



# Blockchain Citizen Services

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# Table of Contents

|   |   |
|---|---|
| Introduction                                    | 2 |
| Industry Challenges                             | 2 |
| Will it Make a Difference to Ordinary Citizens? | 3 |
| Getting Ready for Blockchain                    | 3 |
| What Constitutes a Blockchain                   | 4 |
| Blockchain for Citizen Services                 | 4 |
| Blockchain Benefits                             | 5 |
| Delivery and Execution                          | 6 |
| Summary   | 6 |



## Introduction

Despite of having fast-paced growth led by technological revolutions, around 1.1 billion people across the globe still lack personal identity proofs. The possession of identity proofs bestows the bearer the status of active citizenship while the absence of it deprives the citizen of his/her rights and incentives in their own country. The saddest part is that the most vulnerable sections of society lack these ID proofs – they are the ones in dire need of it, so to take advantage of healthcare and financial benefits which are declared for them by their governments.

Blockchain has the potential to improve government operations and revolutionize the way services are delivered to their citizens, while providing the comfort and trust that plagues government machineries today. While some countries with better citizen services can leverage Blockchain to improve upon the existing service structures, for a lot of emerging economies adoption of this technology will leap frog their citizen services, thus empowering transparency and on-time services to citizens and enabling government policies to get implemented faster with accountability all through the way.

But what exactly is Blockchain? Going by the book, it's a single global but shared ledger of write-only transactions, updated by decentralized actors achieving consensus on the validity of the content from the entries. Blockchain is not regulated by central authorities, thus removing the possibilities of bottlenecks while rendering services.



## Citizen Services - Industry Challenge

- Low utility of registration certificates, use of supplementary documents instead of birth certificates, a general sense of apathy and lack of awareness among citizens inhibit the spread of birth and death registration, thus resulting in their incomplete coverage.
- A combination of inaccurate and incomplete information creates discrepancies in deduced macro-level indicators such as infant mortality rates and demographic ratios. These indicators usually form the data points for relevant policy development and decision making. Their misrepresentation impacts the allocation of resources for future initiatives, policy development and decision making.
- Problems related to authenticity of ID proofs lead to a variety of issues such as problems with resource allocation through public distribution initiatives and misrepresentation of vital information for transactional purposes.
- Even within a country, different methods are used for registration and recording of citizen records. Some tech savvy state government might use digital platforms while some might still use manual ways to store citizen data. Due to different methods of registration, data collection and verification vary greatly.
- With involvement of multiple stakeholders, data security becomes a major issue and authenticity of data needs to be validated.

These challenges become a major roadblock on the path of providing basic healthcare, financial and education services to the vulnerable sections of society. Government policies and bills are framed depending upon analysis of data from varied sources (both manual and technology based). These might not be so accurate (due to lack of reliable and secured sources) and problem gets aggravated further. In addition to this, citizen also expects the same ease, innovation and efficiency from public services that they currently enjoy in private sector. Governments around the world need a new approach to address these issues which induce inefficiency into the system and most importantly affects day to day life of their citizen.



## Will it Make a Difference to Ordinary Citizens?

It's a dream for every citizen to get better delivery of government services. The key aspect of technology is to provide everyone on the block with details of all the events in their life since birth. Imagine a technology that is made as a notary service, where every transaction gets timestamped and all the rightful owners get to maintain a copy for their own data, validating the time and action, while it's taking place. Some examples of it could be a birth of a person, bestowal of academic degrees, employment history or any other event where timestamp is critical for the proof of action.

While for obtaining every service in today's world, you may have to carry all the necessary paperwork each time or on some instance the same set of documents for multiple services. Validation of the documents and interpretation of various government agencies on proof that you submit can make the process painful for the citizens and it's an error-prone way to get services delivered in this digital era.

Imagine a technology platform that integrates all government departments, services across locations to be connected real-time. Custodians of the information will administer the data, while other stakeholders will have access to add more data or view them as and when required. Technology makes it possible for all stakeholders to retrieve the latest information irrespective of who made the change.

## Getting Ready for Blockchain

There is a lot of curiosity among government agencies to leverage Blockchain for betterment of citizen services. The key is to lay a proper foundation, with right policies to push decision makers for jumping on to this wagon and reap the benefits. It's essential to get the right people at all levels in the state and federal machinery to be engaged, excited and educated about the technology to develop smart standards and regulations. A welcoming environment through incentives, grants and other perks attracts better engagement. Once the stakeholders understand the benefits it can bring, enabled by a robust technology infrastructure in providing next generation citizen services, its adoption will become smoother.

This will be a long journey, you should have the right partners in place to help you sail through this, while your investments may vary based on the maturity level of system agencies have in place, which will be an uphill talk for many emerging countries. Based on your needs and affordability, you can either look at a public or a private Blockchain network. For a public enterprise, where the goal is to build a decentralized, interoperable, independent, secure and transparent environment they should look at leveraging public Blockchain.



