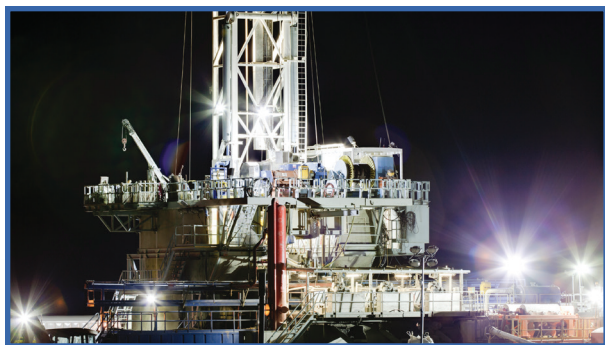


Evolve Shale Play Book



Evolve Shale Play Book

Shale developments, and other forms of tight oil and gas, have revolutionized the North American energy industry over the past several years. Shale reserves are rapidly transforming the North American energy supply equation, and hold similar promise for other countries around the globe. Each shale formation has its own unique characteristics, but there are some similar critical success factors: a thorough understanding of the end-to-end “concept to production” value stream, effective cross-functional coordination and communication, strong integrated activity planning of resources, clear decision-making, dedicated problem solving and ongoing continuous improvement.

Evolve—your partner in shale performance improvement

Evolve Partners helps energy clients implement strategic programs that deliver significant shifts in profitability. Our approach blends a thorough knowledge of industry-specific processes and systems with a focus on developing leadership capabilities at all levels. As such, our approach is more engaging and people learn to make even better performance interventions in the future. That is what we call the Art of Implementation®. Evolve has worked successfully with producers across multiple shale and

other unconventional hydrocarbon plays across North America to help them to assure development objectives, reduce cycle time, improve cost performance, increase production, build internal capability, and ultimately improve return on capital.

Be yourself, if you were somebody else

Most larger E&P companies are organized functionally to develop and operate major capital projects, such as offshore oil platforms. These projects have long lead times, and lend themselves to a deliberate, risk averse, stage-gated approach. Shale plays, on the other hand, are often compared to a discrete manufacturing operation: multiple rapid iterations through a continuous process flow. This is countercultural to many larger companies, and presents some unique challenges, including:

Safety. Shale plays often require an inexperienced contractor workforce, in a remote location, to do something new, at a fast pace, with lots of handovers—a vicious set of factors for safety.

Return on Investment and Cash Flow. Despite a long production lifecycle, a steep reduction in well output in its first 3-9 months requires a continuous inventory of ready to produce wells to maintain overall asset production growth curves.

Legacy. To develop new shale formations, major energy companies often acquire the assets and sometimes, the organization, of a legacy independent producer. The culture and style of the legacy organization can be dramatically different than that of the major energy company. As a result, the post-acquisition “hangover” can often require a long, costly, and difficult transition time to work the differences through the asset development lifecycle. Furthermore, many companies are making the transition in these plays from non-operating partners to active partners.

Community. Shale developments bring the notion of “not in my backyard” to a literal level, combined with wider public concerns about fracking in communities unaccustomed to oil & gas.

Cross-Functional Decision Making. Successful shale plays require functional alignment with an understanding of inputs, and outputs. Balancing and interdependencies of resources, timing and roles and accountabilities across functions, are all essential elements of shale success. The functional structure of most larger E&P companies can be a barrier.

Speed. Successful operators continuously measure and reduce their cycle time to decrease cost and achieve improved time-to-production. This requires strong and relevant integrated planning, scheduling, communication, and a clear understanding of the end-to-end execution capability.

Cost. Given the current and predicted market dynamics, most shale plays are low-margin businesses that have to be controlled across a major capital project lifecycle. This mandates ruthless monitoring and control of costs through a measurement system coupled with disciplines that provide both visibility and right-time cost performance decisions and actions.

Optionality. There is a lot of uncertainty in shale that requires a certain degree of optionality. Companies need to be able to high grade and adopt an effective investment in an inventory of lower cost development items (pad construction, facilities) that will have a dramatic impact on optimization and cycle time of the high-cost development items (drilling and completions).

Operational Readiness. In a business with steep depletion curves that will always depend on new wells, it’s easy to focus exclusively on new wells as the source of production, and overlook the need for the basics of strong production surveillance, lost production, root cause analysis, well work-overs, and maintenance & reliability.

