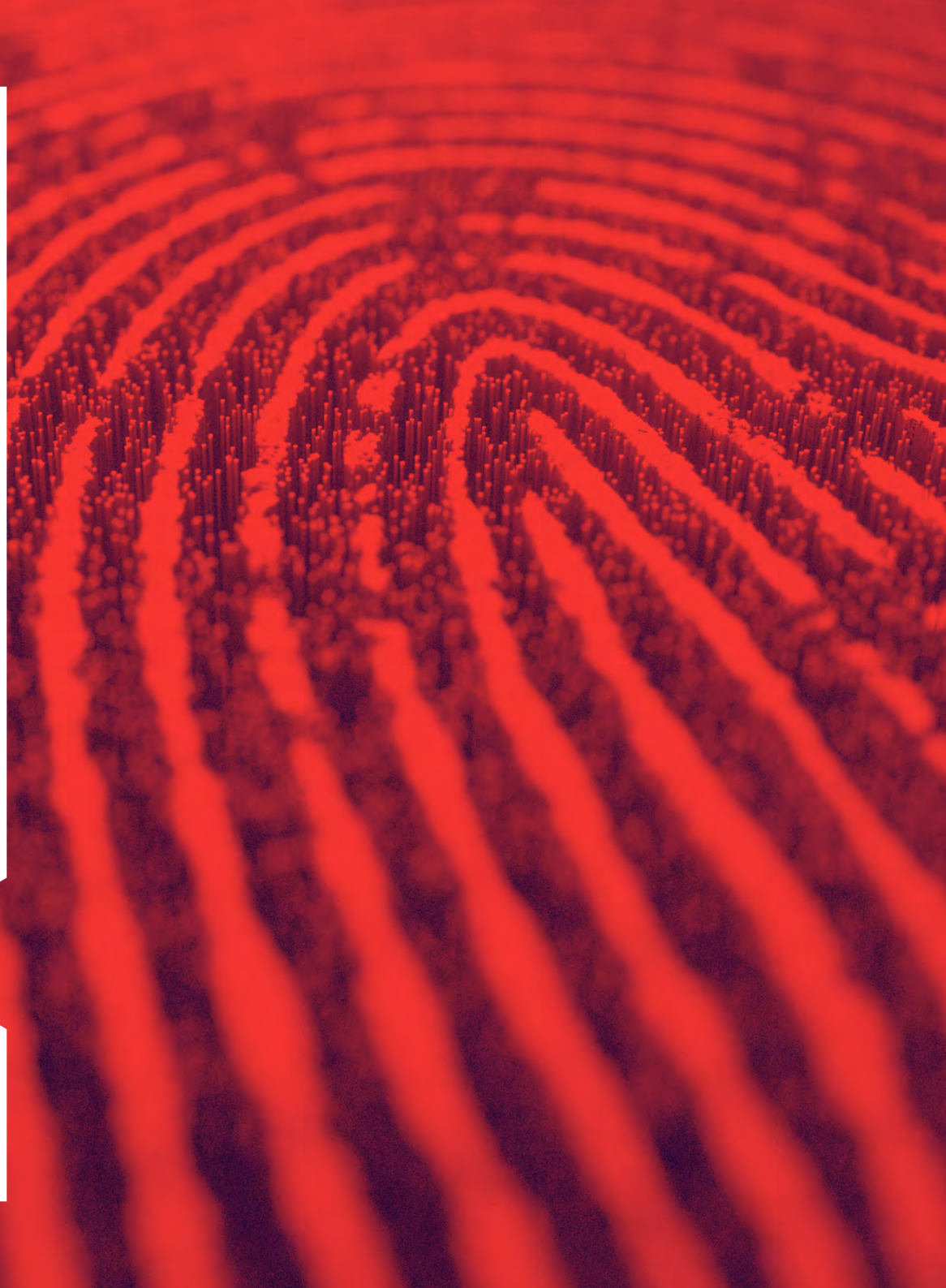
IO.ATALA PRISM

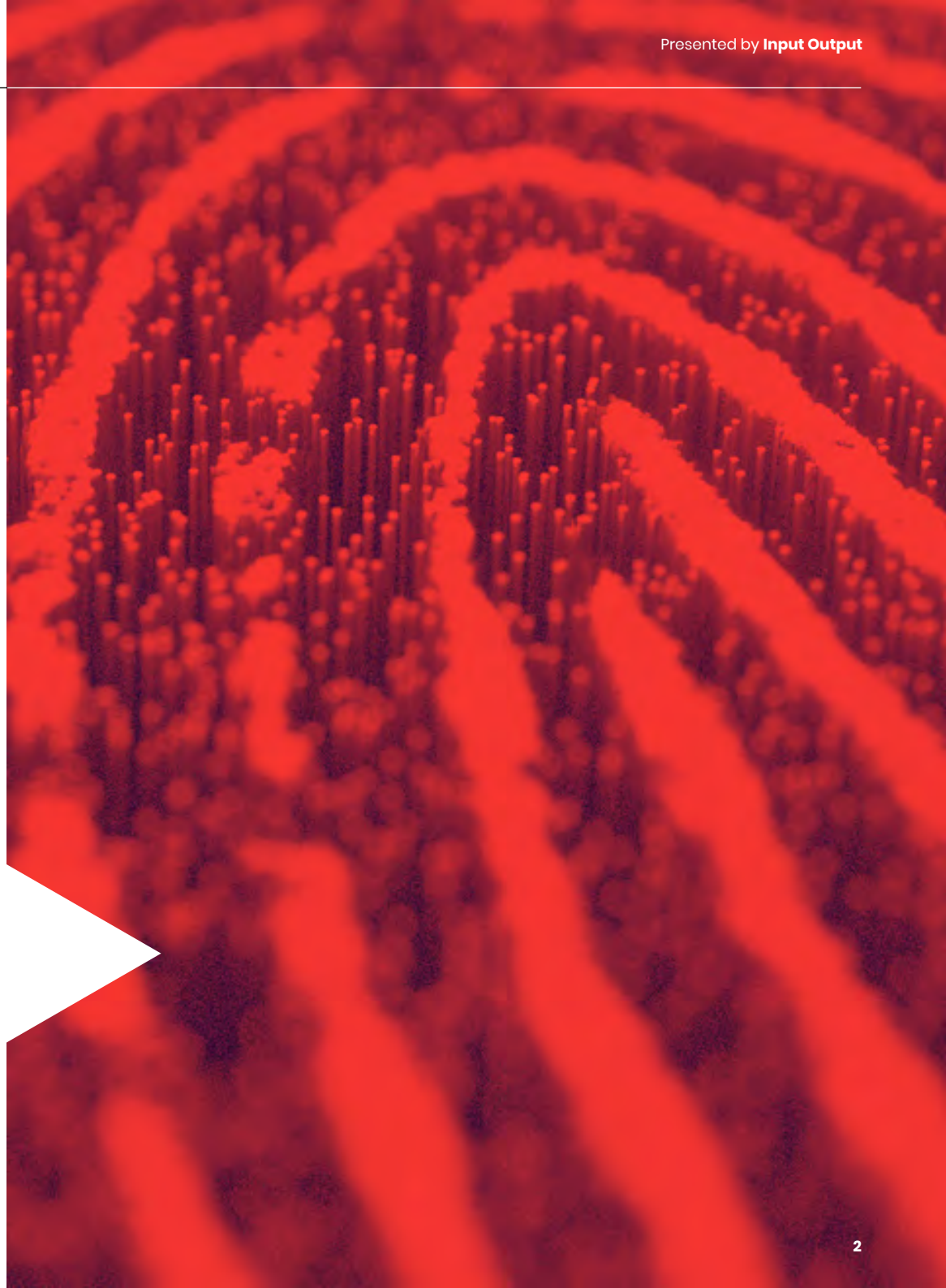
What is decentralized identity?



Presented by

INPUT | OUTPUT

Contents



What problem is decentralized identity solving?

Consumer

Our identity is at the core of everything we do, and it's increasingly becoming more digitalized.

Our lives are now more connected than ever, and digital services are exploding globally.

But around 1.1 billion people around the world lack proof of identity, leading to social and financial exclusion. The consequences of not having 'provable' identity are severe. People might not be able to access higher education, open a bank account, or get a driver's licence, for example.

Enterprise

Businesses often collect and store sensitive customer information to better understand target segments and improve products accordingly.

