FACTOM

A Blockchain innovations company that provides a Blockchain-as-a-Service platform

for data provenance and integrity solutions built on the Factom® Blockchain.

Paul Snow
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About Factom Inc

Established and headquartered in Austin, TX since 2014

Deployed open source Factom® Blockchain in 2015 and fully decentralized in May 2018

Harmony Blockchain-as-a-Service (BaaS) Launch, March 2017

Harmony Integrate W3C Digital Identity Solution Launch, June 2019

Member Organizations

CHAMBER OF DIGITAL COMMERCE   MBa. MORTGAGE BANKERS ASSOCIATION   mismo®   Austin Blockchain Collective   HYPERLEDGER

Investors

DRAPER ASSOCIATES   overstock™   FAST FORWARD Venture Capital   stewart title   FENBUSHI CAPITAL

FACTOM

Meet the Executive Team

CEO

Paul Snow

Chief Executive Officer

CTO

Brian Deery

Chief Technical Officer

COO
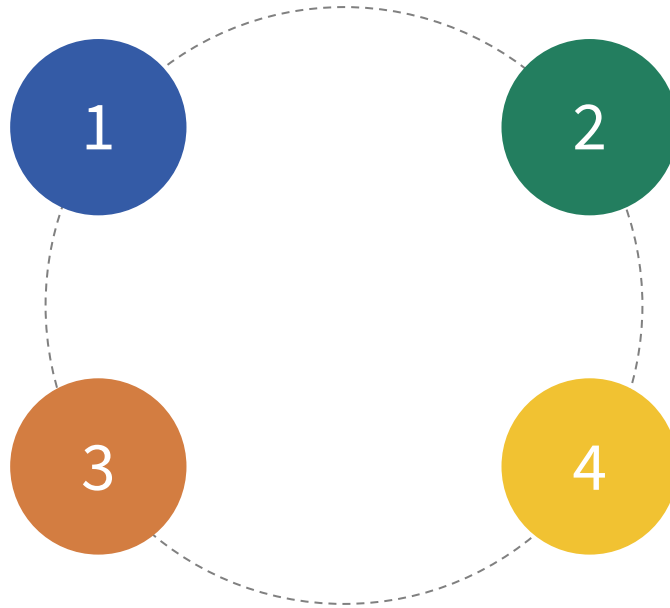
Jay Smith

Chief Operating Officer

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Blockchain Value Proposition

Trust & Transparency

Blockchain creates a common shared, secure source of data validation with the use of cryptographic proofs (hashes).

Secure/ Self Sovereignty of Data

Depending upon rights, parties can add data to the blockchain, contributing to a shared pool of data without giving away control of the data.

Data Quality Assurance

Because data cannot be overridden, changed, or deleted, data is permanent as all nodes verify the transaction, providing third party proof of data integrity.

Golden Record Source

Blockchain serves as the "Golden Record" or Single Source of Truth for data, provenance and history.

1

2

3

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Factom makes data more valuable

