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BREAKING THE BLOCKCHAIN FRENZY

SUMMARY

Every few years the tech industry goes into a frenzy over a shiny new technology or approach. Sometimes, the sparkly new tech transforms the industry, such as cloud computing. Sometimes, the new hotness is only vapor and it either disappears into the ether in a few years or becomes niche, e.g. QR codes, wearables (Google Glass anyone?), or the gamification of virtually all types of software. The excitement surrounding blockchain has currently reached fever pitch and the inevitable backlash against it is already building.

So which is it? Industry game changer or soon-to-be vapor?

This document first defines what blockchain is, then provides concrete examples of where blockchain may do very well, and finally delineates the possible rewards and pitfalls of blockchain in the retail supply chain.

WHAT IS BLOCKCHAIN?

Let's step away from all the hype surrounding blockchain for a moment
and take a simple look at what it really is.

Here's a concise explanation:

1. BLOCKCHAIN IS A DATABASE

It's fundamentally all about storing and retrieving data.

2. IT'S A SHARED DATABASE

A blockchain database is different in that its singular purpose is to create a database that is shared
across, contributed to, and accessed by a large number of parties.

3. IT'S A SHARED, DECENTRALIZED DATABASE

Lots of databases can be shared but very few of them are decentralized. This means that by its very
nature, no one entity is in control of the data in a blockchain database. There is no middle man.

4. IT'S REALLY ABOUT GUARANTEEING DATA TRUST

The data in a blockchain database can be trusted even though it's shared in a decentralized network
without a single watchdog. This is because the database is structured in such a way that it would be
more expensive to attempt to maliciously alter some of the data than whatever value the bad actor
hopes to garner from the alteration.

WHAT BLOCKCHAIN IS NOT

1. BLOCKCHAIN IS NOT EFFICIENT AT WRITING DATA

To enforce the integrity and tamper-proof nature of decentralized data, it takes serious amounts of time
and resources to write a block with its contained data records (the data you want in the database) into
the blockchain. By comparison, writing data is trivial in virtually all modern databases.

2. BLOCKCHAIN IS NOT ABOUT PRIVACY

The entire point of a blockchain is to share it with a distributed group who can all read and/or write to
the database. While this doesn't have to be public to the whole world, it does mean it has to be public to
all parties involved and if there aren't enough parties, the approach just doesn't make sense.

3. BLOCKCHAIN IS NOT MATURE

The tools and infrastructure that surround blockchain are immature at best when compared to modern
databases and while many are rushing in to fill that void it still makes adoption expensive and risky.

4. BLOCKCHAIN IS NOT EASY TO USE OR OPERATE

The inherent complexity of blockchain and the immaturity of the tooling around it makes operating
within a blockchain system very difficult.

WHAT'S ALL THE HYPE ABOUT?

Based on the four points above, blockchain appears to be a third-rate database that doesn't seem ready for primetime. So why all the hype? The answer to this question revolves around one important feature of blockchain that's gotten everyone talking about it: data integrity and security with no middle man.

Consider that the most sophisticated hacker organizations in the world - think Russian, North Korean, Iranian, etc. - have been trying to hack blockchains for years now where the data stored in the blockchain is itself cash and they have not succeeded yet. Smart people realize that if you have a problem in which the security aspects around sharing data in a decentralized network vastly outweigh all other considerations (such as performance, scalability, operability, etc), then blockchain is uniquely capable of solving that problem right now.

Some will say that the decentralized nature of blockchain is also a key component of finding problems where blockchain is the solution. They are wrong. There are many ways to achieve decentralization - does anyone remember Napster and peer-to-peer networks? Blockchain's decentralization directly results from the security built into it and so do the negative aspects of blockchain. The only reason to go this way is because the nature of the data that must be shared is so important that paying a high price to guarantee it is tamper-proof is worth it.

What this means is that there truly are large, important, and unique problems that will benefit from the specialized properties of a blockchain database. The hype comes in when opportunists extrapolate out further and posit that blockchain can be used in other ways even where the value of the integrity of the data isn't quite so high. A lot of people are making money in this manner by selling their "expertise", their books, their consulting services, their software platforms, and so on.

The hype also comes in because it is becoming harder and harder to protect the integrity of data in a world filled with malicious actors who are only a network hop away from accessing and manipulating vital information. It is entirely possible that the opportunists mentioned above will actually turn out to be right and blockchain's deficiencies and square peg in a round hole syndrome will eventually be overcome or ignored to get ubiquitous data trust across industries and individuals. Time will tell.

In the meantime, let's take a look at various current and potential use cases for blockchain.

BLOCKCHAIN USE CASES THAT MAKE SENSE TODAY

Each of these use cases share one very important element in common - there is intrinsic value in the data stored in the blockchain database, making them immediately relevant for blockchain.

✔ **Use as a currency**

It's still true that the most applicable use case for blockchain is as a currency. This is what it was created for in the first place.

✔ **Use as a means of exchanging stocks for valuable, physical assets**

Transactions in the blockchain represent stock in valuable, physical goods such as oil and gold with the ancillary benefit of ripping out government control and regulatory agencies from the equation due to the decentralized nature of blockchain.