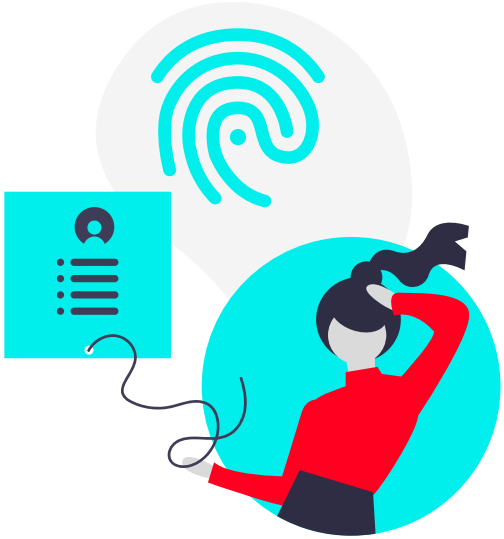
Companies are forced to invest heavily in data protection, and compliance with existing data privacy regulations such as GDPR.

Customer's trust is eroded. Businesses sometimes have to compromise the user experience to provide sufficient security guarantees, which in turn hampers onboarding new customers.

Government

Traditionally, identity information is stored in centralized databases (government, federal agencies, civil registries, etc.) Multiple government agencies might hold multiple databases with information pertaining to the same citizen, with siloed repositories between ministries compounding the problem of authentication, as citizens have to be verified again and again within the same government environment.

All these centralized databases are inherently vulnerable to large-scale attacks. Data breaches can inflict considerable damage, not only in financial terms, but also in terms of reputation and future trust.



What is the opportunity that decentralized identity presents?

A blockchain-based identity management system can address current identity-related issues, such as the lack of proof of identity, data security concerns, and fraudulent ('fake') identities.

> **"Decentralized identity has the potential to bring significant economic value to emerging economies by uplifting their Gross Domestic Product (GDP) by 13% in 2030."**
>
> *McKinsey Study*

A decentralized identity model is a win-win for individuals, businesses, developers, and governments.

Individuals retain ownership and control of their personal information, decide how it is used and shared, and also control the data's safety (which can be managed by the individual, or outsourced to a trusted custodian.)

Businesses incur less risks by only storing data with users, and keeping only what is legally required. Business growth occurs through streamlining of the onboarding and checkout processes.

Developers can design user-centric apps with built-in privacy by design.

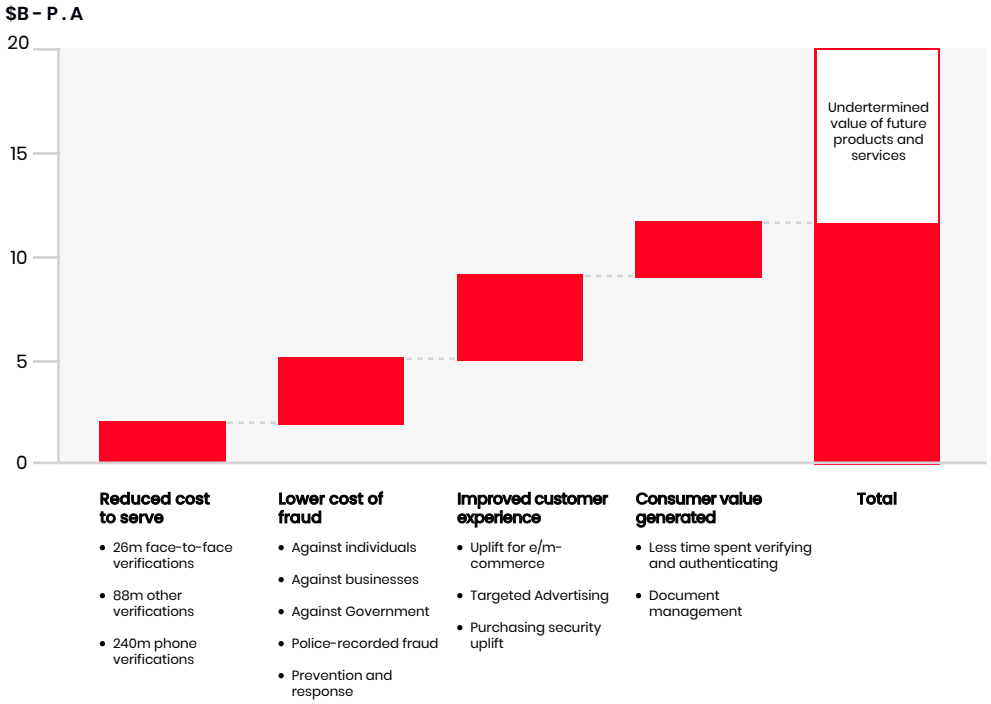
Governments can leverage mobile networks and distributed ledger technology (DLT) to provide secure digital identities and build smart cities, whilst protecting citizens' personally identifiable information and delivering citizen-centric services.