Data is at the core of every Enterprise

Data is at the core of every business with computer technology creating more at an ever increasing pace. Just looking at the growth of data storage gives a feel for the projected growth of this self-feeding problem.
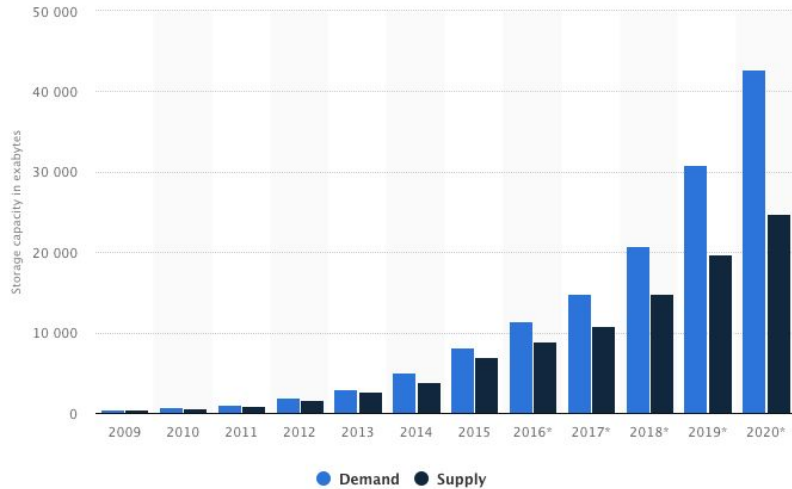
Data storage supply and demand worldwide, from 2009 to 2020 (in exabytes) (Statista)
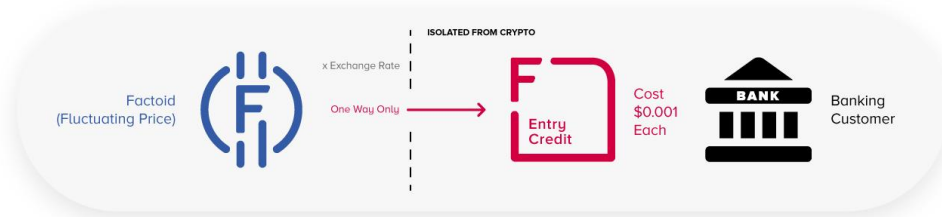
Untrustworthy Data is Expensive and Risky

Fraud alone is estimated to cost companies on average 7% of their annual expenditures.* Fraud is just the tip of the iceberg. There's also simple mistakes and process failures.

Simple to incorporate Trust Layer

Factom delivers a simple approach to integrate a blockchain-based trust layer to make existing data tamper proof. Data protected by Factom Harmony™ can be trusted.

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What Makes Factom Different?

We aren't like other blockchains and we're proud of it.

Factoid (Fluctuating Price) × Exchange Rate, One Way Only → ISOLATED FROM CRYPTO, Entry Credit, Cost $0.001 Each, BANK, Banking Customer

Two Token Model

Digital Identities

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Factom Digital Identities

Hierarchical Identity Management

Factom's implementation for identities can be managed and associated with different identities or data, reissued or retired without breaking continuity.

What can a Factom Identity be?

People, places and things can all be assigned an identity. The Factom suite supports defining attributes and associating them with identities to support complex identity structures and relationships.
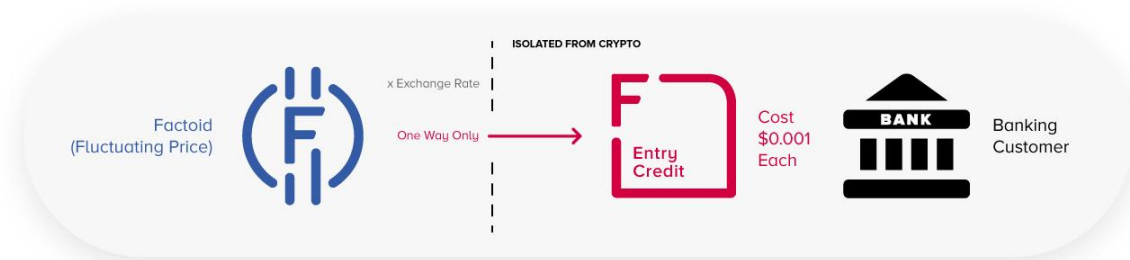
Traceable and Immutable Audit Trail

Information on a blockchain can transfer ownership while still maintaining all previous hashed data through a blockchain empowered identity management system.

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Two Token Model

Cryptocurrency with purpose

Factoids (FCT) are the Factom blockchain token. The primary purpose of Factoids is to be converted to Entry Credits (EC's) that allow users to execute functions on the blockchain.

Entry Credits can also be purchased separately in USD at a fixed cost rate. This allows Enterprise businesses to not engage with fluctuating price factoids and have a predictable cost model.

Factom® Anchoring

Every 10 minutes the Factom Protocol is hashed and anchored into Ethereum and Bitcoin Network

All entries in the Factom blockchain are anchored by other blockchains such as Bitcoin and Ethereum. Anchoring allows you to have the public witnessing capacity with programmatic trust.

The data is stored to other blockchains using a merkle tree structure which preserves the underlying data without requiring a massive number of transactions or exceeding the bitcoin size limit.