## What Constitutes a Blockchain

Blockchain consists of a set of secured information blocks chained sequentially to one another. Together, they form an immutable ledger, distributed over participating nodes. These nodes are computing platforms that interact with end users. Ledger is used for sharing information consisting transactional records (which can be exchange of material, currencies, assets, securities, identities, or any other record) and has time stamps for every transaction. This information is added into blocks, which are linked and secured using cryptography.

Agencies can also use 'smart contracts' on top of Blockchain to cut the services of an intermediary. Smart contract is a computer code running on top of a Blockchain containing a set of rules under which the parties to that smart contract agree to interact with each other. If and when the pre-defined rules are met, the agreement is automatically enforced. The smart contract code facilitates, verifies, and enforces the negotiation or performance of an agreement or transaction.



## Blockchain for Citizen Services

Constant advancement in technology coupled with low cost for transaction processing provides us with a great scope to revolutionize citizen services. Today, lot more countries are considering building citizen services using Blockchain platform. Some of the relevant areas for adoption of Blockchain would be issuing of certificates (birth to death), financial benefits to citizens and of course financial transactions. Ownership of any transferable assets can be managed using Blockchain, typical example being asset of land, house and transport. Respective government agencies store this information in siloed system or paper-based files across offices or districts.

While some of them may have a computerized process, it often requires multi-step offline process. With help of Blockchain, the transfer of ownership can be recorded through distributed systems of respective departments. Other related transactions like mortgaging of assets for loans can also be tracked. Interested organization can receive real-time information and the most recent status of the transaction. Its network of nodes can also act as a reference point to verify the title of the ownership. The information is recorded in Blockchain as the event occurs, thus preventing errors and fraudulent data entries. It acts as a source of truth for all connected stakeholders. This helps in data verification process using distributed but audited data stored in secured Blockchain network.

Blockchain and digital identities can help government organizations and NGOs in efficient delivery of benefits to citizens. Since all transaction are retained, elimination of non-repudiation benefits is possible. All benefits distribution from various departments like food distribution, scholarship, farming subsidiary can be monitored and tracked, eliminating any leaks to the intended beneficiary. As the technology of the future, Blockchain may help in implementing a cost-effective electronic platform to process payments and keep records of full transactions, similar to an enterprise-wide procure-to-pay process.

## Blockchain Benefits

A key feature of Blockchain solutions is transparency through decentralization, allowing participating parties to see and verify data. A Blockchain solution for some citizen services could allow independent verification of governmental claims.

- Reducing transaction friction among providers and consumer
- Increasing trust, goodwill and ultimately providing savings
- Network resilient to cybercrime and fraud
- History of truth, impossible to corrupt
- Tamper proof, complete and replicated system of record

Breaches of personal data have become a fact of life in today's digital world. As the default record keeper for society, governments are soft targets for hackers. But rather than accepting such attacks at the cost of doing business in the information era, they could be mitigated or avoided through responsible deployment of Blockchain data structures. Such data structures harden network security by reducing single-point-of-failure risk and can make attempting a breach prohibitively challenging.

Government agencies have to accomplish their mission of providing better citizen services while responsibly managing scarce resources. For government leaders walking this budget tightrope, Blockchain may be a much-needed lifeline. Government authorities consume lot of budget in carrying out auditing of different governmental services manually. The auditing processes can be streamlined by using Block chain-based accounting system that can provide a permanent audit trail and is immutable in nature.



## Delivery and Execution

As with every disruptive idea, technology is making it easy to realize. We propose a simple framework of 1-2-3 to deliver and execute this work. It is a series of steps to build on top of each other to accomplish the end goal of a Blockchain platform for citizen services

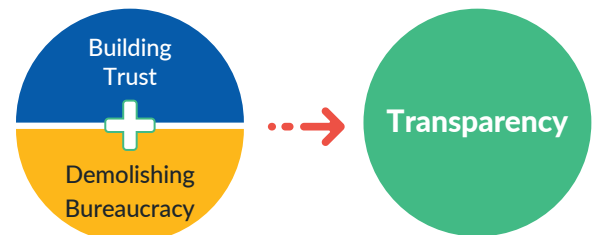


## Summary

Most of the industry has started to explore the possibilities of Blockchain, but governments still lag behind. Blockchain technology show a tremendous potential for governments to deliver citizen services more effectively, increasing trust and goodwill, resulting in ultimate savings. Even though Blockchain promises huge benefits, there are some risk we should be aware, before taking this journey.

- It's still an emerging technology and is quite complex to implement.
- Knowledge of tools, hardware and software is limited.
- Increased risk of adoption of new unproven technology.

However, a pragmatic approach towards new technology will result in reaping greater benefits of what technology can deliver to the citizens of a country.



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