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## Is data the new currency?

Unconventional operators go digital to help improve well productivity & operating efficiencies

When the price of oil was over \$100 a barrel (and expected to stay at that level), US onshore, unconventional oil and gas operators had less interest or incentive to improve well productivity. Pivot to today's post-oil-recession, margin- and returns-focused marketplace and the scene appears quite different. Operators are now more inclined to carefully consider how every decision and action impacts well results. And, as unconventional assets have matured, operators' focus has shifted from investing for growth to investing for returns.

With operational and capital discipline the new mantra, how can operators squeeze out more dollars per barrel? How can they increase production efficiencies and output? In the past, unconventional operators would rely heavily on the input of service companies to help address these questions; now, however, operators are increasingly turning to a more powerful, previously untapped, internal resource—data—and using digital technologies and analytics to answer these questions more independently.

With new digital capabilities and data assets at their disposal, will unconventional operators go it alone in their quest to deliver a better well? Will this create a competitive situation between operators and service companies? Or is there an opportunity to change the traditionally combative dynamic and instead get the two to collaborate for mutual benefit?

The first paper in Deloitte's series on digital transformation in the oil and gas industry, *From bytes to barrels: The digital transformation in upstream oil and gas*, looked broadly at why and how upstream operators of all types should "go digital" to be able to reap demonstrated benefits including increased productivity, safer operations, and cost savings. This article looks at opportunities to apply digital capabilities to onshore unconventional—from capital commitment to returns—in which the resulting benefits can accrue quite rapidly.

# Taking the lead in the digital revolution

Until recently, service companies supporting upstream oil producers could often claim that they had the best capabilities and data intelligence to help an unconventional operator deliver more productive wells. But many suppliers also had one very big limitation—their "currency" was confined to the data stream they were part of (drilling the well, fracking the well, etc.) and only the wells they worked on.

In contrast, many operators possess the entire data value stream for their wells across the basin, from pre-spud to the well in full production. This data may have been cobbled together from various systems, but it provided a starting point from which the operator could deliver greater insights, especially in drilling and completions (D&C), than many suppliers were offering. During the oil price downturn, some operators started mining this data and piecing it together to see what factors were driving their well productivity: Was it how we designed the frack job? Where we put the stages or spaced the wells? Was it the type and volume of proppant? How we stayed in zone while drilling? As operators got smarter and "owned" more data, traditional operator-supplier dynamics began to shift.

Today, more and more unconventional asset operators are turning to digital technologies to help further improve well economics. While service companies used the downturn to drive lean efficiencies throughout their operations, operators focused on learning to do more themselves across all aspects of the business. This included some who started to experiment with their data through machine learning and artificial intelligence (AI), seeing that as the key to continuously improving well economics.

While still early days, a handful of operators are using this new intelligence to rethink how they work with suppliers. In some instances, these operators continue to seek a partner who brings differentiated value; in others, they believe they have the stronger insights, so they seek a partner who is a good executor. This provides more flexibility to drive better margins as operators rethink their sourcing strategy.

Unconventional operators in today's margin-focused oil industry will continue to push the boundaries of their internal digital capabilities to deliver the insights they need to squeeze out more costs or improve well productivity. To do this effectively, operators should adopt a digital-centric way of working that emphasizes:



**Data sovereignty:** Integrate all data and systems in real time.



**Hyper-awareness, hyper-automation:** Use analytics to create a self-aware, self-correcting, and self-operating ecosystem.



**Connected insights:** Link how each decision and action impacts results across the operational value chain.



**Digital workforce:** Digitally enable smart workers in all ways of working.

While the benefits of going digital can be considerable (see sidebar), doing so is not easy. As depicted in Figure 1 on the next page, operators should address common pitfalls.