According to a **McKinsey study**, decentralized identity has the potential to bring significant economic value to emerging economies by uplifting their Gross Domestic Product (GDP) by 13% in 2030. Another **study** by Boston Consulting Group (BCG) calculates that the economic value of digital identity for the Australian economy would be approximately $11 billion per annum. They point out four key areas where this value would come from: reduced cost to serve, lower cost of fraud, improved customer experience, citizen value generated.

A decentralized identity solution would empower users to access financial services, record financial transactions, and build a credit history. This is key to enabling people to enter financial markets and access loans.

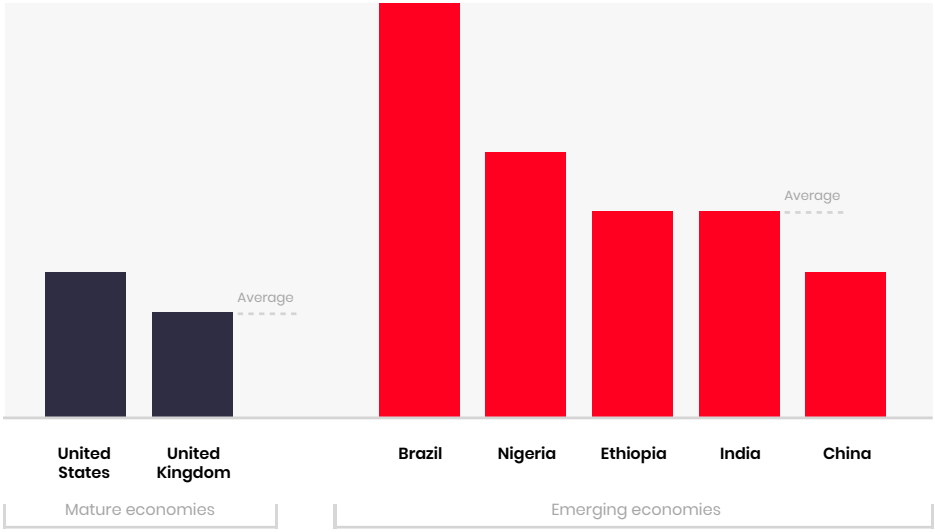
Financial inclusion is only possible through the reduction of business risks, which would unlock endless opportunities.

The economic value of identity is approx. $11b per annum



A Frictionless Future for Identity Management:
A practical solution for Australia's digital identity challenge. Australia Post. ***More >***

Emerging economies



65% of potential value could accrue to individuals in emerging economies in our focus group, making it a powerful tool for inclusive growth.

Digital Identification:
A key to inclusive growth. McKinsey Global Institute. ***More >***

Saved
74m
pieces of paper

Saved
AED 335m
In cost cutting

Involved
15 of Dubai's
Government entities

Provides
88 digital
Resident & visitor services

Across
10 city
Sectors

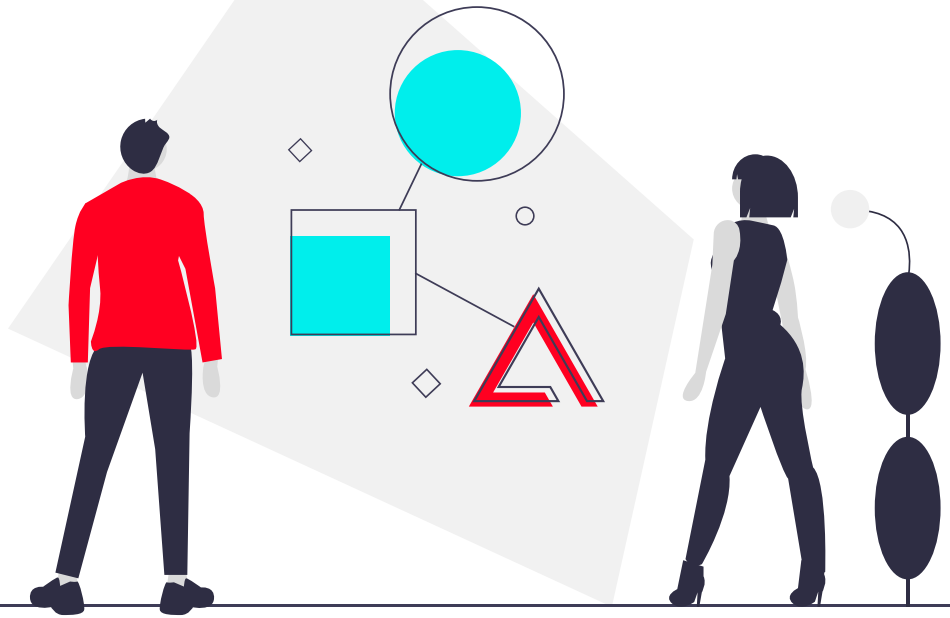
Saving
28 work hours
Per person

How does it work?

