# How Operators can Avoid Blockchain's Pitfalls

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The telecoms industry—perhaps more than any other—is in the midst of a seismic disruption, the likes of which have never been seen before. The rise in OTT service providers has eroded operators' traditional voice and messaging revenues, while an increasingly virtualized ecosystem and the imminent arrival of 5G and the IoT all present operators with as many potential challenges as lucrative opportunities.
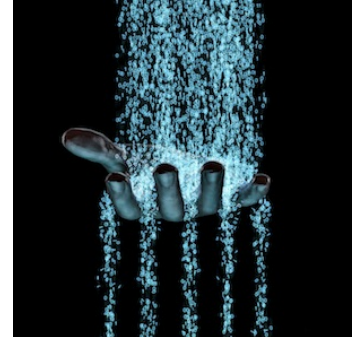
Under these circumstances, it's perhaps unsurprising that a small but growing number of operators are turning to blockchain as a means of digitizing their business processes. According to a recent survey of C-suite telecom executives carried out by IBM, more than a third of CSPs are already considering or are actively engaged with blockchains.

Several business use cases for blockchain have been identified, and a Proof of Concept (PoC) has even demonstrated how blockchain can improve the speed of product development for operators.

Believe the hype

As this year's buzzword, however, blockchain may have become a victim of its own hype. Given the level of interest in the technology, it's important that operators remain mindful of this and ensure that their own blockchain deployments avoid any pitfalls that may present themselves.

Originally designed to support Bitcoin—the cryptocurrency—blockchain is fundamentally a decentralized and distributed ledger technology which uses algorithms and strong encryption to record and store transactions between two users belonging to the same network in a secure, verifiable and permanent way.

Data relating to each transaction is saved inside a cryptographic block, which is linked to its predecessor to form a chain, from which it is possible to trace and verify every individual transaction. This process is how the technology derives its name. Once certified, timestamped and saved within a block, it is then impossible to tamper with or alter a transaction, thus making blockchain one of the most secure ledger technologies available.

The business of blockchain

Secure and incorruptible due to its inherently decentralized failsafe, blockchain provides constant availability of up-to-date, accurate information on all transactional activity.

Because of blockchain's promise, businesses across a range of industries are currently exploring ways in which blockchain can be applied to their own specific use cases and business models. IDC predicts that the worldwide spending on the technology could exceed $2 billion by the end of this year; more than double the $945 billion spent in 2017.

Blockchain in telecoms

In the telecoms industry, operators including Orange, Verizon and Telstra, have already invested in blockchain-related projects, prototypes and frameworks during the last couple of years, while others, such as AT&T and BT, have filed multiple patents relating to the application of blockchain technology in telecoms.

With operators and OEMs including Samsung, Nokia, Huawei and Swisscom joining the global, cross-industry Hyperledger collaboration, it's clear that blockchain is being seen as a serious proposition by some of the sector's biggest players. Indeed, some analysts predict that blockchain deployment in the telecoms sector alone could be worth over $1 billion within the next five years, up from just $46.6 million in 2018.

The uses case for blockchain

A number of operators are currently in the process of identifying the relevant use cases that can be realized by leveraging the technology.

Telecoms fraud, for example, cost the industry more than $29 billion in 2017, a figure that could be significantly reduced through the deployment of blockchain technology. The cryptography capability inherent in blockchain could be used to link a mobile device to the identity of its owner, thereby minimizing the risk of identity fraud, in which false identification is used to illegally obtain products or services.

Another use case concerns identity and data management. Here, blockchain could generate additional revenues for an operator. By providing each user with an eSIM, for example, CSPs could create virtual identities which would be encrypted and stored in a blockchain. These identities could then be used as a means of authentication when making online purchases, entering secure facilities, using a connected car or when verifying personal documents such as driving licenses and passports.

Blockchain for the future

Blockchain's capability for enabling cost-effective international payments between two geographies while incurring minimal transaction charges even provides CSPs with the opportunity to become global payment providers. After the India's demonetization initiative in 2016, for example, a number of the country's operators enabled customer-to-customer money transfers, employing blockchain to handle the transactions—and ultimately making the process cheaper and more secure.

Furthermore, by simplifying functions, improving efficiency, and increasing security, blockchain can be used to support BSS and OSS processes, such as number portability, connectivity provision, and billing and transaction management.

Finally, of course, blockchain offers promise in reducing the friction around the arrival of 5G. With 5G's wholesale rollout on the horizon, operators can use blockchain to overcome issues around real-time processing and network provisioning, speeding up network implementations and

managing user interactions with third-party services.

It's worth noting that none of this is simply hypothetical, with many operators now carrying out PoCs to evaluate the technology and how it could transform their current processes to improve visibility, transparency and trust with their customers and partners.

Proving the concept

Earlier this year, an industry collaboration that included the Digital Supply Chain Institute (DSCI), a not-for-profit research organization, explored a Proof of Concept (PoC) on how blockchains could enhance software product development and improve DevOps. This provides valuable lessons for telecom operators who are considering blockchains.

The implementation of a secure DevOps function in a global organization presents unique challenges in terms of scaling it to manage workflows across large, diverse and geographically dispersed development teams. Meeting these challenges requires seamless collaboration across disparate environments in which both human developers and automated processes are able to work together in a symbiotic relationship. To address this complexity, the team envisioned and developed a technical solution structured as a single blockchain-based system with the aim of facilitating trusted product development, increasing developer efficiency, and delivering increased transparency.

In a six-month series of PoC projects, the blockchain-enabled software development approach was seen to improve cycle times by 34 percent, productivity by 29 percent, and quality by 11 percent. It empirically demonstrated that blockchain technology could improve efficiency and deliver greater transparency not only for telecoms but also across industries who today rely on software.

Shawn Muma, DSCI Blockchain Research Leader, stated: "We were able to clearly demonstrate blockchain's contribution to the improvements achieved," and that blockchain would "have widespread impact beyond supply chains and financial services, across all global industries and markets."

Blockchain challenges

There are several use cases for blockchain in the telecoms industry, and PoC projects such as the one described above clearly demonstrate the technology's ability to improve efficiencies. But it's important to consider that blockchain is still a relatively new technology and one not without its own challenges.

Standards for sharing information are still being formed, for example, so—for the time being— operators will be required to conform with existing data standards in terms of security and privacy. They will need to comply with relevant regulations such as GDPR, HIPAA and PCI-DSS. The use of permissioned blockchain is therefore recommended when sharing information within a partner or vendor ecosystem.

Operators should also strike the right balance between what information goes on a chain and what goes off. While there are clear advantages to keeping a trail of historical data, the volume of that data can quickly become too vast to be unsustainable, requiring new means of archiving to be developed.

Finally, blockchain is often thought of as being anonymous, when it is, in fact, pseudonymous. This isn't necessarily a bad thing, however. If blockchain is to be used to improve identity management, for example, user anonymity should be avoided, and relevant Know Your Customer (KYC) procedures applied.

These and other teething problems aside, blockchain represents a significant opportunity to improve the security, efficiency and cost-effectiveness of the telecoms industry. In the words of IDC, "as technologies like blockchain become more widely adopted, the network becomes the basis for the movement of value, not just information. Consequently, the network must be resilient."

For it to succeed, therefore, organizations need to be prepared for change and to embrace the technology as it enters the mainstream. Dismiss blockchain at your peril.