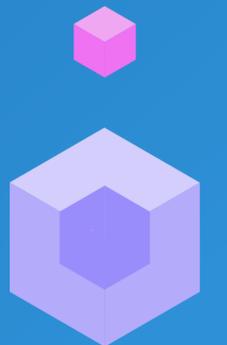# Cronica

Securely Issue and Verify Documents Online
On the Blockchain

The Problem

Our world is fueled by data. The efficiency of banks, organizations, and institutions depends upon their ability to verify and authenticate documents, such as bank statements, securely, remotely, at speed.

Manual authentication is slow. Any organization depending upon the secure and timely verification of critical documents – such as VISA applications, bank statements, loan or mortgage applications, etc. – faces ever-increasing demand on a limited resource: available personnel. Security cannot be compromised.

Wherever there is physical authentication, there is fraud. Whenever we include human intermediaries, we create risk: each year, banks spend billions fighting document fraud and the leaking of personal customer information. As long as the authentication process can be interfered with and personal data exposed, fraud will continue to be a problem.

To eliminate fraud, a new system is required. We cannot continue to maneuver within the confines of the existing system, which struggles to reconcile convenience with reliability, and efficiency with security.

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Introducing Cronica

Cronica is a secure, but transparent, document authentication platform that increases efficiency, reduces cost, and streamlines the authentication process. Cronica securely digitizes document generation, authentication, and retrieval; the need of manual input is minimized and there is no requirement of physical authentication. It replaces an imperfect system – of physical authentication, susceptible to fraud and misuse – with a secure and accessible platform.

Cronica scales to need and, once integrated with, can serve as a complete or partial blockchain-based solution for the issuance and authentication of all critical documents.

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Cronica strengthens the relationship between banks, organizations, and their customers by making document authentication more efficient, convenient, and secure. It ensures that neither data protection is comprised for speed, nor speed compromised for data protection.

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Cronica creates trust between each actor in the document authentication process, and gives anyone that receives a document from a bank, or any institution, a quick and easy way to verify the authenticity of its content.

For banks, organizations, and institutions, Cronica is the answer to two critical questions:

- How to verify customer's data in real-time while maintaining privacy
- How to prevent the generation and circulation of fraudulent documents

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With Cronica, securely issue and verify:

- ◇ Digital credentials and identity documents
- ◇ Passports
- ◇ Applications
- ◇ Mortgages
- ◇ SLA documents
- ◇ Educational certifications
- ◇ Health records

In real-time, from any location, and without exposing the customer's personal data

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Fraud Prevention

Cronica makes document fraud virtually impossible.
It achieves this in two ways:

1   **By eliminating the physical component of authentication.** Document generation and authentication occurs on the blockchain. Cronica is the first digital authentication solution that offers the security of traditional physical authentication. Documents are protected, enclosed in a virtual vault, but may have their contents verified by anybody with the document's digital identifier (e.g., QR code). Human error and misuse is eliminated.

2   **By safeguarding personal data.** Cronica only stores the data necessary to generate and authenticate critical documents; no personal data data is stored on the blockchain. While documents are retrievable by anyone with the requisite digital identifier, for purposes of verification, sensitive data is only revealed to those with the associated document's PDF template (which is stored locally).

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How Cronica Works

Step 2

Cronica prepares the document for authentication. Document data and document representation is split, and digital signifiers are generated

Step 3

Document data is placed onto the Cronica blockchain, retrievable at any time by those with the document's unique digital signifiers (an ID or QR code)

Step 1

An issuer issues a document by securely uploading it to the Cronica platform

Step 4

A verifier uses a document's digital signifier to retrieve the encrypted document data and verify its authenticity. The document may then be reformed by combining the document data with the document's template

Key Characteristics

◇ Securely issue and verify programmable documents (bank statements, etc.)

◇ Documents are digitally signed and timestamped

◇ Documents are 'living': each document has a status which can be revoked if, for example, a customer closes their account.

