



## Blockchain for Physical Commodity Markets - A Realist's Perspective

**Julie Lerner**

Chief Executive Officer, PanXchange



**Ms. Julie Lerner**, Chief Executive Officer, PanXchange, participated in the industry panel during the J.P. Morgan Center for Commodities' 2<sup>nd</sup> International Commodities Symposium, which was held at the University of Colorado Denver Business School on August 14 and August 15, 2018.

There is a lot of excitement about blockchain. Advocates believe it will solve inefficiencies in everything from stocks and bonds to production and delivery of commodities. Some even claim it will end global poverty (Gramm and deSoto, 2018).

I am skeptical, however, about the current feasibility of implementing blockchain in commodity trading. I am not a specialist in this new technology, but I have spent my career in the commodity trading business. I know from personal experience that it will be extremely difficult to garner industry-wide support for such a massive change in technology. Below, I'll outline some of the primary obstacles standing in the way of blockchain adoption in this industry.

### Industry Reticence

The first issue is the industry itself. Getting commodities participants to accept the "switching cost" associated with adopting new technologies is difficult – just look how long it has taken professional traders and institutions to embrace new methods of trading. The Chicago Mercantile Exchange only shuttered open-outcry trading in 2015, and still has pit trading on some options on futures. Or note how

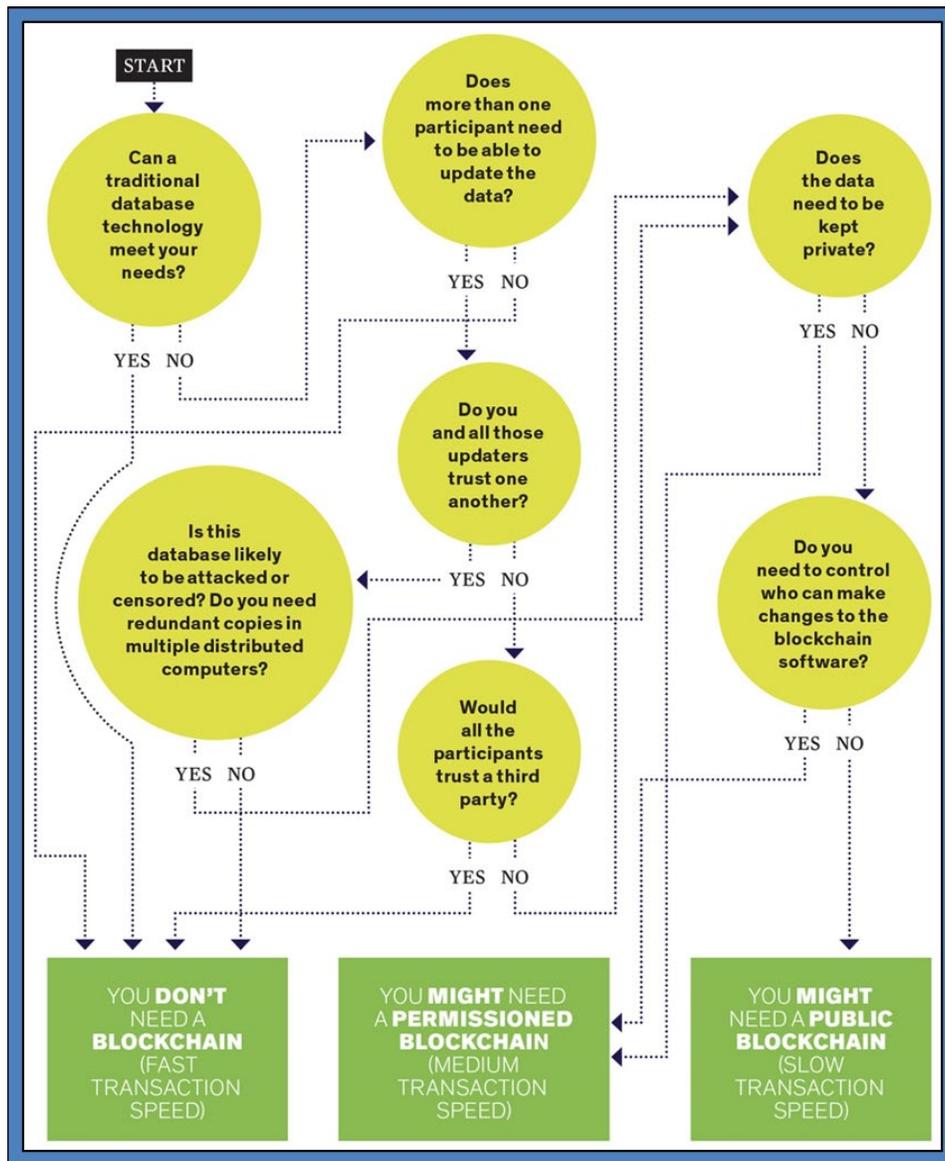
*The articles in this Special Feature do not necessarily represent the views of the JPMCC, its sponsors, or donors.*



much disruption there was among energy traders in 2017 when AOL Instant Messenger (AIM) was shut down. Years after the rest of the world had moved on to newer methods of communicating, thousands of people in the energy markets were still using AIM to negotiate their trades because that was the platform all their industry peers were using.

The fact is, in most cases a faster, simpler and cheaper database built specifically for an industry's problem will suffice. For more on this, the Institute of Electrical and Electronics Engineers (IEEE), an organization for technology professionals, published a terrific decision tree, which is shown in Figure 1.

**Figure 1**  
Decision Tree



Source of Schematic: Peck (2017).