## Following a digital roadmap to enable benefits

Deloitte recently helped a large, international, independent operator build a digital roadmap that defined the organization's path to deliver significant operational gains over time; specifically:



~15% increase in revenue



~25% decrease in capital spend



~30% decrease in operating cost

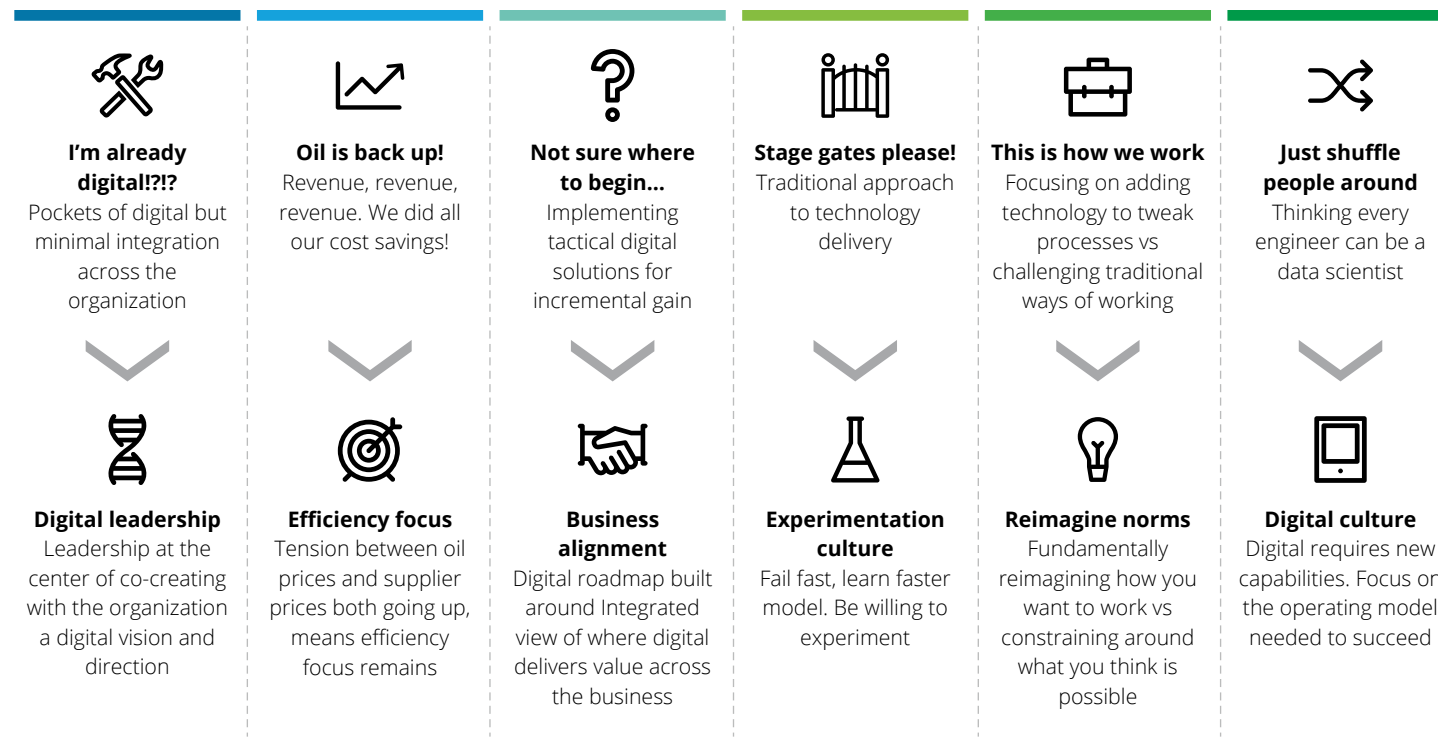
The roadmap covered operations including portfolio management, exploration/subsurface, D&C, production, next-generation safety, and the supplier ecosystem.

While the potential value of going digital is clear, what each operator ultimately realizes is dependent on where they are at on their digital journey. The less digitally mature operators can anticipate realizing the greatest step change.

# Focusing on business value delivery

Figure 1

## Going digital is not that easy...



One of the most common pitfalls we see in a company's evolution to a digital enterprise is leading with technology and then trying to adapt it to the business. **Digital evolution should be a business-led initiative that is enabled through technology.** Consider this five-step approach that focuses on business value delivery:

### 1. Understand the current state

The traditional upstream operating model is reactive, manual, and based on operator instinct and experience. The first step in the journey to becoming a digital enterprise is to understand the company's current state to help identify how it can use digital technology to evolve to an operating model that is faster, better, safer, and facilitates more automated decisions and actions. Suggested questions to help understand the current state:

- Where do we stand versus our peers?
- How do we work today, from the executive suite down to the field level?
- What are our key pain points to delivering business value?
- Do we have the right capabilities and organizational structure to support desired change?

