

# BLOCKCHANGE

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BLOCKCHAIN TECHNOLOGIES FOR SOCIAL CHANGE



## CASE STUDY:

# Registering Births on the Blockchain in Illinois

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## PROJECT DESCRIPTION

### Problem Definition

In 2017, the State of Illinois released a request for information (RFI) on “Distributed Ledger and Blockchain Applications in the Public Sector.” In addition to new approaches for creating compliance and entitlement registers, the RFI expressed interest in exploring the use of blockchain for identity, attestation and ownership registries.

As described in the RFI, identity is foundational for all government services, and government itself is the custodian of citizens’ official identities. But while identity is clearly of central concern to governments, including to the State of Illinois, IDs are often siloed in various agency databases, which, as noted in the RFI, “increases opportunities for fraud, security breaches and errors.”<sup>1</sup> This fragmentation (as well as related challenges concerning ongoing custodianship of residents’ identities from birth to death) creates persistent operational problems for the Illinois government, with potentially negative impacts on government service delivery and the smooth functioning of the state ID system.

One of the most problematic areas is Illinois’ current birth registration system, which represents the earliest possible moment for identity provision. This system is rife with burdensome processes and the potential for future transaction costs. It begins with the creation of a “certificate of live birth,” where attributes of newborn babies are recorded and validated by an official. When needed, additional official copies of this certificate must be requested by completing an Application for Search of Birth Record Files, complete with a copy of a government-issued photo identification and a fee between \$10-\$15 (depending upon the method by which certificates are ordered: mail, fax, online, or in person).<sup>2</sup> The birth certificate must be scanned or carried as an original copy, then presented to achieve other forms of identity or to gain access to various services, such as school registration or a driver’s license. New birth certificates can be created by the state in cases of legitimation (when biological parents marry), acknowledgement of paternity, gender reassignment, or adoption. These processes require an application and fees filed to various register offices.

## Blockchain Use

The Illinois Blockchain Initiative (IBI) was launched on November 16th, 2016 as a collaborative effort among a number of state and county agencies in Illinois to explore and assess the possibilities of applying blockchain technology in governance and public service delivery. The actors involved in IBI include: Illinois' Department of Commerce and Economic Opportunity (DCEO), Department of Financial and Professional Regulation (DFPR), Department of Insurance (DOI), Department of Innovation & Technology (DoIT) and Cook County's Recorder of Deeds.

One of IBI's initial pilot projects, announced on August 31 2017, involved the development of a digital birth registration process powered by blockchain. The pilot was a collaboration between IBI and Evernym, a self-sovereign identity solutions company, which utilized the Sovrin Foundation identity protocol.<sup>3</sup> Importantly, the project

piloted the potential value and feasibility of creating a blockchain-based birth registration system by designing a new live birth certification process and testing it using existing digital birth records instead of new births.

The new process worked as follows. After a child's birth, government agencies verify birth registration information, using existing standards of live birth certification, and then secure the information via a blockchain. Parents then gain legal authority to manage a child's digital ID until they are 18 years old. This identity information can be requested by businesses and government institutions via encrypted access for verification and authentication; an individual can also request their own information to obtain other services or types of identification, such as a driver's licenses or bank account. Access to any personally identifiable information cryptographically sealed on the blockchain would require the identity holder's consent or the consent of their legal guardian.<sup>4</sup>

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## Blockchain Value Proposition

As described by Jennifer O'Rourke, the former Blockchain Business Liaison for IBI, "The end goal of this larger process is to make it easier for individuals to, in the broad use case of digital identity, identify themselves, identify experiences and those attributes that they have gained throughout their lifetimes that allow them to do certain things or be eligible for certain benefits."<sup>5</sup>

While the initial pilot focused on the issue of birth registration, the broader value proposition of the effort involves providing individuals with full authority to control and validate their identity, without reliance on third-party actors like governments or corporations. This level of agency would then enable more efficient and secure interactions with the diverse actors – in the public and private sectors – that require access to identity information for a variety of purposes.

The approach designed and tested during the pilot does not primarily seek to "disrupt" or "disintermediate" the process of registering births, but rather seeks to empower individuals by providing them with a native digital identity from birth. The attributes of newborn babies would still be recorded and validated by an official with the authority to register new births in the state. The difference lies in where identity information is stored and who controls access to that data.