This makes the Factom blockchain one of the most robust forms of blockchain proof available today.

EVERY 10' FACTOM ECOSYSTEM IS ANCHORED IN MULTIPLE BLOCKCHAINS
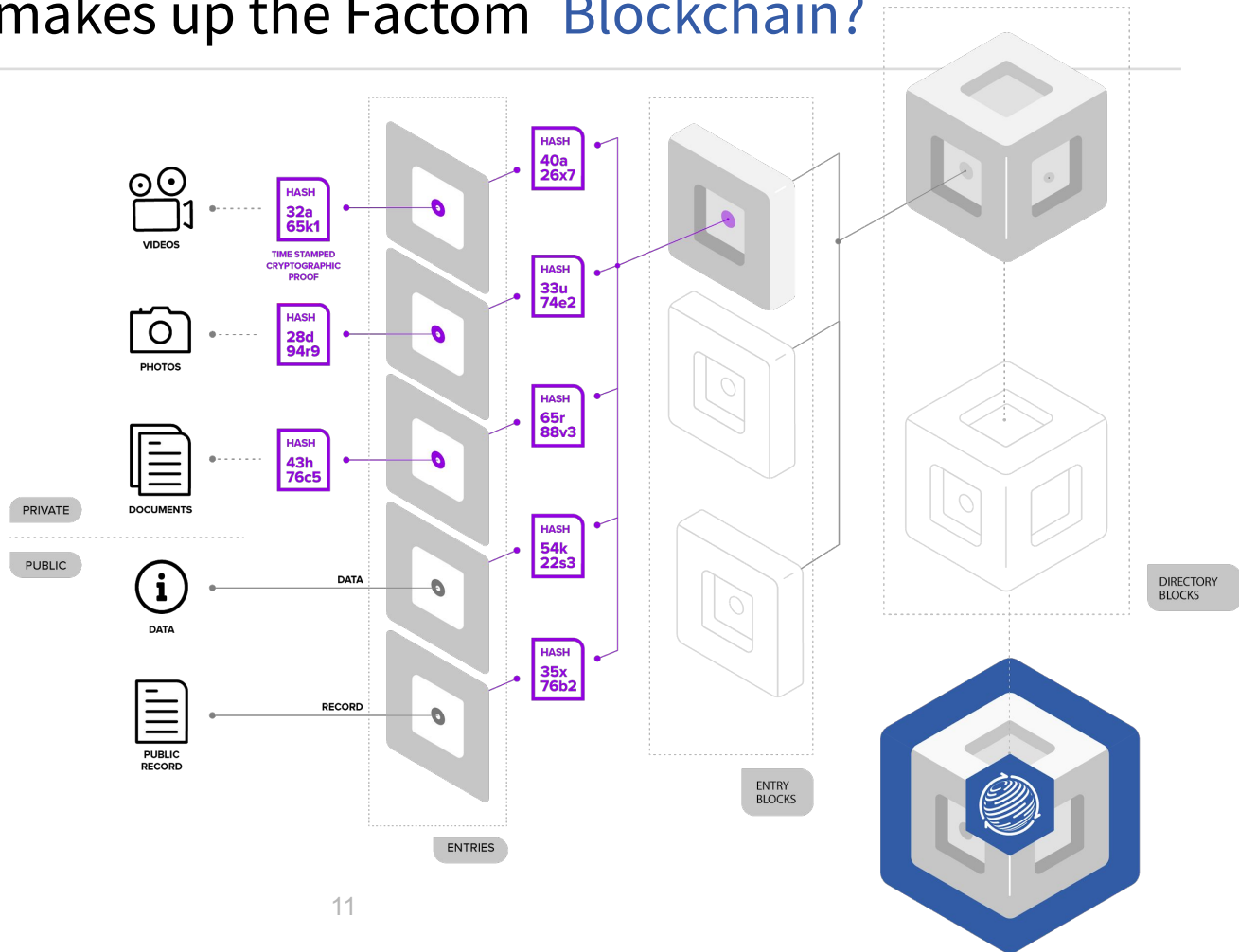
FACTOM
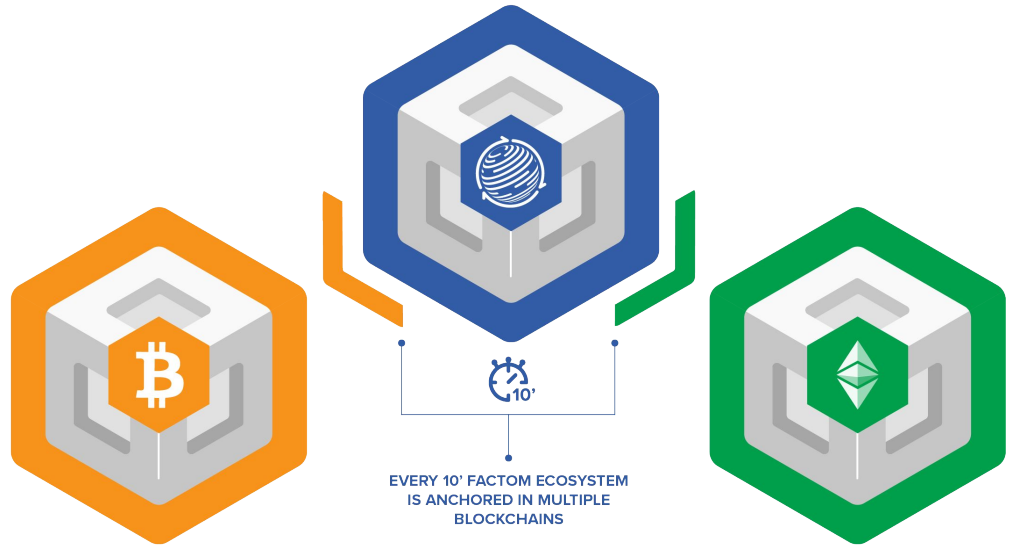
What is a hash?
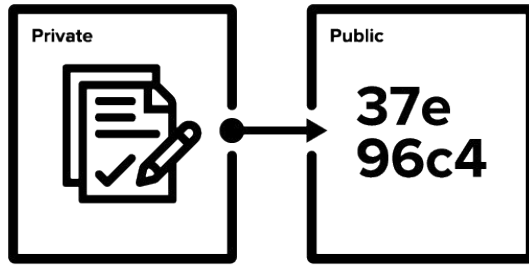
A cryptographic hash function allows one to easily verify whether some input data map onto a given hash value, but if the input data is unknown it is deliberately difficult to reconstruct it (or any equivalent alternatives) by knowing the stored hash value.

