



Blockchain is Coming!

A Future of Distributed Ledgers

BY ROGER WOODWORTH

Pay attention. You can hear a train rumble in the distance. Do you stand still on the tracks? Or do you run and hide in fear? “No” is, of course, the answer to both questions.

You know enough to take precautionary steps in anticipation of what’s to come. So, you move before the roar of the train is upon you. Far enough to avoid the danger and to the right side of the tracks so your progress is not impeded.

But what do you do if the signals are unfamiliar?

The military faces this sort of situation all too often. They refer to it as VUCA – Volatile, Uncertain, Complex and Ambiguous. The basic response to VUCA situations is to listen, act in proportion to the signal strength, and listen again. The precautionary measures yield ever-greater insights. Each turn of the cycle shrinks uncertainty and expands preparedness.

Pilot projects at utilities often seem

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to serve a similar purpose. Experimental rate designs, behind-the-meter service trials, and studies of all kinds of grid technology are some common examples. That’s smart. Pilots offer an efficient way to detect risks, confirm opportunities and improve processes. Each turn of the cycle boosts the odds of success.

Now is the time to apply this tried-and-true approach to a new, enabling technology: blockchain.

The Early Rumble

An early signal, to those paying attention, was bitcoin, the first popularized cyber-currency. Proposed in 2008, it quickly became a widely-used, peer-to-peer electronic currency for Web transactions. Bitcoin overcame several early challenges, one of which was

reliable verification of transactions. Enter blockchain.

Blockchain is a distributed system of electronic ledgers that provide automatic, instant cross-verification of transactions. With it, bitcoin offered an unsurpassed degree of reliability. No need for intermediary banks. Talk about disruption!

Proof that it works? In just eight years, the value of all bitcoins in circulation worldwide has surpassed fourteen billion dollars. Now a mainstream currency, you can use bitcoin to purchase goods online at Microsoft, Apple, Amazon, and even Home Depot and CVS drugstores. Entire countries are adopting the digital currency for various reasons, most recently India and Venezuela.

Take note: Several new cryptocurrencies, in addition to bitcoin, are now growing in circulation. Hundreds of new companies have emerged to serve the sector, managing exchanges, payments, storage, services, and analytics. Venture capitalists have backed them with hundreds of millions of investors’ dollars.

You might ask what cyber-currencies have to do with utilities? Perhaps you think utilities can just wait and adopt bitcoin or cyber-whatever later, after everything is certain and the train is in sight. But anticipation and precautionary actions are the best course in the face of uncertainty.

From Rumble to Roar

These signals about cyber-currency are the distant rumble. The roar you should now be hearing is about blockchain, as the underlying enabling technology.

Pilots to assess how blockchain might serve business or government are underway in nearly every sector of the economy. It seems that distributed ledger systems can be applied to almost anything that can be digitized.

Affirming that point, the World Economic Forum reports that by 2025, ten percent of global Gross Domestic Product will flow through blockchain platforms. No surprise then that big technology firms like IBM, HP and Intel are developing applications for blockchain.

Financial innovators at R3 in New York are developing a common platform for a consortium of banks to share. Participants include names you do business with: Citi, Bank of America, Deutsche Bank, and Morgan Stanley.

Did you know that NASDAQ is using blockchain? It's what enables their new LINQ service for transferring shares of privately held companies.

On the health front, California based GEM is using blockchain to secure personal records.

Concerning physical assets, innovators are developing ways to code original artwork to halt traffic in forgeries. Others have systems to expediently track property ownership and title

transfers to reduce the time and cost of escrow. Even Walmart is experimenting with how blockchain can be used to track fresh foods for safety. The list of possibilities seems endless.

Disintermediation Defined

With such a wide-ranging effort to develop and apply blockchain, utilities must eventually face its implications. Best to pay attention to the strength of the signals coming our way, and take proportionate action.

Do take more than a passing interest in the Transactive Grid Project by LO3 Energy. You probably saw the news last summer about their community microgrid pilot project in Brooklyn, N.Y. This thought-leading effort uses blockchain to track solar or other distributed energy production and consumption between buildings.

The meter-to-cash process takes on a different meaning when blockchain is in play.

A computer does the work. There's still a utility grid in between, but not much else. The meter-to-cash process takes on a much different meaning when blockchain is in play.

Another project worth watching is at Stony Edge Farms near Silicon Valley in California. They've installed a microgrid with five hundred solar panels and seven batteries, enough to serve neighbors within a couple of miles. The legislative authority to allow such service is under debate. But there is no technical impediment.

Utilities must eventually face the implications of blockchain.

If it is allowed, how might a micro-grid like Stony's do billing among participating neighbors? Blockchain-enabled software is a good bet. Solutions are at the ready. In addition to LO3 Energy, check out wattcoin.

Wattcoin is one of the new cryptocurrencies to emerge on the heels of bitcoin's success. Wattcoin's mission is to enable the tracking of kilowatts and value in tandem. Imagine that. Precise tracking of costs and power could change rate regulation and the role of regulators as we know it. Can you hear the train yet?

Closing Thoughts

Blockchain technology is still evolving. But it fundamentally changes what's possible. And that fact isn't lost on the endless number of industries putting in the effort to make it work. That is why being tuned in and acting on signals is so critical.

As Steve Case puts it in his book, *The Third Wave*, "You can always wake up tomorrow to find that things have changed drastically. You jeopardize your position if you don't strive to anticipate how it will change. Keep your finger on the pulse of technology, and consider what its beat might mean for your business."

Indeed. Listen and anticipate. Take some steps now to discern risks and find opportunities. Repeat. Scale as you go.

And pay attention. The train is getting closer. **PE**

On March 1, **Geisha Williams** became CEO of PG&E Corp. This increased the number of women CEOs of independent investor-owned electric utilities or holding companies in the U.S., providing electric distribution service, to ten, a new record.