Repeatability. If oil companies built cars, the value chain would resemble a model of multiple vendors arriving over several weeks to assemble each car one-by-one in customers’ driveways to a unique set of specifications. Offline pre-fabrication of production facilities aligned with a dedication to common designs with effective MOC, is key.

The Key Trips. Recognition of the critical dependencies of these key areas is necessary: land, regulatory, right of way, water, facilities, offtake. Most producers get stuck on one or more of these issues.

What works

Shale developments are as diverse as they are complex and there is simply no standard approach to develop every shale formation the same way. There are a number of things that Evolve has consistently applied with clients to enable them to achieve breakthrough performance, accelerate returns and build shale development capability:

Holistic Approach. Although it is ultimately possible to identify a series of discrete improvements, it is critical to take an integrated end-to-end, pad-centric process view at the start. Too often, companies fall into the trap of sub-optimizing by function. Getting all stakeholders to understand the overall value stream and their inputs to it is critical. This includes building all of the regulatory requirements and timeframes.

Asset Goal Clarity and Prioritization. It is essential that the asset level goals and priorities are very clearly spelled out and are reconciled with any functional goals. Without this, perfectly logical functional goals can actually undermine asset goals.

Asset First. In most successful shale developments, the functions are a hardline report to a single asset or business unit leader.

Management and Decision-Making. A simple and transparent management system with a well-defined flow of key data, meetings and decisions, is critical. There are too many decisions that need to be made at too great a frequency.

Field Focus and Visibility. Ensuring that there is daily-field level planning and coordination that provides real-time visibility back to the head office to enable effective interventions is critical. An organization-wide focus on supporting the field in how they manage and execute work on a day-to-day basis is critical.

One Plan. Integrated planning and scheduling of all functions with a certainty of roles needs to be clearly defined across the strategic, tactical and operational levels. No matter what the platform, everyone needs to be working off of a single, centralized plan and schedule—no siloed spreadsheets or whiteboards!

Manufacturing Mentality. Although the analogy can be overdone, profitable shale plays are much closer to a discrete, make-to-stock, manufacturing environment than a traditional large-scale E&P development. Lean thinking and managing concepts such as throughput, inventory, aging, work in process and cycle time are critical. Tight coordination with supply chains through kitting and staging of materials and clear bill of materials, labor and equipment are additional enablers to a manufacturing mindset.

Impact of AND Management of Change. A simple decision to lay down a rig today for cost reasons can impact production 18 months from now. There needs to be a clear procedure in place to understand the implications and allowances of proposed changes.

Scenarios and Optionality. It is critical to have a tool and the organizational capacity to run scenarios and periodically review the high grade options as circumstances and the ground shift.

Risk Management. At a strategic, tactical and operational level, be clear about the framework for assessing and managing risk.

Standardize and Leverage Scale. Standardize pad layouts, and wells and facility design. Leverage scale to buy materials and services for the scale of the business, not well-by-well.

Continuous Improvement. Establish a clear, simple system for generating, vetting, prioritizing, chartering and executing ongoing improvement, and relentlessly pursue the lowest cost / best practices that meet corporate, community and industry standards with a dedication to learn from every step of the development. This may include the introduction of Lean Six Sigma tools and approaches, as appropriate.

Prepare for the Worst. Whatever you think your safety and cost performance in the field is, it could probably be better. Slow down, ensure procedures are clearly communicated, control work, over-supervise, invest in inventory, and understand the unique nature of the local geology, community and climate.

Case study

We helped an unconventional shale client drive performance through improved interface planning, scheduling and execution.

Context and challenge

- Newly acquired shale development as key part of company's growth strategy in emerging shale region
- Challenge to integrate new organization and rapidly maximize value and return on asset investment
- Performance not on track to deliver plan
- Significant challenges with cross functional coordination, contractor HSE performance, lease status, regulatory interface, integrated activity planning, tactical pad delivery, and midstream coordination
- Asset-wide well delivery targets were neither visible nor tracked in an effective means to understand status