◇ Permission-based access

◇ Personal data is protected

◇ Documents can be searched by their attributes, such as Document ID, Document Holder, Document Name, or Issue Date

◇ Printable or savable digital identifiers (e.g., QR code, "trusted URL") for each document

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Key Benefits

◇ Securely issue critical documents online

◇ Reduces administrative burden and the possibility of bottleneck

◇ Store documents publicly and transparently without disclosing personal data. A document's existence can be verified without revealing the document

◇ Documents cannot be lost or mishandled. The blockchain is permanent and immutable

◇ Minimize possibility of human error

◇ Prevents fraud and the intercepting of personal data

◇ Securely verify critical documents online

◇ Reduces administration costs and the possibility of bottleneck

◇ Cronica is the only solution that provides secure document verification without manual intervention

◇ Eliminates fraud and the possibility of human error

◇ Improves cross-institution cooperation

◇ Real-time verification: seconds instead of days

◇ Self-service. Verifiers do not have to wait for a reply from issuers to verify documents

◇ Cronica

Value for Banks

Cronica is an immediately integrable document authentication solution that enables banks to reduce costs, increase efficiency, and improve the customer experience.

It achieves this by removing delays and eliminating the friction caused by physical authentication - stamps, signing, sending document by mail, etc. - and manual intervention.

Until now, digital authentication provided speed, but not security. Meanwhile, physical authentication provided security, but relied on human intermediaries, leading to an exposure to bad actors and bottlenecks

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Value for Corporates

The issuing and verification of contracts - service, employee, supplier - is part and parcel of mostly ever corporation's day-to-day operation.

The value of Cronica, then, is explicit and apparent: it is a ready-to-deploy authentication solution that enables corporations to immediately improve their authentication processes, for greater efficiency, security, and a significant reduction in delays.

Cronica provides immutability to contractual agreements - timestamping them at the point of issuance - without exposing sensitive information. Documents are retrievable only by those with the requisite digital signifier, and may be reassembled only by those with the locally-stored document template.

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Value for Customer

Real-time authentication. Cronica enables banks and their customers to issue and verify critical document in real-time.

With a Cronica-integrated bank, customers are no longer vulnerable to timely and costly delays and are not required to visit a bank's branch to have a document physically authenticated (stamped, signed, etc.)

Cronica eliminates the risk of bad actors and middlemen acquiring customer data. Using Cronica, critical documents do not need to be sent; verification does not depend upon manual intervention. Customers' personal data is safeguarded, for greater security, convenience, and peace-of-mind.

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Cronica Creates Trust

Cronica enables distributed entities otherwise unknown to each other to issue and verify critical documents - while assured of the security and protection of each document's data.

In addition to bolstering the relationships between banks and their customers, Cronica creates trust in parts of the world in which personal banking histories - such as in the developing world - are scarce. It restores trust between banks and the unbanked.

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A Fundamental Shift

Most authentication solutions provide band aids to systemic problems. Cronica fundamentally changes how we authenticate and verify critical documents, such as bank statements, with a secure and scalable solution that can be integrated into existing systems.

This is document authentication for a distributed, digital world.
Convenient. Scalable. Reliable. Secure.

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Security and Compliance

Integral to Cronica's design is a system for immutably securing document data. Cronica separates document data from its human-readable representation and stores it in machine-readable form on the blockchain. No sensitive customer information is ever exposed in transmit.

Our systems are regularly audited by an independent system security auditor. We also maintain an up-to-date threat model, to pre-emptively protect against new and existing attack vectors. Cronica's implementation of the Quorum blockchain is developed by specialized blockchain security engineers to eliminate potential vulnerabilities, and is continuously updated.

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Certifications

- ISO27001

- GDPR

- NIST SP 800-53

- COBIT 2019

- PCI-DSS

- ISO 27017 (Cloud Security)

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Thank You

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