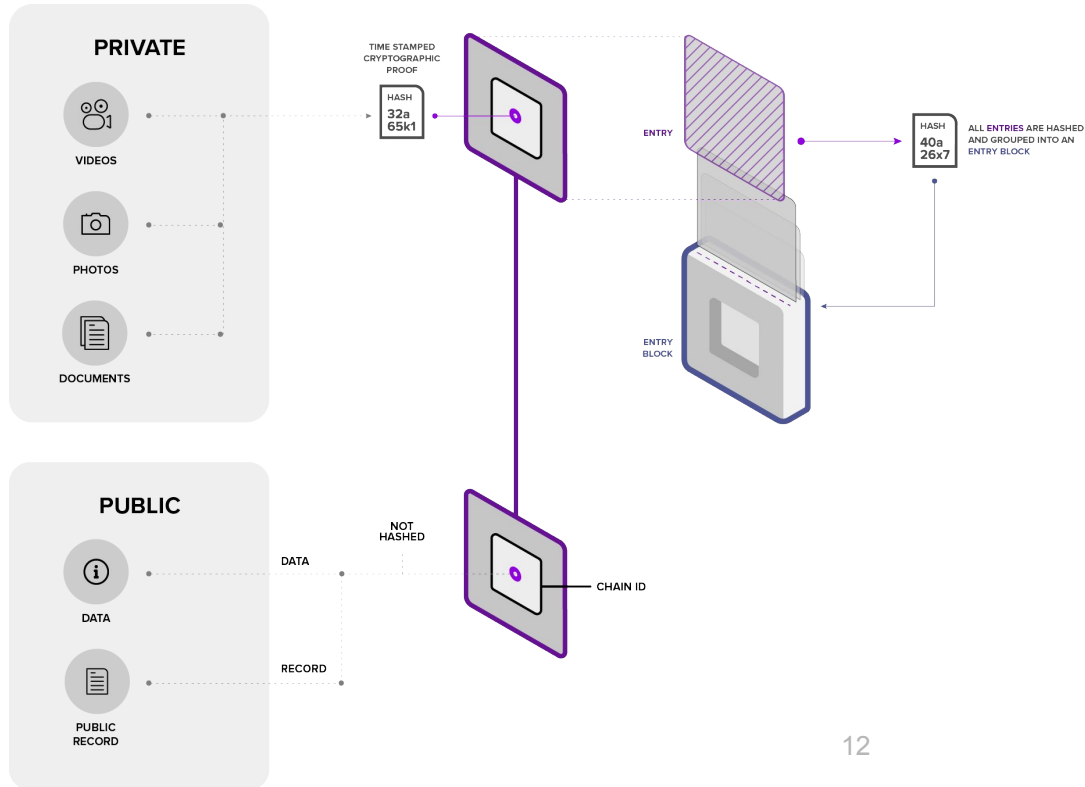This is used for assuring integrity of transmitted data and provides message authentication.
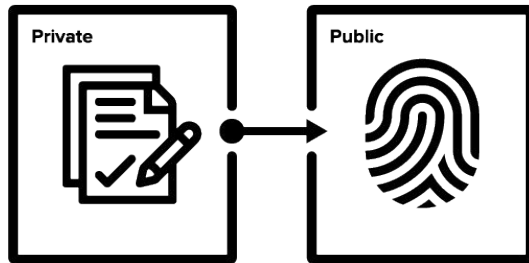
Much like you cannot build a whole person from a fingerprint you cannot rebuild the original data from a hash.

