Follow Oil and Gas Digitalization Best Practices to Drive Digital Value at Scale

Published 9 August 2021 - ID G00734326 - 14 min read
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Initiatives: Energy and Utilities Digital Transformation and Innovation

Digital initiatives are once again accelerating as industry cash flows have improved. And expectations have risen for IT contributions to progress. CIOs can use 12 top practices common among leading oil and gas companies to reinvigorate and guide the digital efforts of their own enterprises.

Overview

Key Findings

- Many oil and gas enterprises are reinvigorating their digital strategies as the recovery from the 2020 downturn continues.

- Companies that successfully implement enterprise digital strategies demonstrate several shared practices that organize, govern and execute their resources and activities to achieve effective outcomes.

- Companies’ digital strategies vary in scope and execution approaches. The practices outlined in this research reflect shared top practices across digitally advanced oil and gas companies.

Recommendations

Oil and gas CIOs engaged in supporting, guiding or executing digital strategies should:

- Gain the influence and support needed to change the way digital innovations are scaled by replacing vague notions of digital leadership with the concrete leadership commitments and following the 12 top practices identified in this research.

- Invest in training digital leaders on these practices and establishing metrics that objectively assess their ability to accelerate time to value.
Introduction

To Gain the Most Value From Digitalization, Scale Up Efforts

According to Gartner’s Innovation in Crisis Survey, 67% of oil and gas companies plan to accelerate their digital initiatives in 2021. Successfully implemented, digital initiatives improve business performance with operational intelligence, smooth workflows, faster decisions and increased automation (see Prioritize Oil and Gas Digital Initiatives by Setting Clear Innovation Goals).

Digitally leading companies in oil and gas are beginning to pull away from the pack in the industry. Some companies are achieving significantly more business value from their digital investments. For example, Boston Consulting Group (BCG) reports that the most digitally mature upstream companies on average generated more than 6% greater stakeholder return than immature companies.

However, delivering exceptional value from digitalization remains elusive for many. Small-scale innovation successes are not enough. To deliver enterprise-level impact, digital innovations must be scaled across assets and business functions. According to the BCG report, the industry is progressing, but still less than 37% of oil and gas companies were scaling their digital initiatives.

As decarbonization and other factors continue to intensify competition in traditional oil and gas markets, oil and gas companies must learn from industry leaders how to better exploit digital technologies at scale (see Energy Companies Are Facing a Decade of Deep Redesign and Need Strong CIO Leadership).

Analysis

Leading Companies Demonstrate Shared Key Practices

Successfully and fully exploiting digital technologies requires strategic planning and conscious orchestration of execution at scale. Tentative, scattered digital initiatives typically have low impact. This research identifies a set of 12 common practices that leading companies adopt to overcome scaling challenges. As illustrated in Figure 1, these practices can be organized into three groups:

- Maintain IT relevance and digital strategy execution momentum by modernizing IT delivery methods using a staged approach deploying current methods initiative-by-initiative building up to substantial IT operating model update.
Each group of practices is enabled and supported by clear and concrete CIO and senior leadership commitments.

Figure 1: The Top Practices of Digitally Leading Oil and Gas Companies

<table>
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<tr>
<th>Orchestration Practices</th>
<th>Execution Practices</th>
<th>Governance Practices</th>
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<td>Experimentation</td>
<td>Simple High-Level Plan</td>
<td>Enterprise Goals and Metrics</td>
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<td>Cohesive Leadership</td>
<td>Business Ownership</td>
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<td>Digital Dexterity</td>
<td>Structured Enterprise Innovation</td>
<td>Managed Opportunity Portfolio</td>
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<tr>
<td>Internal Competition</td>
<td>External Partnerships</td>
<td>Fusion Teams</td>
</tr>
</tbody>
</table>

Foundation of Personal and Executive Leadership Commitments

Source: Gartner

Lay the Foundation for Top Practice Adoption by Securing the Right Personal and Executive Leadership Commitment
Digital strategies may begin, and can slowly and incrementally progress, in a company where executive leadership remains ambivalent or lukewarm about the benefit. However, to accelerate the pace of digitalization and amplify its enterprise impact, leaders in an oil and gas company often need to:

