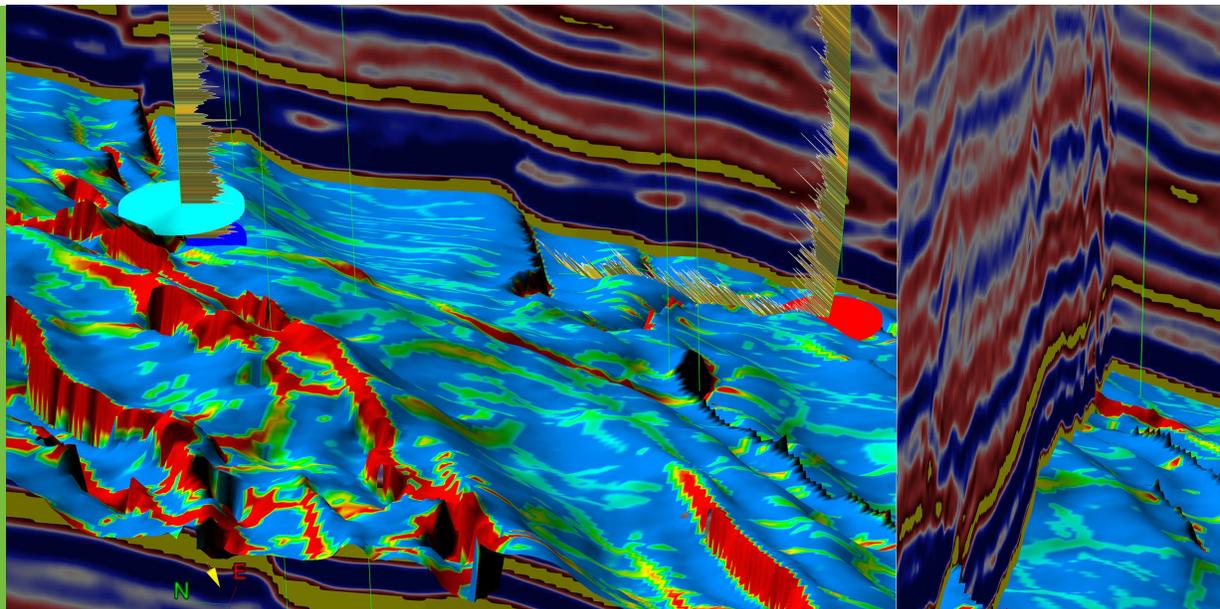**drillinginfo**
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Finding Optimal Well Completion Parameters with DI Transform

How Drillinginfo Can Help You Build Energy Models to Increase Well Production and ROI

Customer Challenge

E&P companies are often faced with a time-consuming, guess-and-check process when determining how to improve their drilling and completion strategy in a play. Making it even more challenging is the fact that both high and low producing wells are frequently found in the same grade acreage. This indicates that simply drilling wells in the highest grade acreage is not an ideal strategy. Completion engineering practices are just as important as geology when it comes to planning a productive well.

In this example, we will assume that a company has already decided to invest in either additional stages or a higher percentage of ceramic proppant in completing new wells. Determining which investment is the better strategy, as well as the optimal level of either stages or ceramic proppant, is challenging when using standard energy models.

Before DI Transform, engineers relied on a bivariate approach using cross-plots to identify relationships between completion parameters and oil production. Unfortunately, cross-plots are usually insufficient for benchmarking or discerning meaningful relationships because there is too much noise in the data. That noise is due to differences between wells in where they were drilled and the use of different engineering practices. For example, the cross-plot can tell you the number of stages the best wells used, but would also

CHALLENGE
How do I find optimal well completion parameters? How do I determine which investment is the better strategy? How can I maximize my production and ROI?

SOLUTION
Using DI Transform, E&P companies are able to employ a multivariate approach to determine optimal completion parameters.