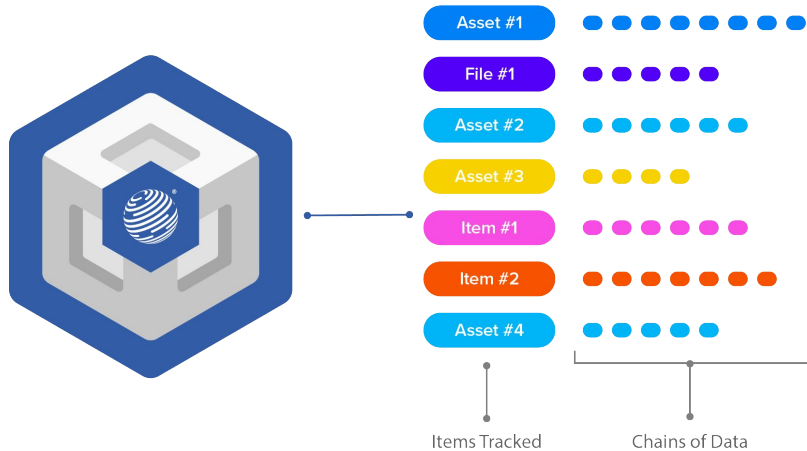**FACTOM**

What makes up the Factom® Blockchain?