- Create or change business processes
- Exercise decision rights
- Assign accountability to others
- Define roles and responsibilities
- Make (or sponsor) significant financial and resource investments

Digital leaders must ensure they have the backing of senior leadership. Leading companies consistently demonstrate the five commitments shown in Table 1, which underpin and enable the execution practices we describe in this research.
Table 1: Critical Leadership Commitments to Scale the Value of Digital in Oil and Gas  
(Enlarged table in Appendix)

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<td>Scaling digital requires investment. That investment can, and in most cases should, be phased and based on results (i.e., value-based), but budgets and funds must be made available and sustained. Budgets and spending must be tracked and overseen.</td>
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<td>Motivation</td>
<td>Digital will impact across the enterprise unevenly, and at different times. It forces cultural change and new ways of working. Unexpected challenges will arise — and some initiatives will fail. Executive leadership must build and maintain motivation by making visible commitment, setting clear and realistic goals and communicating with transparency.</td>
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<td>Resources and Talent</td>
<td>Aside from funding, digitalization needs enterprise resources, including human capital. Enterprise leadership must commit to developing (or acquiring) the knowledge, expertise and competencies necessary to achieve stated goals.</td>
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Source: Gartner (August 2021)

Depending on executive leadership’s stance, a key early step for digital leaders may be to raise the awareness, understanding and belief of senior leadership sufficient to get these commitments. Even in more digitally mature companies not all the commitments in Figure 1 may be in place and explicit. Digital leaders should ensure that these commitments are acknowledged and firmly in place to address gaps in individual accountability and collective responsibility.
Adopt These 12 Top Practices to Enhance Digital Strategy

Companies differ in the emphasis and importance they place on different practices, and many have additional individual practices. Not all companies adopt every practice. However, taken together, the practices provide an optimal approach to executing a digital strategy or undertaking digital initiatives that best maximize the chances of success.

Orchestration Practices

These practices create the conditions necessary for successful scaling.

Experimentation Generates Understanding and Points the Way to Future Value

To select and prioritize successful digital initiatives and innovations, companies need to understand how and where technology implementation may be feasible and adds most value. Knowledge and understanding can be gained from partners and other external sources, and a robust digital strategy should include knowledge acquisition from as wide a range of sources as possible.

However, leading companies commonly spend time and effort gaining their own knowledge and experience with key technologies, and in understanding the opportunity landscape for applying them. Some made the earliest phases of their digital strategies almost exclusively about this kind of experimentation, initially focusing on investigation, prototyping and knowledge development.

During this phase, the full or partial failure of some initiatives is expected. This is an integral part of the learning process. Digital leaders need to ensure that experimentation efforts adopt open mindsets and do not stigmatize failure, so long as its lessons are applied.

Cohesive Digital Leadership Provides Coordination and Single Point of Accountability

Digitalization is an enterprise effort. Different leadership roles work collaboratively to achieve intended outcomes, and digital leadership can be a single individual or a small group. But in all cases leadership must speak with coherence and act as a focus of accountability.
Most commonly, oil and gas companies choose to place digital leadership in a central position in the organization. So placed, digital leaders can drive and coordinate activities across a diverse, often disparate and more-or-less siloed, set of organizations within the company. Central leadership does not necessarily mean centralized, sequential delivery of digital initiatives, although companies can take this approach in the early stages. Cohesive leadership plays an important coordinating role for distributed, simultaneous initiatives as momentum and the scale of activity build.

Because of the scale and time frame of change required, the effort needs executive drive. A company’s single point of accountability for digital should report to a high level of executive management, if not the CEO themselves.

**Digital Dexterity Builds Awareness, Skills and Confidence**

Gartner defines digital dexterity as the beliefs, mindsets and behaviors that accelerate digital transformation. For oil and gas companies, moving from digital ambition to execution is underpinned by awareness of the capabilities of digital technologies and a belief among leaders that exploiting them brings business benefits.