### 2. Define the vision and reimagine ways of working

The second step in an operator's digital journey is to broadly define the organization's vision of the future ways of working and reimagine how digital technologies and analytics will impact how work gets done across the entire oilfield value chain (Figure 2 on next page). Among questions to aid decision-making:

- How can we reimagine traditional ways of working to unlock additional business value?
- What does our vision of future operations look like?
- How will we work and interact in the future?

### 3. Detailing the operating model implications

Broadly defining the future ways of working lays the foundation for fleshing-out the details of the business's future operating model. This details what needs to be in place for the future ways of working to be successful. Questions to consider:

- What are the components of our future operating model (organization, capabilities, processes, digital enablers)?
- Which components exist today; where do we need to invest?
- What potential roadblocks do we need to address?
- What is the case for change?

### 4. Build the roadmap

The roadmap articulates the company's journey to realizing the future ways of working through digital and assuring value realization. Suggested questions to frame roadmap development are:

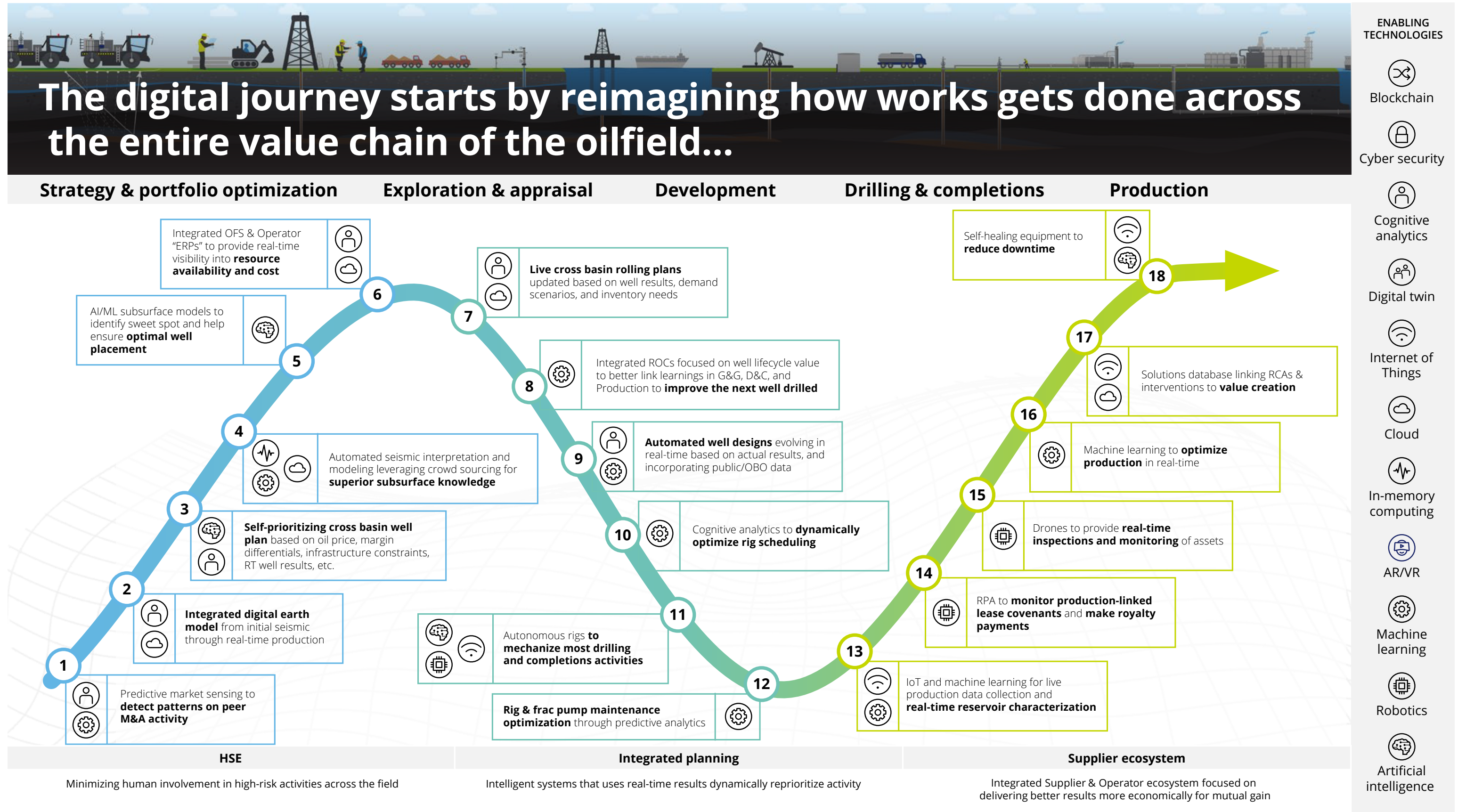
- Have we integrated the cross-organizational digital vision?
- Is the integrated digital roadmap aligned to the vision that accelerates and maximizes value realization?
- Have we prioritized where to start and considered which parts of the business are most open to change?

