From Blockbuster to Blockchain: How to Manage a Not-Quite-Settled Technology Platform

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In this era of Netflix and online media that can be accessed anywhere, it is easy to forget that we used to have to work a little harder to get entertained. In the first few years of the new millennium, a typical home movie experience often began with a trip to the local Blockbuster store. There was a bewildering array of plastic movie cases that you had to pick up and investigate before making your final selection. Upon reaching the cashier, the sales associate would retrieve the appropriate disc for your selected movie and put it in the box before sending you on your way.

What made this ritual all the more challenging, however, was the fact that there was more than one type of disc format during the period 2006–2008. On one side of the store were the movies available for the HD DVD format, a technology platform led by Toshiba; on the other, movies for Sony's Blu-ray machines. For the most part, the companies that produced movies had pledged allegiance to one of the formats or the other, but not to both of them. Blockbuster customers during this period were consequently faced with a dilemma. Everyone who had witnessed the drawn-out battle between VHS video tapes and Sony's Betamax in the previous generation of Blockbuster products suspected that some kind of shakeout in the disc industry would probably happen eventually, and no one wanted to be left holding the bag with a disc player and movie collection tethered to the losing side. Thankfully, however, this problem was solved when Toshiba threw in the towel in 2008, leaving Sony's platform as the undisputed winner in the movie disc technology war.

This episode in the history of the entertainment industry is an important lesson to remember as we think about how to introduce blockchain into the oil and gas industry. Blockchain is essentially "a mathematical structure for storing data in a way that is nearly impossible to fake" (Orcutt, 2018), which makes it a useful way to reliably share all kinds of valuable information (Tapscott and Tapscott, 2016). In the finance sector, blockchain is most famously the technology underlying cryptocurrencies like Bitcoin, but new applications are being discovered all the time—including in the upstream oil and gas industry. Companies in the oil and gas sector have already made inroads into the blockchain domain by using the technology to improve trading (Braga, 2018), guarantee the authenticity of wellbore rock and fluid samples (Whitfield, 2018), and create a shared consensus about the progress of drilling campaigns (Rassenfoss, 2018). In fact, there is so much

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buzz and energy in the blockchain area these days that several consortia and research initiatives have popped up to figure out new and inventive ways to deliver value with it, including the Enterprise Ethereum Alliance[1] and the Linux Foundation's Hyperledger project (for both of which Intel was a founding member) or the Oil and Gas Blockchain Consortium.[2]

And here is where all those hours invested in Blockbuster are going to come in particularly handy. For all of the attractive ways in which this innovation can potentially deliver value, there are a lot of competing visions in the marketplace as to exactly how blockchains should be put together. Several technology vendors are experimenting with different architectures and protocols for delivering blockchain's benefits in a bewildering number of contexts. This fluid phase of experimentation happens in the early days of many new innovations, and this is in many ways a healthy process inasmuch as it means that a lot of new ideas are being explored, resulting in a more robust and usable technology at the end of it all.

Just like how Toshiba and Sony were battling for supremacy in the DVD disc domain in the early 2000s, a similar contest is unfolding in the blockchain arena today. Unlike the disc war, however, it is entirely plausible that there won't be a single victor emerging in blockchain. There are plenty of instances in the broad sweep of digital history—like gaming consoles, for instance—in which multiple technology platforms coexisted for many years without any kind of shakeout that gives rise to a single dominant design. It is not entirely clear what the future holds for blockchain. What is clear, however, is that there will be a lot more experimentation and fluid-

ity for quite some time while this technology continues to improve and, left to its own devices, it is quite likely that there will still be a lot of different blockchain platforms to choose from a few years from now.

But we have seen this movie before. As the upstream oil and gas sector became increasingly reliant on electronic instrumentation and digital information in the 1970s and 1980s, an impressive range of digital platforms and protocols emerged. Much to the frustration of the operators of the day, however, the different platforms were mostly vendor-specific, and were incompatible with each other. To solve this problem, a handful of operators—BP, Chevron, Elf, Mobil, and Texaco—came together to establish the Petrotechnical Open Software Corporation (POSC) in 1990 (McLellan, Abusalbi, Brown, and Quinlivan, 1997; Purdy and Grisham, 1994). POSC was essentially a consortium tasked with developing, supporting, and promoting open standards for the upstream oil and gas sector, thereby delivering to the sector a higher degree of interoperability than was previously available. In 2006, POSC became Energistics, a non-profit industry organization that has continued POSC's mission to develop and promote open data exchange standards for the upstream oil and gas sector. Developed collaboratively with the industry, these standards were the key to unlocking the desired interoperability between platforms and thus more utility for the organizations using the new technologies that, in turn, made it possible to deliver significantly more value with the digital innovations being introduced into the industry.

This offers a few clues as to what might be helpful as the upstream oil and gas industry continues to experiment with blockchain. Although real value has been elusive so far in many of the early forays into this area, this situation will probably improve as we emerge from the highly fluid experimental phase of blockchain into a market environment more focused on maximizing utility and value. Consortia and multi-company collaborations are a

great start as we try to bring some semblance of order to all these different platforms, but we need to avoid a technology showdown similar to the fight between Toshiba and Sony over DVD format. Rather than waiting for a dominant player to emerge, we are at a point in our industry's journey with blockchain where it makes sense to actively start working toward common architectures and standards in the blockchain domain. And when the potential value and utility start to come into focus, blockchain will graduate from being a quirky movie that most of us don't really understand to a Hollywood smash hit that everybody loves. **JPT**

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[1] https://entethalliance.org/. The Alliance states that its mission is to be "a member-driven standards organization whose charter is to develop open blockchain specifications that drive harmonization and interoperability for businesses and consumers worldwide."

[2] https://www.oocblockchain.com/