✔ **Use in recording and transferring land title ownership**

There is enormous value in ensuring correctness in who owns what land and current processes are arcane, lack transparency, and are often subject to dispute, making this use case perfect for blockchain.

BLOCKCHAIN USE CASES THAT MAY MAKE SENSE

The following blockchain use cases are widely discussed but may or may not make sense:

✔ Use in public transportation to streamline public transportation transactions

✔ Use in the healthcare industry to ensure the integrity of drug and patient data

✔ Use in commercial vehicles and transportation to create an immutable ledger of goods and travel logs

✔ Use in credit history to make credit history more accurate and transparent

✔ Use in gun safety to track ownership of guns

BLOCKCHAIN IN THE RETAIL SUPPLY CHAIN

What is the most valuable data in the retail supply chain? The answer is clearly timely and accurate inventory information. Where a sku is and how much, are questions that every retailer needs to be able to answer as quickly as possible.

Bringing blockchain into the inventory visibility equation, one could envision an inventory marketplace where retailers and suppliers come together to record the existence and exchange of sku's based on blockchain.

HERE'S HOW SUCH A MARKETPLACE WOULD WORK:

- **Dsco, as a disinterested party, owns and operates a blockchain network to reduce complexity and act as a gatekeeper.**

- **Only retailers and suppliers who pay to opt in to the blockchain network are given access. It's public inside the group but not outside.**

- **Sources of inventory are recorded into the blockchain by individual companies, either directly or via a Dsco integration.**

- **Demand that consumes inventory is recorded into the blockchain by individual companies, either directly or via a Dsco integration.**

How interesting is this? How useful would such a blockchain inventory marketplace actually be for retailers and their ecosystems? It's difficult to say.

Embedded in the narrative above are many implied assumptions. For example, who would be able to see what data in the blockchain network? It makes sense that Adidas would want to see where all of its inventory is anywhere in the world. It also makes sense that Foot Locker would want to see where any Adidas inventory exists at any Foot Locker demand creation source anywhere in the world. However, would it make sense that Dick's could see how much Adidas inventory was at which Foot Locker demand source? It's a safe bet that the answer today is no.

So, either Dsco would need to convince all players in the blockchain network that it's in everyone's best interest to see everyone else's data or Dsco would need to partition the network among trading partners. One could argue that a blockchain makes less sense as soon as the data is partitioned by trading partner because the number of entities in the blockchain is so small.

There may well be something to the idea of creating a global clearinghouse of all inventory in the world that anyone participating in the blockchain network can access and may the best person win—i.e. sell the inventory if you are able.

There are, however, any number of barriers to the adoption of such an egalitarian trading system ranging from legal issues to concerns around brand protection to retailers demanding control. The long and short of it is this: if time shows that guaranteeing data trust is more important than other concerns such as speed or control over proprietary information, then blockchain will become the one (database architecture) to rule them all in the retail supply chain.

Otherwise, blockchain likely won't win out because it's simply not a natural fit for the following reasons:

- **The retail supply chain lags in technology, and the complexity and difficulty of operating in a blockchain system will impede its adoption.**

- **The most applicable type of transaction to put in a blockchain–inventory history for a single sku–involves vast amounts of time-sensitive data and is poorly suited for the built-in latencies and performance issues of blockchain. Simply put, if retail needs up-to-the-minute inventory data, blockchain is not the tool for this.**

- **Blockchain is about data transparency and trust and although Dsco hopes to facilitate strong, transparent relationships between trading partners, the fact is there isn't equality yet in most of these partnerships. This will negate some of the largest benefits of using blockchain.**

- **Additionally, most retail competitors are currently not likely to share their sensitive inventory and customer data with one another, meaning that a blockchain retail database might never gain enough entities to make it useful.**

CONCLUSION

The major advantages of blockchain are data security and transparency, but this comes at the cost of privacy and speed. Since (1) retailers are reluctant to share their data with competitors, and (2) retail's most important data need is for accurate timely inventory information, blockchain doesn't appear to be the right tool for the job. Blockchain is more of a public armored car whereas what retail really needs is a private Ferrari. For this reason, except for very niche circumstances where the needs of data security or transparency outweigh those of speed and privacy, blockchain won't likely take over retail.

Especially as related to time-sensitive omnichannel strategies such as BOPIS, SFS, and drop shipping, what retail needs is reliable technology for connecting any source of supply data with any source of demand in real time. That's simply not something that blockchain can facilitate.

The good news is that there are plenty of data exchange solutions (Dsco included) that approach Ferrari-like levels of speed and robustness for retail's inventory visibility needs. These solutions use a suite of mature technologies such as serverless cloud computing, bus data architectures, data warehouses, and RESTful API that may not offer as much hype as blockchain, but are pretty great at providing the scale, speed, and security that enterprise retail requires.

To have a discussion with Dsco to further compare blockchain technology with Dsco's architectural strategy, reach out to media@dsco.io.

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