### 5. Accelerate and sustain value delivery

Successfully orchestrating a digital transformation and sustaining value delivery afterwards involves weaving new digital technologies and processes into the fabric of the business. Preparatory questions for this final step include:

- How do we accelerate implementation (e.g., quickly test concepts)?
- How can we quickly and cost-effectively scale proven initiatives?
- Have we built a robust sustainability infrastructure?

Figure 2



# An effective solution: Winning together

Thanks to digital advancements and new relationships with technology giants, such as Google and others, unconventional operators are building the capabilities they need to improve performance more independently. As operators continue this digital journey and continue to find ways to succeed on their own, ultimately collaborating with service companies will be essential.

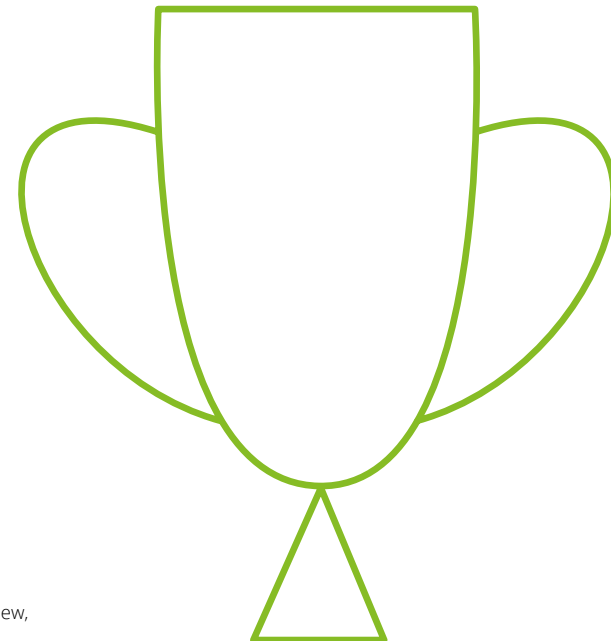
Consider how some in the auto industry have approached supplier partnerships. For example, Toyota has a long history of developing collaborative partnerships. It is known to have helped suppliers become more efficient and even invested in suppliers growing capacity. Toyota sees supplier success as key to its own success.<sup>1</sup>

The traditional transactional relationship should become a thing of the past. It's important for operators to build unique supplier partnership ecosystems where everyone is working for mutual gain. Incentives should be realigned so that "my success is your success" becomes

the new mantra. Information-sharing and transparency should be fundamental principles. Further, in a rapidly changing digital environment where no single entity can stay ahead of the curve on all fronts, being part of an ecosystem can provide the opportunity for all members to leverage the leading technologies they need to succeed.

The most effective of these ecosystems will include other operators. While the new proverb may be "data is the new currency," it's not the data that is the true differentiator; it is the ability to translate data into insights that may determine industry winners.

Going digital is not just about adopting technology; rather, it is about reimagining how technology and analytics can transform all aspects of operations and fundamentally challenge traditional ways of working. This means taking advantage of all resources—internal and external—that can help develop and deliver new insights. By working together, unconventional operators and their service companies can win together.



<sup>1</sup> Thomas Y. Choi and Jeffrey Liker, "Building Deep Supplier Relationships", Harvard Business Review, December 2004

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