Blockchain Opportunities for Telecoms Businesses

Posted: 26th September 2017 by [James Savelli-Holt](https://www.cerillion.com/blog?authorname=James%20Savelli-Holt)   
Tags: [Bitcoin](https://www.cerillion.com/Blog?tagname=Bitcoin&groupid=1), [Blockchain](https://www.cerillion.com/Blog?tagname=Blockchain&groupid=1), [Blockchain as a service](https://www.cerillion.com/Blog?tagname=Blockchain+as+a+service&groupid=1), [ChainForce](https://www.cerillion.com/Blog?tagname=ChainForce&groupid=1), [cryptocurrency](https://www.cerillion.com/Blog?tagname=cryptocurrency&groupid=1), [distributed ledger](https://www.cerillion.com/Blog?tagname=distributed+ledger&groupid=1), [Ethereum](https://www.cerillion.com/Blog?tagname=Ethereum&groupid=1), [future of telecoms](https://www.cerillion.com/Blog?tagname=future+of+telecoms&groupid=1), [Smart Contracts](https://www.cerillion.com/Blog?tagname=Smart+Contracts&groupid=1)   
Categories: [Telecoms-BSS](https://www.cerillion.com/blog?categoryid=8), [Digital Transformation](https://www.cerillion.com/blog?categoryid=14)

*Blockchains are breaking away from their traditional bastion of fintech, and moving swiftly into other areas such as telecoms and healthcare. In the third part of our ‘future of telecoms’ blog series, James Savelli-Holt explores potential blockchain opportunities for telecoms businesses*  
  
Blockchain technology has taken the world by storm. It has joined the Internet of Things, Big Data, Artificial Intelligence and Virtual Reality as a technology which will play a key part in our automated future. Blockchain, which gained popularity with cryptocurrencies such as Bitcoin, is now showing signs that it is ready to leap to the next level. The next generation of blockchains will have a huge impact across industries, and telcos will stand to benefit immensely with the evolution of this technology.

**What is Blockchain?**

Blockchain is a decentralised software platform for managing digital assets (such as Bitcoin, Ethereum) and allowing users to transact directly with one another without any third-party intermediary. In its simplest form, Blockchain can be described as a distributed ledger or a decentralised database that records digital transactions. There are [three main types of blockchains](https://blog.darwinlabs.io/types-of-blockchain-public-private-and-permissioned-5b14fbfe38d4):

* Public blockchains – Anyone can read and write the data, open to everyone
* Private blockchains – Controlled by one organisation, limited read permissions
* Consortium blockchains – Controlled by a group of organisations, only participants can grant read/write permissions

**How does blockchain work?**

Once a transaction has occurred, a network of miners (high-performance computers) compete against one other to validate that a *block* of transactions is correct, and once validated they are then included into a chronological *chain* of transactions. It essentially is an immutable record of transactions, preventing anyone making any alterations to the ledger.

**What are the key benefits of blockchain?**

[Deloitte](https://www2.deloitte.com/nl/nl/pages/innovatie/artikelen/blockchain-technology-9-benefits-and-7-challenges.html)has listed a few benefits of the blockchain technology. Key insights include:

* User empowerment – The users are in complete control of all their data.
* Robust quality of data – Data coming from the blockchain is consistent, timely and accurate.
* Solid network infrastructure – Blockchain is a highly available and fault tolerant technology making it perfect for mission-critical systems.
* Process integrity – Trust is the foundation of blockchain technology. Since the transactions are executed according to an established protocol, blockchain users can trust them blindly. It also removes the need for third party intermediaries such as banks and governments.
* Transparency and immutability – Public blockchains are accessible to everyone which ensures transparency. In addition, the transactions are immutable which means that they cannot be modified or deleted.
* Ecosystem simplification – Since all the transactions are added to a single public ledger, it reduces the inconveniences arising out of multiple ledgers.
* Faster transactions – Interbank transactions can take a long time for the clearing and settlement process. Blockchain transactions, on the other hand, can drastically reduce transaction times and be processed round-the-clock.

**Blockchain Opportunities for Telecoms Businesses**

Blockchain will play a critical role in the future growth of telecom systems, offering the potential to enable efficient, secure and cost-effective ecosystems and open up newer revenue opportunities for telecom players. It can also help to streamline BSS/OSS processes and make them more powerful and scalable.  
   
Blockchain will find use cases in:  
   
**Newer revenue models** – [Smart Contracts (contracts written on code) will be used for autonomous M2M transaction scenarios](http://www.analysysmason.com/Research/Content/Comments/nine-blockchain-opportunities-Jun2016-RDMY0/) such as electric cars paying an autonomous charging station for power. Blockchain will also enable micro-payment business models for mobile operators. And businesses will be able to offer ‘[Blockchain as a service’](http://e.huawei.com/us/publications/global/ict_insights/201703141505/core-competency/201703150928) to content providers who can use this infrastructure for access control and payments.  
   
