Modern Digital Health: We Need to Talk About Blockchain

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Power to the Patient

It's there, it's everywhere, in multiple shapes and forms. Ethereum, Bitcoin, Dogecoin, Litecoin, Cardano... Ever since bitcoin saw the light of day, we have been immersed in the bitcoin fever: the idea of a safe investment or a volatile currency with variable levels of speculation. However, blockchain is not just bitcoin or cryptocurrencies, both of which are just facets of the technology, but something entirely unique in its own right.

Blockchain, created in 2008, is a decentralised and transparent database, where anonymised records are redistributed among all members, all of whom possess a verified copy of the original information in an immutable ledger.

The functioning of blockchain assigns a more important role to the individual, since every node (user) is certifying and storing each transaction that is (or was) executed in the chain of operations. This chain of blocks is then time-stamped and linked through cryptographic and immutable hashes (codes) and shared with all members.

Blockchain has the potential to transform healthcare by maximising interoperability and reliability, and giving the patient the power to decide how and which information will be shared and (maybe, eventually) sold.

You Would Never Break the Chain

One of the key reasons why blockchain is so compatible with healthcare is because of its patient-centricity, a current paradigm and priority for healthcare.

Blockchains can essentially be public or private, which means that designated users can control the number of people inside of their chain and their accessibility (clearance), as well as the type of data stored or shared. At the same time, blockchains can be used to track and verify transactions and to run scripts (simple commands or self-executing contracts).

In terms of storage, there's another revolution: we might be moving out of the trusted third-party paradigm as doubts and fears continue to rise regarding the security of medical data (see the 500,000-patient data leak from a French healthcare provider on 24 February 2021 as an example).

A New Day

Time will provide more answers. But an example will be the U.S.' Drug Quality and Security Act (DQSA, 2013) and the Drug Supply Chain Security Act that will create an electronic interoperable mechanism to identify and trace prescription drugs that are distributed in the U.S. This act sets 2023 as an enforceable date, which will be the real test for this interoperability. We'll have to see if the current sanitary conditions imply an extension in the execution.

In the coming years, we'll witness the consolidation of companies setting up their activities on the acceleration of healthcare processes with blockchain (Medledger, Embleema, Fitrova, Vitality), while increasing the empowerment of the patient as the key to data, fully controlling them.

Blockchain might also improve another key issue in digital healthcare: interoperability. Limited access to platforms might help develop a higher level of uniform data sharing between trusted participants.

Data and Privacy: Silver and Gold

Actors in the industry are insisting that if we are to accept the use of blockchain, it will only be because we are going to solve problems we had before, and not create new ones.

Blockchain will help patients keep their identity private, and most importantly of all, give them the control over consent but also for the type of data that they will feel like sharing. Patients will be able to directly share data without a third party as intermediary.

This will bring many positive consequences from a business perspective. First, the increase of the quality of the data – thanks to the consensus mechanism – will be updated constantly. Second, there will be the reliability and accuracy of information, because of the computational trust, the tools of encryption and first-hand treatment of data by the users. And finally, leaks and wrongdoings surrounding the data market will be reduced. All of these circumstances will derive in data from patients that will be more valuable.

We are experiencing a massive revolution in the way data is being processed in terms of speed and scope. Blockchain is an invitation to freedom and self-regulation, in the same way the World Wide Web was once seen as the promise of progress and open speech.

Our societies are shifting into a new model of data sharing and regulation of digital privacy and progressively, health data users will become the guardians of their own secrecy and individual data value. Let's hope that the sector and the regulation will follow.

Published on : Fri, 12 Mar 2021