It also depends on proficiency with new technologies, risk taking (within bounds), adaptability and strong collaboration. Digital leaders need to actively foster these mindsets and behaviors among senior leaders in their organizations, as well as with management and staff.

**Internal Competition Creates Demand and Momentum**

To create value, innovations have to be adopted and used. Innovation needs to be continual once the early opportunities are addressed. Digitalization is sustained when demand from the business for innovation creates a pull for new initiatives.

Some companies have found that publicly recognizing those teams and business units that adopt innovation incentivizes other teams to do so. Care is required here, because what makes a successful incentive or motivation depends on many variable factors, including company culture and historical practice. What works in one context (even within the same company) can be fatally counterproductive in another.

Nevertheless, an element of friendly rivalry or competition for success in digital innovation is a notable shared feature among several leading companies’ execution approaches.

**Execution Practices**
These practices are used as the programs, initiatives and tasks to achieve the goals and vision of the digital strategy are carried out.

**A Simple Structure at the Highest Level Explains Enterprise Change, Focuses Effort and Creates Unity of Purpose**

Becoming a digitally mature enterprise is far from simple. However, the journey should be organized and structured so that at the highest level the plan is easy to understand, concise and easily communicated. The easier to grasp a strategy is in its essentials, the more powerful it is in motivating effort. Simple strategies with strongly stated rationale and coherent logic provide a shared context for individual effort, and confidence in enterprise commitment, which help unify diverse activity and persistence through challenges. A simple structure and objectives also clearly guide trade-off decisions and minimize the risk of low value or low relevance effort.

Simplicity should not be confused with generality. While straightforward, the digital vision, goals, ambition and strategy should also be specific and relevant to the enterprise objectives and situation.

**Clearly Defined Ownership of Initiatives and Outcomes Drives Behavior Change and Facilities Necessary Operating Model Changes**

Traditional technology delivery and management methods across the oil and gas industry emphasize distinct spheres of responsibility between IT and the business for different classes of technology. Gaining enterprise-scale value from digital initiatives requires rapid exploitation of innovation opportunities and agile response to evolving needs, which traditional project methods were not set up to deliver.

Leading oil and gas companies adopt product-centric and multifunctional cross-disciplinary approaches for their digital initiatives. Where technology ownership rests with business teams, opportunities can be identified and addressed more quickly. Establishing business ownership of digital initiatives lays the foundation for a more widespread technology delivery model shift, as well as encourages business engagement in the overall digitalization journey.

Not all digital initiatives will be business owned. Strengthening technology foundations for digital typically involves systems modernization and the adoption of new platforms over which IT maintains ownership. In all cases, ownership of initiatives and delivered solutions should be defined and crystal clear within a framework of technology delivery modernization.
Organized and Sustained Cross-Enterprise Innovation Maintains a Flow of Improvement Opportunities and Accelerates the Pace of Change

Leading oil and gas companies set up an organized and structured process for delivering digital innovations. For some, scaling digital value is essentially about consistently generating and delivering innovations that improve business outcomes at all points across the enterprise.

Some companies establish dedicated digital factories for this purpose (see Use Digital Factories to Drive Deep Optimization Across the Enterprise). Other companies assign digital initiative delivery to new teams in existing organizations, or distribute it to several teams in different areas. The common pattern, however, is to dedicate digital innovation and delivery to designated teams using modern delivery methods. Fundamentally, innovation must be fostered, supported and delivered at greater levels than have been typical in the industry, and most companies need new structures, teams or organizations to do so.