**Cybersecurity and Fraud Management** – The [Wannacry ransomware attack](https://www.cerillion.com/Blog/May-2017/Lessons-for-Telcos-from-the-WannaCry-attack) exposed the vulnerabilities that exist in the existing cyber defence systems. Since immutability is a key characteristic of blockchain technology, it will be difficult to make alterations to existing records without them being rejected entirely by the network. Also, by continuously tracking changes on the network, blockchain will provide a trail of transactions that can detect fraud, and diagnose faults and errors much faster than today.  
   
**Data management** – Telcos can leverage blockchain to provide data management services to users. By providing easy and secure access to data, the technology will pave the way for enhanced data security.  
   
**Identity management and Authentication** – Blockchain-based platforms can easily enable authentication across devices and organisations by using the decentralised blockchain principle with identity verification. [A lot of companies are already doing significant work](https://letstalkpayments.com/22-companies-leveraging-blockchain-for-identity-management-and-authentication/) in this space.  
   
**Accelerated 5G Implementation** – Operators can easily use blockchain to overcome barriers around network provisioning and real-time processing and reduce the friction required for implementing 5G networks. By using [smart contracts for](https://www.ethnews.com/how-will-the-blockchain-reinforce-the-telecommunications-industry)invoking the automatic execution of rules and agreements between different access mechanisms and the real-time supply of network resources (e.g. public Wi-Fi), blockchain technology will help speed up network implementations and the management of users interacting with third-party value added services.  
   
**Smart Cities –**Public blockchains will power the smart cities of the future which will be run on IoT-enabled devices. [Technology giant IBM is already collaborating with the city of Dubai](https://www.ibm.com/blogs/blockchain/2017/04/blockchain-in-dubai-smart-cities-from-concept-to-reality/) to help it run a city-wide blockchain pilot. Telcos will also be able to find newer opportunities by investing in public blockchains.  
   
**Support BSS/OSS processes** – Through standardisation and process simplification, blockchain will support a number of BSS/OSS processes such as number portability, billing and flexi eSIM provisioning. For number portability, the technology can assist by removing third-party clearing houses and allowing number porting events to be routed from one operator’s blockchain to another, with validation by each operator’s network. Blockchains can also be used to counteract roaming fraud. Today, the home network typically cannot detect subscriber fraud until after it has been perpetrated – leaving it without a redress mechanism. This type of fraud can be mitigated by establishing a permissioned blockchain with the relevant home network and visitor network as parties to a smart contract-enabled roaming agreement. Every time a subscriber accesses a visitor network, the contract executes automatically and sends the relevant roaming traffic to the home network, allowing it to calculate and charge the relevant amount in real-time.

**Challenges in blockchain implementation**

Of course, just like any technology in its infancy, some challenges remain in blockchain implementation. For starters, this nascent technology is yet to find widespread application. Right now, a few businesses are running blockchain-based pilot projects. Regulatory concerns will also be a hurdle in blockchain implementation as many governments have still not made a concrete policy surrounding blockchain-based systems such as Bitcoin. And while blockchain aims to make transactions cheap, blockchain implementation on a large-scale level requires a significant initial investment which can be a deterrent for smaller businesses. There is a reason why many experts think that [blockchains are the most expensive database ever invented](http://www.circleid.com/posts/20160502_are_blockchains_the_most_expensive_database_ever_invented/)! In addition, security and privacy concerns also plague the current blockchain solutions.

**The state of blockchain in 2017**

Blockchains have the potential to transform telecoms businesses and generate new revenue streams, and various telcos have already thrown their hat in the ring. Leading US telecommunications company [Verizon filed for a blockchain patent](http://www.businessinsider.in/Verizon-is-making-a-foray-into-the-game-changer-technology-Wall-Street-is-pumped-about/articleshow/53818338.cms) last year, whilst Orange has launched a program called [ChainForce](http://www.chainforce.org/" \l "chainforce)to unlock newer opportunities around this distributed ledger technology. [Sprint has also partnered with Softbank to launch a new blockchain consortium called the Carrier Blockchain Study Group](https://www.softbank.jp/en/corp/group/sbm/news/press/2017/20170908_01/) to build a cross-carrier payment platform system and develop a blockchain ecosystem. Apart from these telcos, tech giants such as Microsoft and IBM, along with a large number of startups, have undertaken a few interesting projects. Undoubtedly, the next breed of blockchain technologies will open up newer use cases and expand the reach of blockchain, so watch this space.