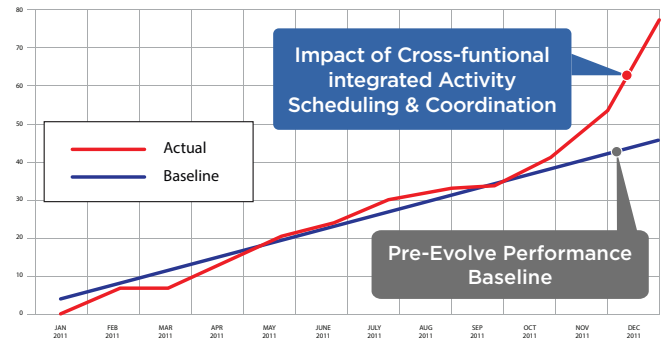
Approach

- Integrated approach working with cross-functional leadership team at asset head office and field-based construction and operations teams
- Mapped end-to-end well / pad delivery process including complex regulatory interfaces and critical handover points
- Developed well-by-well status dashboard with pad-specific milestone tracking, by function
- Deployment of Lean Pad Delivery framework and tool-kit in the field to improve facility construction cycle times, safety, and delivery costs

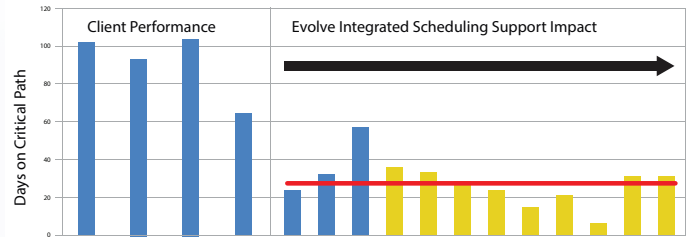
Results delivered in 11 months

- 77% Increase in wells online over baseline
- 75% Reduction in facility construction cycle time
- Increased Transparency and Accountability established across functions at all levels of the asset organization

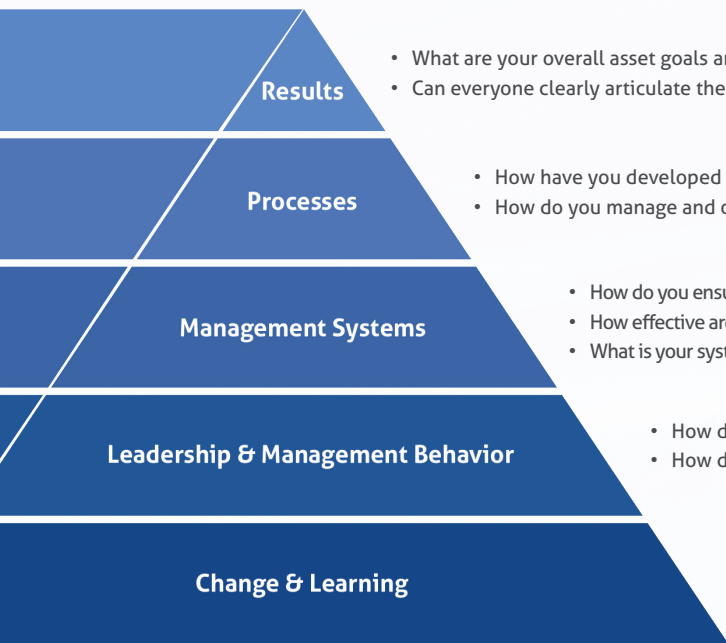
2011 Cumulative Wells Online



Wellpad Facility Cycle Time



Critical questions to consider in Shale Plays



- What are your overall asset goals and priorities and how do those translate to functional goals and priorities?
- Can everyone clearly articulate these?
- How have you developed a clear understanding of the end-to-end "concept to production" work flow?
- How do you manage and optimize that workflow across functions, including handoffs?
- How do you ensure visibility of performance data at the right level (pad and office) and frequency (daily, weekly)?
- How effective are your meetings at analyzing data to drive decisions and action?
- What is your system for integrated planning and activity management, including your ability to run scenarios?
- How do you articulate and reward safety, collaboration and urgency?
- How do you promote a manufacturing mentality and build manufacturing skills?
- How do you create an emotional connection and alignment to a shared vision?
- What is your structured process for ongoing continuous improvement?

Evolve Organizational Space™

Evolve Partners, US Houston
 Galleria Financial Center
 5075 Westheimer Rd. Suite 1177
 Houston, TX 77056

t +1 (281) 661 5000
 e infoUS@evolve.cc

Evolve Partners, Canada Calgary
 Suncor Energy Centre
 #5100, 150-6th Avenue S.W.,
 Calgary, AB T2P 3Y7

t +1 (403) 538-2147
 e infoCAN@evolve.cc

www.evolve.cc

EVOLVE

THE ART OF IMPLEMENTATION®