External Partnerships Boost Competencies and Capabilities

Examples of oil and gas companies making use of third-party expertise to assist in digital transformation are widespread and common. Becoming a more digitally mature enterprise can involve:

- Building new solutions using unfamiliar technology
- Using new or less familiar delivery methods
- Creating and operating new technology architectures and infrastructure
- Changing working practices and operating models (business and technology)
- Creating new roles and responsibilities, and devolving enterprise decision rights
- Changing procurement, budgeting and funding

The digital journey typically has many simultaneous change initiatives and requires new knowledge, competencies and thinking. Leading oil and gas companies look for accelerators wherever possible, to reduce the learning curve and shorten time to value. Digital leaders should seek relationships and partners who can provide knowledge, skills and tools that fill gaps and extend company abilities to move rapidly from learning to execution.
Cross-Functional Implementation Teams Foster Business Engagement and Bridge the Gap to New Operating Models and Business Ownership

Digital initiatives in oil and gas succeed when done for, and with, the business rather than to it. To shorten time to value and promote business engagement, oil and gas companies increasingly use fusion teams to deliver digital innovations. Garner defines fusion teams as multidisciplinary teams that blend technology and domain expertise and are often designed to deliver products rather than projects (see Fusion Teams: A New Model for Digital Delivery).

Traditional technology delivery methods and operating models are often still used for nondigital initiatives or projects. Fusion teams blur these boundaries to increase agility, time to delivery and solution adoption. These benefits are undermined if traditional delivery methods are reinstated for the delivered innovation.

The digital strategy should address changing technology delivery models to cement initiative adoption and encourage exploitation of emerging digital opportunities more quickly in future. Using fusion teams to deliver digital initiatives provides a model for ongoing delivery model evolution and should be maintained for delivered initiatives in operation.

Governance Practices

These practices focus oversight of strategy execution.

Metrics Make Progress Visible and Promote Value-Based Prioritization Decision Making

Metrics focus attention, drive behavior and maximize the enterprise impact of innovations. They bring visibility and control to diverse and distributed high-value initiatives, and keep crossfunctional teams focused on priorities that are tightly aligned with desired outcomes.

The status and outcomes of digital programs or initiatives need to be tracked and regularly reported using strong relevant key performance indicators (KPIs) linked to the strategy and business outcomes. Visible communication of KPI status helps underscore the reality of the digital strategy (see Digital-Outcome-Driven Metrics for Oil and Gas).

High-Level Transparent Multilevel Leadership Steering Keeps Programs on Track and Reinforces Leadership Commitment
Leading companies commonly use steering groups to oversee digital strategy execution, and in particular, program and investment oversight. The leadership and composition of such groups vary, but they are typically cross-functional and include business, digital and IT representation.

Senior leadership representation underscores the importance of the digital strategy, reminding committee delegates and attendees that the strategy is under scrutiny. Digitally leading oil and gas companies ensure senior leadership representation on the key steering bodies.

**Coordinated Portfolio Management of Innovations Improves Sharing and Minimizes Duplication of Effort**

Identifying, selecting, prioritizing and delivering regular digital innovations is a core process in scaling digital value. Candidate innovation ideas can, and should, come from anywhere in the enterprise and digital leaders need to encourage and foster widespread idea generation. However, different business units can have similar problems and identify similar solutions. Lack of coordination can then lead to duplicated effort. Conversely, an idea generated in one business unit may have widespread applicability and high value in others.

To avoid duplicated effort and to enable the efficient spread of useful innovations, digital leaders should maintain a portfolio of all innovation opportunities and initiatives across the innovation life cycle. This does not mean they are responsible for managing individual sets of innovations, but a single centralized overview of innovation opportunities and their status is a role for the central digital team.

**Evidence**

This research presents analysis from information provided during numerous interactions with Gartner clients, Gartner surveys and previous Gartner research. It incorporates findings from in-depth interviews of oil and gas company digital leaders in a range of companies during the course of research for published and in-progress case studies.

1 Gartner Innovation in Crisis Survey

2 Digital Powers Value Creation in Oil and Gas, BCG.

**Recommended by the Authors**

Some documents may not be available as part of your current Gartner subscription.
ADNOC Builds Agility and Resilience by Executing an Enterprise Digital Strategy

Case Study: Scaling Digital Innovation for Efficiency and Agility (Gazprom Neft)

Prioritize Oil and Gas Digital Initiatives by Setting Clear Innovation Goals

Energy Companies Are Facing a Decade of Deep Redesign and Need Strong CIO Leadership

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Quick Answer: Use Cascading KPIs to Get More Enterprise Impact From Innovation Initiatives
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