As described by Cab Morris, the Former Strategy Lead for the Illinois Blockchain Initiative, "If you really distill down identity to a group of attributes or things about either a person, an asset, or an organization, you can start to rethink the way in which we actually manage things about ourselves."<sup>6</sup>

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## PROJECT ANALYSIS

### Risks and Challenges

Perhaps the central challenge for the pilot involved the challenges of introducing an emergent and complex technological innovation into an entrenched and equally complex institutional process. These challenges led to multiple amendments to the project after its initial conception. For example, initial communications intimated that the project would create and test a process for adding new births to a blockchain. Eventually, the project shifted to using existing birth records rather than generating new ones. The change signals an encouraging level of flexibility on the part of the project implementers, but also demonstrates the need for a rigorous and collaborative upfront design process when seeking to implement new blockchain innovations in the public sector.

Relatedly, while the pilot was not rolled out with an eye toward immediate scaling, if and when blockchain solutions are targeted for broader use for the birth registration process in Illinois (or elsewhere), questions regarding integration with legacy systems will become even more central. The current birth registration process is highly complex and has been in place for a long time. While it's clear that the process could work more efficiently and provide greater identity control to individuals, blockchain-enabled solutions will need to be integrated in a way that complements and upgrades existing practice without creating a counterproductive level of disruption.

As O'Rourke puts it, when "Silicon Valley-style" disruption is the goal, "you run an extraordinary risk that, if unsuccessful, the result could be incredibly detrimental, and potentially affect people's livelihoods. That is just a risk that is unacceptable in government."<sup>7</sup>

### Next Steps and Opportunities for Scaling

While the initial project – which was part of a suite of pilot projects simultaneously launched by the IBI – placed its focus on the question of birth registration, the longer-term goal was to set the stage for using blockchain to centralize identity management while decentralizing control of identity data to individual users. O'Rourke and Morris, the driving forces behind the birth registration pilot, have since moved on, and it is unclear if there are any immediate plans for scaling the effort in Illinois. The initial pilot provided a proof of concept and a set of lessons on which future efforts could be built.

## ENDNOTES

- 1** Craig Holloway. “State of Illinois: Request for Information (RFI).” Department of Innovation and Technology, 2017. <https://www2.illinois.gov/sites/doi/Documents/BlockchainInitiative/RFI+Blockchain+and+Distributed+Ledger+Applications+in+the+Public+Sector.pdf>
- 2** Illinois Department of Public Health. “Obtain a Birth Certificate.” Illinois Department of Public Health. <http://www.idph.state.il.us/vitalrecords/births/Pages/order.htm#provide>
- 3** Sovrin “Sovrin: A Protocol and Token for Self-Sovereign Identity and Decentralized Trust,” January 16, 2018, <https://sovrin.org/library/sovrin-protocol-and-token-white-paper/>
- 4** “State of Illinois Partners with Evernym to Launch Birth Registration Pilot,” Illinois.gov, August 31, 2017, <https://www2.illinois.gov/news/release?ReleaseID=14759>
- 5** GovLab interview with Jennifer O’Rourke, former Blockchain Business Liaison for Illinois Blockchain Initiative, May 8, 2018.
- 6** GovLab interview with Cab Morris, former Strategy Lead for Illinois Blockchain Initiative, May 8, 2018.
- 7** GovLab interview with Jennifer O’Rourke, former Blockchain Business Liaison for Illinois Blockchain Initiative, May 8, 2018.

## REFERENCES

- Holloway, Craig. “State of Illinois: Request for Information (RFI).” Department of Innovation and Technology, 2017. <https://www2.illinois.gov/sites/doit/Documents/BlockchainInitiative/RFI+Blockchain+and+Distributed+Ledger+Applications+in+the+Public+Sector.pdf>
- Illinois Department of Public Health. “Obtain a Birth Certificate.” Illinois Department of Public Health. <http://www.idph.state.il.us/vitalrecords/births/Pages/order.htm#provide>
- Morris, Cab, former Strategy Lead for Illinois Blockchain Initiative. Interviewed by the GovLab, May 8, 2018.
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- Sovrin “Sovrin: A Protocol and Token for Self-Sovereign Identity and Decentralized Trust,” January 16, 2018, <https://sovrin.org/library/sovrin-protocol-and-token-white-paper/>.
- “State of Illinois Partners with Evernym to Launch Birth Registration Pilot,” Illinois.gov, August 31, 2017, <https://www2.illinois.gov/news/release?ReleaseID=14759>.



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