Fighting coronavirus on the blockchain

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Entrepreneurship & Innovation

Key topics

COVID-19

Blockchain technology has the potential to improve the international response to COVID-19 and future healthcare crises

As the world grapples with the outbreak of coronavirus (COVID-19), coordinating resources between governments, drug makers, healthcare workers and patients, as well as dozens of other groups, has become extremely important. Blockchain technology, the system that underpins the world's cryptocurrencies, might be able to improve international collaboration on efforts to help bring the disease under control.

The blockchain is a distributed, secure ledger of information that is stored across a network. In cryptocurrencies it is used to keep track of financial transactions, but it also has many other applications. Insurance companies might use a blockchain to share information between underwriters, brokers and customers to make claims easier. It could also improve communication between a company's suppliers to increase operational efficiencies. In any situation where information needs to be shared efficiently and securely between several parties, a blockchain might be the right tool for the job.

Blockchain and healthcare

COVID-19 has shown that transparent communication is extremely important when responding to an international healthcare crisis. Late last year, when news of the virus first emerged, its severity and scale were obscured by the lack of available information. Countries initially took widely varying array of measures to curb the disease, and many are still struggling to coordinate efforts across borders. This has almost certainly helped accelerate its spread.

A single source of relevant and reliable information would have helped many countries' initial efforts be more effective. This is the kind of task a blockchain is great for. If governments, health agencies, drug manufacturers and other groups were all able to share what they knew in a single place, they might have been able to make better decisions earlier.

analysing patient information on a blockchain using machine learning techniques might reveal broader trends

Further, blockchain could facilitate efficient resource and aid allocation. A blockchain that encompasses the supply and demand of medical supplies in a country, for example, would reveal any critical products that are close to running out. Based on that information, firms capable of producing these supplies could redirect their efforts to where they are needed most. Alternatively, if a foreign government with an excess of supplies had access to this information, they could step in to assist.

However, none of this is possible without a reliable system of accessing and sharing relevant data. With no single entity fully responsible for managing the global response to the COVID-19 outbreak, a blockchain solution provides an opportunity for governments and companies to work together. This might also allow the removal of several intermediaries and a reduction in transaction costs; a particularly important factor for multinational cooperation.

Going forward

Blockchain is also beginning to play a wider role in healthcare. Efforts are currently being made towards storing and sharing patient information on blockchain ledgers to provide more personalised healthcare. An entire team of specialised health professional could use a blockchain to access an accurate record of a patient’s health, assisting in the coordination of complex treatments. On a bigger scale, analysing patient information on a blockchain using machine learning techniques might reveal broader trends that haven’t been seen before. As an example, an analysis of COVID-19 patients with reliable data stored on blockchain might yield some useful information about the evolution of the disease effectively.

While the technology has a lot of potential in providing solutions to coordination at various scales, there are still a lot of questions that need to be answered. Who should have access to the data? How is the data going to be validated? Who will have voting rights over changes to the blockchain ledger? These are complicated problems but working through them could make a significant difference in future healthcare crises.

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About Ying-Ying Hsieh

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With a focus on organisation theory and strategy, Dr Hsieh examines the coordination and governance mechanisms within blockchain-based decentralised autonomous organisations. At a higher level, she investigates how technological innovation enables novel forms of organising.

She has a PhD in General Management from Ivey Business School, and was previously a PhD Research Fellow at the Scotiabank Digital Banking Lab at Ivey.

Read Ying-Ying's Imperial Profile for more information and publications.