The key takeaway from Figure 1 and the IEEE article is that for blockchain to work, you need a modicum of trust among the players in the industry. And if you have that, then perhaps there are other databases you all could agree upon that would be more efficient and less costly to implement than blockchain. Given this glacial adoption rate and inherent distrust of new technology, software firms offering distributed ledger technologies will have a difficult time gaining acceptance in this space. As a blockchain vendor, you are a solution looking for a problem. However, there is a better chance of adoption if the technology is distributed by a consortium of industry participants on a private blockchain, i.e., industry participants addressing their own problems. But even then, the question becomes, “Will the industry collectively adopt new technology, rather than stick to simpler and more proven software?”

### **Interconnected Processes and Unpredictable Occurrences**

The second issue is that commodity trading is such a complex ecosystem. There are many layers of the transaction chain that must all work together, each with a lot of nuance. For example, for blockchain to work in physical supply chains, you need the industry to accept one solution in the transportation business for bills of lading, and you need another (or three others) for the quality inspection, verification and origin certification. Presumably, this will come after a banking blockchain is implemented for wire transfers, letters of credit and other payment terms for ultimate transfer of ownership. In a perfect world, all these interconnected processes within physical commodities would adapt and evolve in perfect harmony with a singular blockchain solution, but that’s just not realistic.

The third issue is the sheer unpredictability of moving physical cargos from place to place. As nearly every commodity trader can tell you, there is a lot of potential for things to go wrong: truck demurrage due to a regional bottleneck, a stevedore strike at a port, a political and/or currency crisis, a hurricane closing down a refinery or rail line, a bankruptcy of a player in the middle of the chain, etc.

Fourth, there is the problem of human nature in the actual trading of a physical commodity. Just because a transaction has been recorded in the blockchain doesn’t guarantee human performance. Suppose Mike the miller discovers an alternative, less expensive source for the grain he has agreed to buy from Bob the farmer. He may decide to walk away from his existing obligation, even if it is on the blockchain. In another instance, Bob may enter into an agreement to deliver an organic cargo of grains, then switch out the actual, physical cargo for cheaper inorganic grains. True, Bob can’t tamper with the chain, but he can tamper with the product. In other words, the chain cannot enforce authenticity of physical supply.

### **One Link at a Time**

In the long run, I am bullish on the theoretical value of blockchain, and I laud those attempting to apply this technology. But I’ve witnessed these industry roadblocks firsthand. When I launched PanXchange in 2011, I envisioned all the benefits that electronic trading technology could bring to the commodity space. What I did not envision was just how difficult it is to persuade players across a supply chain to put down their phones and adopt a new technology. We have succeeded, but our “ask” is relatively low-



risk and low-cost, compared to a technology solution that requires buy-in from ALL industry participants to work.

What has worked at PanXchange is taking a narrow approach to solve a specific industry pain point. Our in-depth industry experience also allows us to tailor our software to each market niche, so that grains traders, for example, can specify exactly the quantities, quality measures and delivery locations that they want. Yes, our trading platform needs acceptance and adoption by a critical mass of industry participants, but we aren't seeking to revolutionize the way everyone trades. (Blockchain salespeople, let me give you a word of advice—stop using that word. No one in this business wants to be “revolutionized.”)

Rather than focusing on “revolutionizing,” a software solution provider that comes into the commodities space needs to prove to stakeholders in the supply chain that its solution addresses a real pain point, that it's worth the time and money to make the switch, and that the solution provider is going to be around for the long haul. In comparison, based on the presentations and discussions that I have seen up to now, it seems to me that very few if any of the blockchain providers are actually envisioning the true challenges of obtaining an all-in decision to accept blockchain as the definitive decentralized ledger and base technology.

Let me be clear, I do see the potential for blockchain to indeed be transformative. I predict that energy traders will be the first to adopt the blockchain in the physicals space, as they tend to be the most technologically savvy. I predict metals next, then agricultural products last.

While we wait for one industry-wide solution to be launched successfully, let's continue with pilot programs. Start with the points of highest pain, like streamlining those cumbersome bills of lading. Find a reliable blockchain provider or neutral third party that can understand the idiosyncrasies of the physical supply chain and both the opportunities and limitations of the technology. Coordinate the piloting and the implementation with the industry's largest players. Blockchain is ultimately an opt-in solution. Build it to their specifications, and they will come.

---

## Endnote

A version of this article was originally published in *MarketVoice* magazine, a publication of the Future Industry Association.

## References

Gramm, P. and H. de Soto, 2018, “How Blockchain Can End Poverty,” *The Wall Street Journal*, January 25.

Peck, M., 2017, “Do You Need a Blockchain?,” *IEEE Spectrum*, September 29. Accessed via website: <https://spectrum.ieee.org/computing/networks/do-you-need-a-blockchain> on October 8, 2018.



## Author Biography

### **JULIE LERNER**

**Chief Executive Officer, PanXchange**

Ms. Julie Lerner is the Founder and CEO of PanXchange, a negotiation and trading platform for physical commodities that specializes in bringing liquidity and efficiencies to thin and/or nascent markets. She holds two patents on the system, was selected as a Futures Industry Association Innovator and most recently was selected as an Outstanding Woman in Business by the *Denver Business Journal*.

Ms. Lerner began her career with Cargill International and later became the senior trader for Cargill's Latin American sugar markets where she focused on the development of origination markets with successful financing programs and warehouse and distribution programs. She has also held several positions in trading and business development with companies such as XL Financial (weather derivatives) and Sempra Energy Trading (electricity).

She has deep experience in regional and international agricultural and energy markets. Geographically, her area of expertise covers the U.S., Europe, Latin America and East Africa. She is an advisor to early stage companies and has a 360 degree perspective from entrepreneur to angel investor, and from smallholder farmers to Fortune 100 executives.