Decentralized identity solves challenges for consumers, businesses, and governments by enabling the sharing of digital credentials over a secure and private digital connection, using a digital wallet.

Self-sovereign identity (SSI) is a specific approach within the digital identity concept that empowers the individual to hold their credentials and issue specific consent to share them.

SSI is built around two emerging standards: Decentralized Identifiers (DIDs) and Verifiable Credentials (VCs). DIDs use cryptographic methods to securely associate a subject (an individual, organization, thing, etc.) with the set of documents required to prove their identity, and allow trusted interactions with the subject.



What are some use cases of decentralized identity?

Education

To register for a university course, a student must present proof of identity such as a government-issued ID card. Upon graduating, the student receives a set of digital education credentials that can be easily shared with potential employers.

E-government

When applying for aid grants, farmers could provide government-issued land title credentials to verify farms' ownership.

Finance

Applying for a bank loan requires a KYC process. Verifiable credentials such as a government-issued identity and a proof of employment can be submitted and easily verified.

Telecom

Telecom operators can use verified identities to reduce fraud by ensuring that contracts are issued to individuals with digitally-signed credentials.

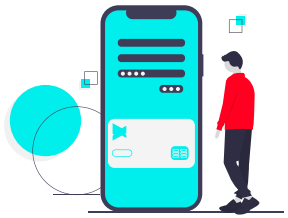
Healthcare

When healthcare providers share medical records, a verified, government-issued identity guarantees that records are associated with the correct patient.

Insurance

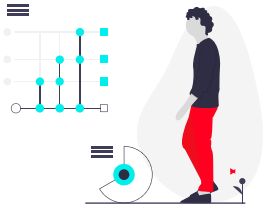
People applying for insurance policies must abide by KYC processes and provide a government-issued identity and proof of address.

What are the actual benefits of decentralized identity?



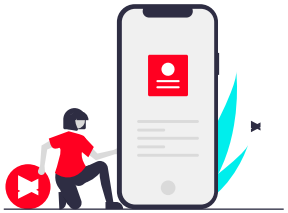
Enhanced User Experience

DID-based authentication enables passwordless authorization and quicker and more secure access to services, while providing cross-platform business automation workflows and full audit trail for accountability.



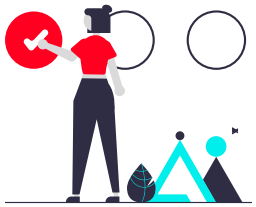
Cost Reduction and Growth

Decentralized identity reduces fraud, lowers costs, enables a superior customer experience, and opens up new revenue streams for businesses by issuing customers with valuable verifiable credentials that third parties would pay for with consent from the data owner.



Richer Relationship Management

Decentralized identity fosters better and enduring bi-directional relationship management by enabling mutual and unique digital authentication with no need for additional external connectivity channels. Once authenticated, no further consent is required. Connected parties can provide reputational feedback based on their interactions, which supports the creation of reputation independent of any specific entity.



Regulatory Compliance

Decentralized Identity can be part of cybersecurity infrastructures that help businesses and organizations comply with existing regulations, including GDPR and HIPAA. The creation of secure, private, and trusted peer-to-peer communication channels prevents hacks and ensures the validity and integrity of every interaction.

Decentralized identity solves the digital trust problem and provides many benefits over traditional identity models.

Why is the Atala PRISM digital identity solution the best out there?

> **“Our plan with this blockchain technology is to provide a digital ID for close to 5 million students.”**

***Minister of Education for Ethiopia**, H.E Getahun Mekuria (Dr.-Ing), April 2021.*

Watch the interview with Minister Mekuria on our **CARDANO AFRICA 2021** special.

Watch now

Designed for scalability: can scale to millions of individuals, organizations, or things.

Customizable: the underlying protocol can be optimized for different use cases.

