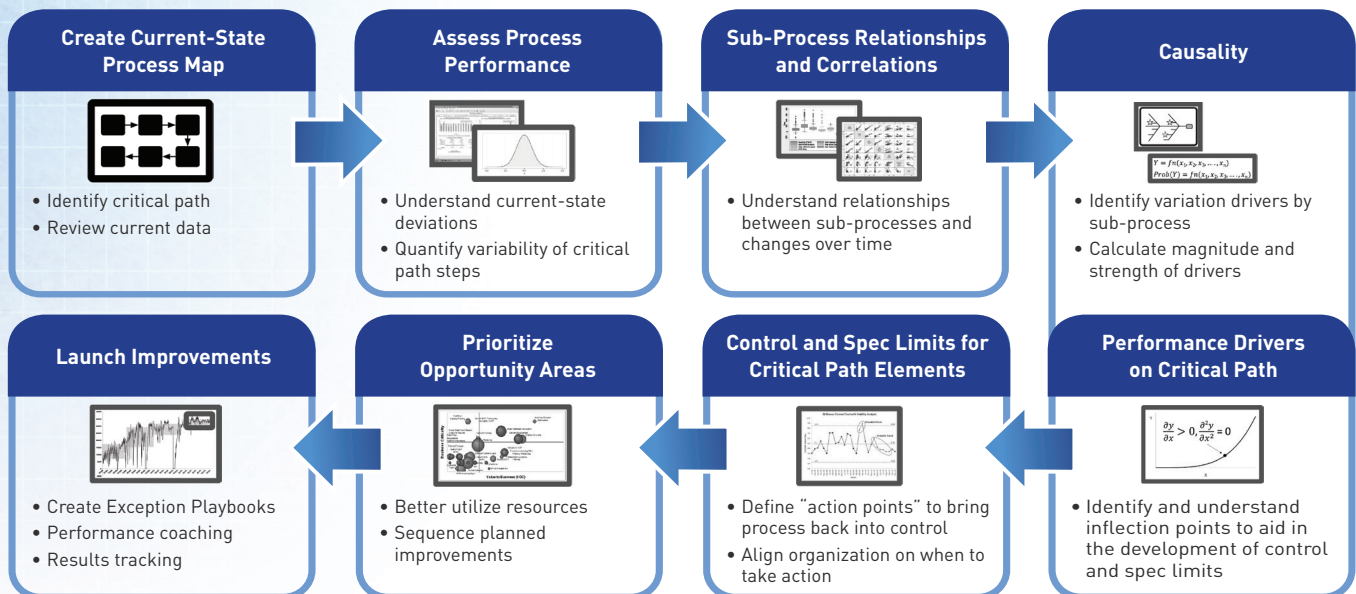


Improving Performance in the Unconventional Concept-to-PoP Process

Now more than ever oil and gas producers are seeing a greater need to improve performance of their Concept to Put-on-Production (PoP) process, given the increasing price pressures in the industry. This North American onshore unconventional industry is still in its relative infancy, with firms “learning as they go”. So far few have been able to move from a reactionary mode to one driving continuous improvement through data-based decisions, creating an efficient and effective operation.

The approach to improving your Concept-to-PoP process is dependent on how far along you are in the lifecycle and the level of data available. It could be highly analytical or it could simply be a way to identify what you need to track in order to improve performance, and set up and embed capability.

Evolve takes a structured approach to evaluating your Concept-to-PoP process:



Create Current-State Process Map

We begin by helping you to map your current Concept-to-PoP process and identifying what data, if any, is being collected both for and between steps. Identifying the critical path allows you to understand what steps and sub-processes are run in series, and where there may be opportunities to run certain steps in parallel, thus potentially reducing Concept-to-PoP cycle time. Mapping the process not only provides an end-to-end understanding of the complexity and challenges in the current state but also allows your team to understand better the interdependencies amongst the functions and sub-processes.

Assess Process Performance

In order to move forward and improve, you must understand the current level of performance. Using the output of the process map, we work with your team to understand deviations within the current-state of the process and quantify variability of critical path steps. This insight provides a high-level roadmap for the next level of analysis.



Improving Performance in the Unconventional Concept-to-PoP Process

Sub-Process Relationships and Correlations

After the initial historical performance assessment, we utilize scatterplots and correlation matrices to understand the relationships and interdependencies between sub-processes and how they change over time. These analytics allow you to identify sub-processes that move together and opportunities to improve communication between functions working on or with these sub-processes. Understanding these changes over time helps to articulate clearly possible impacts of strategy changes to your current plan of development.

Understanding Causality

Correlation does not indicate causation. While we have identified tasks and sub-processes that move together, we still need to identify what causes variation in each of the critical path sub-processes. In addition to identifying these causes, we also calculate the magnitude and strength of each of these drivers. Doing so enables us to identify lead indicators to measure, improve and control in an effort to reduce variation in the overall Concept-to-PoP process.

Impacts of Performance Drivers on the Critical Path

Rarely is a process linear. Identifying and understanding inflection points within each critical path sub-process enables you and your team to know what good looks like, when elements become

suspect and when interventions need to occur. All of this aids in the development of control and specification limits.

Control and Specification Limits for Critical Path Elements

By developing control and specification limits, you can define “action points” to bring a process back into control. Knowing these limits aid in aligning the organization on when to take action before it is “too late” and the performance of the process is beyond its recovery point.

Prioritize Opportunity Areas

Beyond just the standard “Ease of Implementation vs. Value to Business”, we work with you to ensure that the definition of value is clearly understood across all functions. Throughout this approach we will identify a variety of opportunities to improve the Concept-to-PoP process and work with your team to prioritize and quantify each opportunity to utilize better resources and develop a sequenced plan of implementation.

Launch Improvements

Utilizing this prioritized plan of improvement opportunities, we work with you and your team to mobilize and implement each opportunity. This approach includes further refining, documenting and educating the team on the processes and associated roles and responsibilities, developing a management system to ensure the continuous improvement of the end-to-end process, performance coaching and results tracking.

CASE STUDY

We helped an unconventional shale play understand some of the analytics around their current Concept-to-PoP process but also revealed what they are not measuring and how their analytical power could be improved.

- Identified areas where there was little or no correlation that “being late” with one process element would ultimately cause slippage in the 1st oil/gas date
- Validated the hypothesis that numerous elements early in the process are highly correlated with the staking sub-process. This finding triggered further analysis for optimizing the staking process in order to reduce overall process issues, getting wells online faster and more efficiently.

- Additional analyses were performed using Probit models to estimate the probability that a well with particular characteristics would fail to meet its 1st oil/gas date if previous process steps were delayed (i.e. late on a critical path step by a certain number of days). This understanding allowed the client to best utilize its resources to better control and minimize these factors in the future.
- Ultimately, this approach allows us to determine the inflection points in the process; for example, a critical path step normally performed 160 days prior to spud date (a.k.a. 160 days “pre-spud”) can be moved to 150 days “pre-spud” with little to no impact. Within 150 to 120 days, this delay will cause a minor negative impact (exception “playbooks” and communication plans should be developed around this process). If this same critical path step then fell within 120 days “pre-spud”, major plan shifts would be needed. Knowing these inflection points and educating the team on the implications allows the process users to implement data-driven timeline expectations instead of the relatively arbitrary timelines currently utilized.

ACCOMPLISHMENTS

Understanding and Measurement of Analytics



Improved Analytical Power

Optimized Staking Process to reduce issues



Utilizing Resources to control delays

Data-Driven Timelines



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