PRODUCTS USED
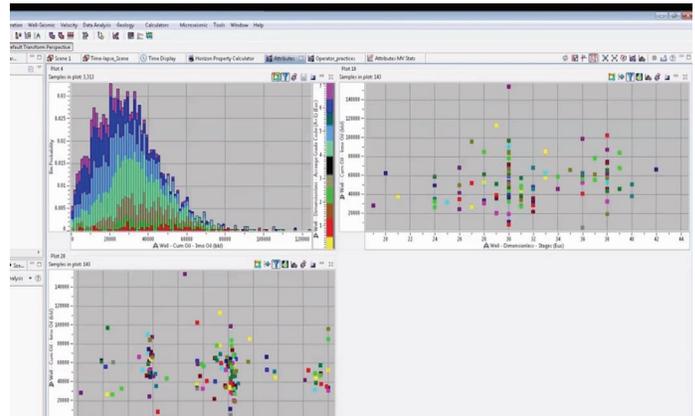DI Transform

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indicate that some of the worst wells used the same number of stages as the best wells. This renders the data basically useless. A bivariate model simply cannot provide an engineer with actionable information.

Customer Solution with Drillinginfo

Using DI Transform, E&P companies are able to employ a multivariate approach to determine optimal completion parameters. In this example, we will use the DI Transform multivariate non-linear regression tool to build a model that will predict six month cum oil based on the lateral length of the well, percentage of ceramic proppant, average stage length, maximum fluid injection rate, pounds of proppant per foot, and the number of stages used to complete the wells.

The tool allows us to take the cloud of cross-plot data and visualize fundamental relationships between each variable and six month cum oil by filtering out the effects of all other model parameters. An engineer could now isolate the effect that the number of stages and percentage of ceramic proppant has on production.

In this example, we can see that increasing the number of stages from 28 to 45 would increase the well's production by 38,000 barrels over six months. At roughly $60 per barrel, this would translate to an increase of nearly $2.3 million in revenue. Increasing the percentage of ceramic proppant from 30% to 100% would result in 20,000 additional barrels over six months, which would bring in an added $1.2 million in revenue.

Cross-plot Data is Difficult to Use for Identifying Effect on Production
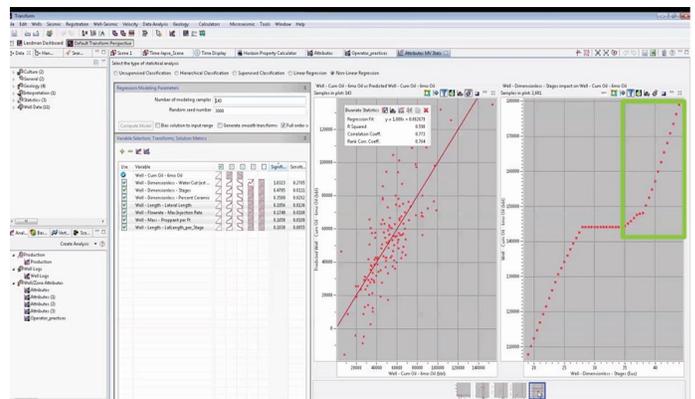
Impact of the Number of Stages on Six Month Cum Oil Production
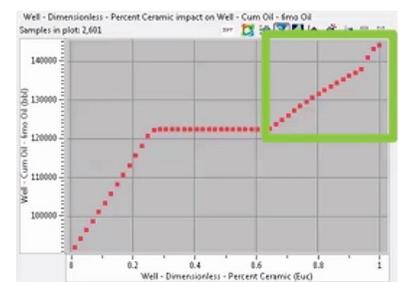
Impact of the Percent Ceramic on Six Month Cum Oil Production

CONCLUSION

Using DI Transform, we can clearly see that, from a revenue perspective, investing in an increased number of stages is a better strategy than investing in ceramic proppant in this example. We are also able to identify the exact number of stages that would provide the highest ROI and the increased revenue we could expect to see.

Determining an ideal drilling strategy used to take weeks and lots of guesswork, which often resulted in huge amounts of lost time and money. With DI Transform, E&P companies can quickly and easily produce energy analytics to uncover hidden relationships in their data and create an optimal strategy to maximize returns.

PROACTIVE   **EFFICIENT**   **COMPETITIVE**

By monitoring the market, Drillinginfo continuously delivers innovative oil & gas solutions that enable our customers to sustain a competitive advantage in any environment.

Drillinginfo customers constantly perform above the rest because they are able to be more efficient and more proactive than the competition.

Learn how our solutions can help you optimize well placement for maximum production and ROI from new and existing wells. Speak with one of our dedicated DI Transform specialists today.

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