digital areas such as high-performance computing, wearables, AI, robotics, blockchain and virtual reality over the next three to five years.

This move to the cloud is a move to market-standard services that ultimately enable more agility, speed and lower costs while shifting toward full-on as-a-Service delivery.

The business case

A successful journey to cloud typically starts with a business case that is based on both a *cost reduction component* driven by the significant reduction in IT infrastructure costs and a *business value component* based on cloud-enabling capabilities like advanced analytics that can unlock trapped business value. To help drive insight into cloud savings and benefits, Accenture leverages a vigorous financial model that considers key elements such as budget, profit and loss statement (P&L), cash views and costs associated with winding down legacy apps.

Indeed, the potential cost savings alone are a strong argument for cloud—but for oil and gas companies, cloud adoption is part of a broader strategy toward effective digital innovation. Our [research](#) shows that for a majority of oil and gas companies, cutting costs is becoming a secondary concern as they focus on the power of cloud to speed decision making and shorter time frames to first oil and gas. We're seeing the industry beginning to shift its digital focus from sheer cost reduction opportunities to boosting asset and work productivity, which will involve transitioning to a blended model that leverages AI, machine learning and robotics. Digital calls for creativity and innovation, and lack of a clear business case is a major inhibitor to delivering value.

Moving to cloud requires a clear tactical vision, strong governance, durable processes and intelligent delivery technology. With these elements in place, oil and gas firms can accelerate operations and improve a range of functions—from modeling, advanced analysis and machine learning for next-generation predictive maintenance, and eventually to autonomous plants and assets.

Fundamentals of the journey

Although no two journeys to cloud are the same, certain functions merit special attention. At Accenture, we've broken these functions down into two critical areas—industry-specific and technology-specific. Industry-specific functions include elements such as subsurface applications, marketing and trading, while technology-specific functions include complex integrations and high-performance computing platforms.

When we look at an oil and gas company's IT requirements, breaking these functions into groups helps us understand what operators face and how cloud can help facilitate those needs from the perspectives of cost, time and other considerations.

Understanding these processes and their importance is just one component to building the value case for cloud. We suggest that oil and gas companies conduct feasibility studies—for example, to determine which subsurface apps should be moved to the cloud.

These types of assessments allow us to consider the critical technology requirements of each function—such as compute, size, infrastructure and support—then prioritize what needs to be addressed first. We ask which parts of the business make the most sense to move to cloud, employing heat maps to show companies what their particular blueprint may look like.

And of course, the very nature of digital requires a culture built on innovation, ingenuity and risk-taking. A cultural change between the front and the back office is absolutely essential to embrace the full benefits digital offers.

The non-technical aspects of the journey to cloud are the most important

Although most cloud discussions start with a technology focus, the operating model is the critical linchpin of success—around people, processes, tools and governance. Because cloud solutions are non-uniform in nature, a “one-size” operating model will not suffice. Rather, oil and gas firms need to consider that multi-speed operating models will co-exist for years to come, while people, process and tools remain interoperable.

The right operating model is the key to achieving increased agility, technology operating efficiencies—and reduced infrastructure costs.

The roadmap: guiding principles

As mentioned, a journey to cloud in the oil and gas sector creates the foundation for value-creating benefits such as advanced analytics, artificial intelligence, machine learning and automation. Every journey requires a set of fundamental guiding principles tailored to fit an enterprise’s individual strategic objectives. At Accenture, we’ve summarized these principles into seven priorities:

1. *Utilize Business Process as a Service (BPaaS) for non-core competency services*—transition business functions such as HR, procurement and accounting that don’t offer a competitive advantage to a provider that can handle them more efficiently at lower cost
2. *Maximize Software as a Service (SaaS) where possible*—reduce custom applications as well as the development and maintenance of non-unique software
3. *Embrace public, private and hybrid cloud models*—position the right workloads for the appropriate cloud solutions while balancing and managing risk, which may include elements such as data sovereignty and security
4. *Migrate appropriate apps to standard Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS) platforms using standardized platforms*—this approach can minimize support costs for custom code that truly provides significant competitive advantage

5. *Move towards platform-based, decoupled architectures*—take steps to reduce the organization’s IT landscape complexity to increase quality and lower costs
6. *Reshape the provider ecosystem*—this can reduce operational complexity while maintaining competitive pricing pressure
7. *Educate employees*—inform them about the characteristics, benefits and risks involved in using cloud infrastructures and applications (e.g., costs only go down if servers and storage are turned off when not in use)

Strategic options on your Journey to Cloud

In our experience, companies seeking to make the pivot to cloud can adopt a straightforward, four-step methodology:

Step 1. Strategy and analysis—Identifying, delivering and measuring business impact using architectural approaches that align technical delivery to business imperatives.

- Defining strategic vision and direction
- Qualitative and quantitative data collection
- Analyzing the current state
- Setting financial models
- Aligning organizational structure
- Approving security policies

Step 2. Planning and design—Defining a company’s target state architecture and creating the required blueprints, patterns, sequences and roadmaps.

- Designing and defining the ideal end-state architecture
- Aligning people, processes and technologies with the target state
- Gap analysis and planning
- Benefits and value realization tracking
- Sequencing, scoping and planning

Step 3. Transition and implementation—Managing projects to deliver expected business outcomes on time and within budget, while keeping risks at acceptable levels.

- Creating and purchasing cloud services that meet defined expectations
- Testing and validating cloud services against testing plan and acceptance criteria
- Transition and deployment of cloud services into operations

Step 4. Execution, continuous improvement and ongoing migrations—Management of the cloud environment, providing process, guidance and tools for optimum service management. Also, continuing to modernize the IT estate and migrate more applications, platforms, and infrastructure to the cloud.

- Effective ongoing service management
- Governance and monitoring
- Initiation of new activities
- Continuous modernization and migration processes
- Feedback loop and optimization

Leading oil and gas companies do not look at cloud as simply a tactical approach to reduce the costs of IT. They see cloud as a core platform for strategic growth. We are entering a time when the benefits and risks of cloud platforms are well understood, adoption is inevitable and cloud strategy becomes part of a corporate strategy.

Cloud at work

Many oil and gas companies already are enjoying the benefits of cloud. For example, [Hess Corp.](#) is expecting to optimize costs by roughly 40% by transferring workloads to a PaaS solution. Hess also is set to save between 10% and 20% in labor costs through automation on a cloud management platform.

[GRTgaz](#), one of Europe's largest natural gas operators, has raised its environment availability from 54 percent to 90 percent—a 36 point increase. The cloud also helped the company significantly reduce provision testing environments from up to 12 weeks down to roughly 10 days.

Hess and GRTgaz are just two examples of a growing list of companies that are moving to cloud as part of their overall digital strategy.

The opportunities that come with cloud are profound—and will be an important enabler for the oil and gas industry as it transforms itself for the future.

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