Cost-efficient with predictable payment plan: based on a batching scheme to keep cost-per-user low.

Designed for high security: built-in resilience against high-risk data breaches, and prevention of data unavailability problems often encountered with competitor solutions.

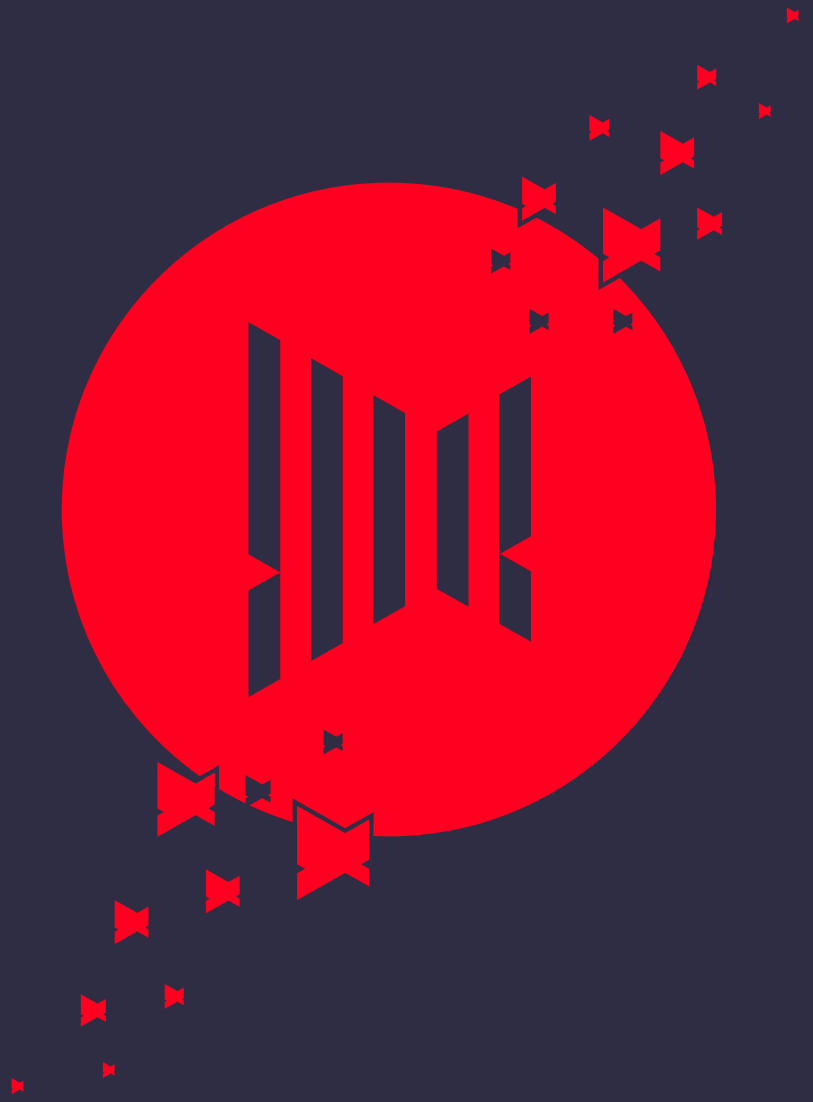
What are some real world deployments Atala PRISM is working on? Input Output is working with the Government of Ethiopia to issue the first government-endorsed digital identity solution based on Atala PRISM with the ultimate goal of enabling financial inclusion. We have also partnered with World Mobile Chain (WMC) to enable open finance in Tanzania first and then across Africa.

Contact us

We work with your team to:

- Help you understand decentralized identity and the bold opportunity it presents.
- Develop a Proof of Concept, built by a team of leading engineers who have designed some of The most advanced DLT protocols available.
- Deploy, manage, and scale your operations.

To learn more about **Atala PRISM** and how it can transform your organization, reach out to us directly at business.development@iohk.io



Founded in 2015, Input Output is an engineering company that builds blockchain solutions for government entities, corporations, and academic institutions. Underpinned by peer-reviewed science, we are building the first blockchain-based operating system that will enable global scale financial transactions and all forms of social exchange. We aim to put billions of new people and assets on the economic map, give 3 billion unbanked people an economic identity, track global goods from source to sale, and de-risk investment in emerging markets. Our ultimate goal is to expand social and financial services worldwide by digitally verifying people and assets that are off the banking grid, consequently doubling the consumer market.

IO.ATALA PRISM