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MEETING EXTREME VOLATILITY HEAD ON

Michael W. Hinton, Allegro Development, USA, discusses how technology and advanced analytics can help companies mitigate the inherent risks in the oil and gas industry.



When it comes to finding an extreme driver of volatility in the oil and gas industry, you really do not need to do much more than look out of your window on a cloudy day. As global weather patterns continue to shift, the instance of extreme weather events across the globe seems to be growing each year.

The American Meteorological Society (AMS) publishes a climate report each summer, where it lists important trends in weather and climate conditions aggregated from locations across the globe. In its 2017 report, the AMS reported a broad range of “precipitation extremes” resulting in excessive rainfall in some parts of the globe, and extensive droughts in others. The year also saw 85 named tropical storms, 17 of which occurred in the North American basin – which is the highest number in the 164 year history of record keeping.

While it is difficult to achieve consensus among scientists, politicians and several groups in between as to what causes such weather extremes, one thing is for certain – extreme weather events and natural disasters can spark (or worsen) commodity price volatility, as well as wreak havoc along the supply chain and cause major business disruptions when communication infrastructure, road and building damages occur.

Add to that the stormy landscape of geopolitical instability – tariffs, sanctions, a US trade war with China, Iran’s increase in exports and predictions of Venezuela’s industry collapse – and it almost seems like energy sector businesses may as well throw up their hands and accept an ambiguous fate.

No doubt at some point in your past you have joked that it would be nice to have a crystal ball to predict your future. Everyone upstream, midstream and downstream has likely said the same thing at one point or another. But is a crystal ball really needed, or do we just need to optimise operations and hedge against the unexpected, because we know that’s what is to be expected?

It is no secret the energy sector is cyclical: the demand/supply equation will always have its ups and downs, and it is impossible to plan around Mother Nature’s whims. As long-time NBC weatherman Willard Scott once said, “Everyone complains about the weather, but nobody ever seems to do anything about it.”

In reality, can you do something about it? In the face of such volatility, industry players have two choices: curtail innovation and shrink the business in lockstep with volatile forces – such as oil prices – or take advantage of the opportunity of down cycles to trim the fat, beef up technology and position themselves for aggressive growth. In order to ensure a position in the latter group, you must have the ability to know where risk is, identify where you are gaining revenue and find where you are losing revenue.

Slashing the budget in the face of volatility is a big mistake

Of course, volatility is inevitable. In response to market instability, businesses typically tighten the reins on spending by reducing headcount, selling assets and putting projects on hold. But this is a mistake. The last thing any market participant wants is to be caught unprepared for what lies ahead. To remain competitive during

market volatility, organisations need to understand the data behind the volatility.

The volatility – and the ever-changing and vastly growing amount of data it creates – is never going to cease, so organisations need to figure out how they can take control of it and bring clarity to it. Understanding and harnessing that data and volatility requires next-generation technology, powered by advanced analytics.

Invest in dissecting the data

Leading organisations know that in a rapidly changing and risky environment, the ability to harness the changing volume, velocity, veracity and variability of data sources through advanced analytics is imperative to survival.

From managing risk and full decision support, to determining dispatch or the use of an asset for planned outages, businesses often struggle to optimise their portfolio of assets for maximum profitability. The key to understanding and quantifying complex optionality within each asset and trading around the asset, is advanced analytics.

An analytics-based optimisation system can help businesses harness massive amounts of data with real options: data-based decision support, optimisation and valuation tools. These types of asset optimisation solutions empower organisations to handle complex optionality, manage risk and mitigate stochastic events with ease – all while maximising the asset value output for any commodity.

Prepare for the unknown

As a business is preparing to implement and use analytics, it must be prepared to answer a few key questions:

- Do you have the speed and agility to get your product to market efficiently?
- Are you able to take a macro view of your transport options and create margin?
- Where can you tighten your timelines, improve operation efficiency and reduce risk exposure while expanding the upside?

The time to inspect and assess technology assets is before a disaster or downturn hits, of course. But as more and more of your competitors begin to leverage analytic tools, you also cannot afford to be the odd man out. In order to prepare for increased volume and business complexity, it is time to take a hard look at ‘business as usual’ and sunset the old way of doing things. Next-generation CTRM solutions allow organisations to manage an entire portfolio in real-time and in one place. This allows market participants to identify where they are profitable, optimise their assets, limit risk exposure and streamline operations.

Getting started with advanced analytics

According to a recent survey conducted by Allegro Development, 94% of commodity businesses believe advanced analytics are the key to growth, and 84% of these same businesses are planning to improve their organisation’s analytics capabilities within the next three years. At first, the elevator pitch for advanced analytics seems

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simple – Gartner recommends that an organisation utilises all of its data to go beyond traditional business intelligence, discover deeper insights, make predictions and generate recommendations.

Yet, executives often hesitate before implementing advanced analytics. Why? Empowering digital transformation within a company is no small undertaking, and executives can get lost in the cascading value propositions that come with advanced analytics – logistics optimisation, asset optimisation and so on.

What's important to keep in focus during the process of a digital transformation is the outcome of the implementation – the bottom line result of employing advanced analytics comes in hard numbers.

Optimisation in action

Take the example of a natural gas storage company that owns between 5 and 10 storage contracts at any one time. By migrating away from annual process and implementing a solution such as Allegro's Asset Optimisation (powered by Financial Engineering Associates' advanced analytics), a company in this space could achieve optimal purchase costs, sales prices and profit on their spread through contract optimisation.

Let us assume that prior to implementing a digital transformation, the company was injecting ratably in summer months and withdrawing in winter months. At the time of implementation, hedging the forward markets could yield:

- Purchase cost of US\$2.51/mmbtu.
- Sales price of US\$2.88/mmbtu.
- Profit on spread US\$0.36/mmbtu = US\$364 900.

Following the implementation of the CTRM solution and connecting the analytics dots, and compared to the hypothesis above, the same company could yield the following results in hedging forward markets:

- Optimal purchase cost of US\$2.46/mmbtu.
- Optimal sales price of US\$3.04/mmbtu.
- Optimal profit on spread US\$0.58/mmbtu = US\$578 692 (initial intrinsic value).

Further, assuming Allegro would run a continued forward hedge optimisation simulation, the results could show that an additional extrinsic value gain of US\$0.29/mmbtu = US\$290 274 is likely. Back testing of the model would further demonstrate that over the past 10 years this storage model would have extracted 1.1 to 2.71 times the initial intrinsic value of the storage asset.

With optimisation like this in place, the company could realise a US\$504 072 improved profit per contract, resulting in US\$2.5 million to US\$5 million in annual profit improvement.

Driving profit with better visibility

With advanced analytics at the centre of decision making for the organisation, employees at all levels gain better visibility to the commodity management lifecycle. In particular, for traders, risk managers, schedulers and accounting personnel, every phase of a deal is optimised and the analytics drive greater profit.

With the commodity industry at a tipping point, there is no time to put off the transformation into a data-driven organisation. 