



Financing water in the age of blockchain

Why new tech platforms could democratise how cities fund their most vital infrastructure

By Natalia Sabrina Ortiz Luna

To improve their built environment in the face of rising populations, a changing climate, and scarce water, cities are turning to smart technologies. That's when a different challenge arises: the speed in which various fields move.

Technological innovations happen on an almost daily basis, while the built environment evolves over months, years, and even decades. Such a slow and costly timeline inhibits exploration of how emerging technologies, in particular, the *blockchain*, can be used as a tool for sustainability efforts in the design and construction of water systems.

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But some revolutions can't wait. I believe that blockchain technology can be the catalytic key to revolutionise the funding of public

water infrastructure projects, thus allowing sustainable, beautiful, and equitable solutions for water to become a reality.

But first, what is blockchain? In a nutshell, blockchain, is a

Enter blockchain. This distributed ledger holds out the opportunity for the water sector to develop transparent and accessible platforms for real-time, secure transactions, and enable the

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decentralised ledger which can record transactions between two or more parties in a non-corruptible way that can be verified. Blockchain promises the ability to ensure that the electronic peer-to-peer transactions are secured – without the need for a middleman.

It is this potential – combined with the ever-falling price of technology – that creates extensive opportunities for innovation in financial transactions of our economy. Blockchain technology could develop improved forms of democratic crowdfunding for public water infrastructure and consequently change where money for such projects comes from.

Historically, public projects in the US have been financed through a combination of municipal bonds and federal investments. Distribution of these funds involves a convoluted set of stakeholders and political interests, which often compromise the ability for a project to serve the needs of the citizens affected.

active participation of citizens in government decisions and funding. This is hardly a wild, futuristic vision. Some creative finance models are already using blockchain to facilitate the development of public projects, and these could expand to include water infrastructure.

Neighborly, for instance, is a newly developed online bond issuance platform which claims to “modernise public finance” and “democratise access to the 200 year-old municipal bond market by utilizing technology to better connect municipal issuers to investors.” Neighborly works by engaging with cities to propose and open investments through safe, accessible, low-entry municipal bond issuance. The platform makes it easy, cheap, and transparent for anyone to become an investor in vital public projects like schools, libraries and parks.

The platform's transparency has empowered communities to track the progress of their

investments in real-time. It also lowers the minimum investment amount from the traditional US\$5000 to US\$1000, thus opening up participation to a range of ages and demographics. North American cities such as Cambridge, Massachusetts and Burlington, Vermont have recently used Neighborly to place US\$2 billion worth of bonds directly on residents. These benefits could have profound implications by holding municipalities accountable for infrastructure and urban design projects, which serve a large range of citizens and investors.

In short, people can “vote” on the projects that get built through private and public investments. So how can we direct the conversation, design, and technology to citizens in order to frame the investment of water infrastructure for the future?

Technology has always attracted scepticism in its application to daily life. Recall how, in 1985, a

New York Times article deemed the laptop computer a failure because “somehow, the microcomputer

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industry [had] assumed that everyone would love to have a keyboard grafted on as an extension of their fingers. It just is not so.”

Today this statement is laughable as our extended fingers have grown attached to handheld pads, pods, phones and smart watches. Because of its wide range

of function, “data as infrastructure” is one of the strongest weapons in our arsenal today. Websites and applications use data to function as relatable, useful, and customizable platforms that we already trust and need.

So, why do we continue to meet technology with disbelief when interconnectedness and multidisciplinary collaboration is key to producing hydrological models that can encompass economic, political, climatic, and social challenges?

As David Sedlack concluded in his book *Water 4.0*, “The map to our future will be drawn collectively by the thousands of small decisions made in our homes, at the community meetings, and in the voting booth.” ●

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