VIDEOS

HASH
32a
65k1

TIME STAMPED
CRYPTOGRAPHIC
PROOF

PHOTOS

HASH
28d
94r9

DOCUMENTS

HASH
43h
76c5

PRIVATE

PUBLIC

DATA

DATA

PUBLIC
RECORD

RECORD

HASH
40a
26x7

HASH
33u
74e2

HASH
65r
88v3

HASH
54k
22s3

HASH
35x
76b2

ENTRIES

ENTRY
BLOCKS

DIRECTORY
BLOCKS

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How Entries are Created

PRIVATE

VIDEOS

PHOTOS

DOCUMENTS

PUBLIC

DATA

PUBLIC
RECORD

TIME STAMPED
CRYPTOGRAPHIC
PROOF

HASH
32a
65k1

ENTRY

HASH
40a
26x7

ALL ENTRIES ARE HASHED
AND GROUPED INTO AN
ENTRY BLOCK

ENTRY
BLOCK

DATA

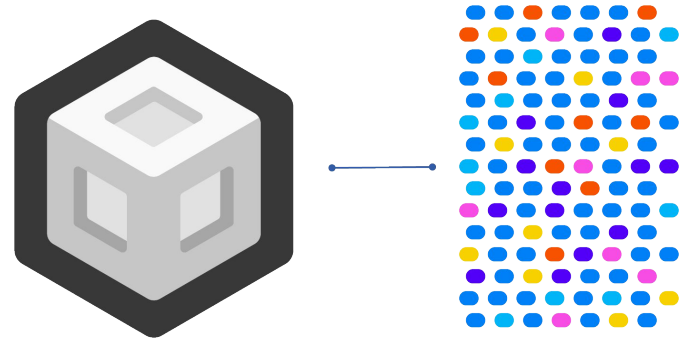RECORD

NOT
HASHED

CHAIN ID

12

Factom® Data Chains

Track data and audit log per item / entity

Factom Blockchain

VS

Traditional Blockchain where data cannot be linked together

Traditional Blockchain Issues Factom Solves

Scalability

First generation blockchains cannot scale and they quickly choke on real world transaction loads.

Complex Data

Traditional blockchains are limited to data that can fit in the memo field of a coin, limiting usability.

Unpredictable Cost Model

Coin-based blockchains result in a transaction model with highly unpredictable transaction costs.

Hard to Use

Many blockchains are very complex to implement making for slow POCs and few production deployments.

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Factom Harmony: Blockchain-as-a-Service

No Cryptocurrency, no servers, no nodes

With our 2-token system, you don't need to manage crytopcurrency to use our blockchain solutions.

REST API's and SDK's

Using our REST API and SDKs, developers can easily integrate Factom Harmony into new and existing applications.

Unique Licensing Model

Enables accurate cost modeling based upon budgeted annual or monthly fee.

Data Chains

Data from one chain can be interlinked to primary chains, creating numerous data chains for practical and efficient recordkeeping.

Public or Private Blockchain Models

Using multiple chain architecture, you can create any combination of public or private blockchains to fit your use.

Complex Data and Document Integrity

Complex data can be stored in a variety of ways for security and ease of retrieval.

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Factom Harmony Connect™

A **fast** way to build blockchain capabilities in your application.

No blockchain expertise needed - do not have to use cryptocurrency or wallets.

Code in the language you know, free sandbox to get started.

Status callbacks via webhooks - read, write and search with REST APIs.

Digital identities and attestations
Tamper-resistant evidence
Tokenization and provenance

Dev > Test > Prod
No long-term commitment
Pay-as-you-go

Get started today by signing up at account.factom.com/signup

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Harmony Connect™ User Spotlight

Challenges
Document Authenticity
Juridical Validity
Protection from Disasters

Use Cases
Secure Digital Storage
Protected Ownership
Proving Originality

Solution
With Harmony Connect™, DocumentsForever is now able to secure, validate, and prove these critical documents through a simple interface. Connect's built-in blockchain secures the document in its original state even if the original paper copy is missing or destroyed.

DocumentsForever (D4E)
Established in 2018 by Digital Documents Advistors (DDA) Allen, Texas
www.DocumentsForever.com

Factom Harmony Integrate™

Adding data integrity and cryptographic audiblitly to existing processes.

INTEGRATE
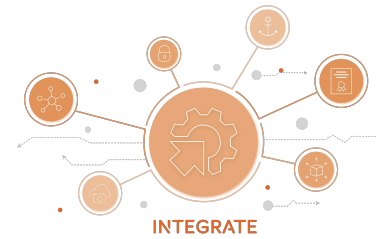
No need to build new infrastructure - works within your *existing business processes.*

Model processes and decisions to cryptographically secured blockchain entries.

Configurable data disclosure, ensuring *private data stays private.*

Interoperable with any data source

- Private and public Factom networks
- Additional blockchains
- DLT
- Traditional databases

W3C *Verifiable Credentials* standard

- Portable Proofs
- Selective Disclosure
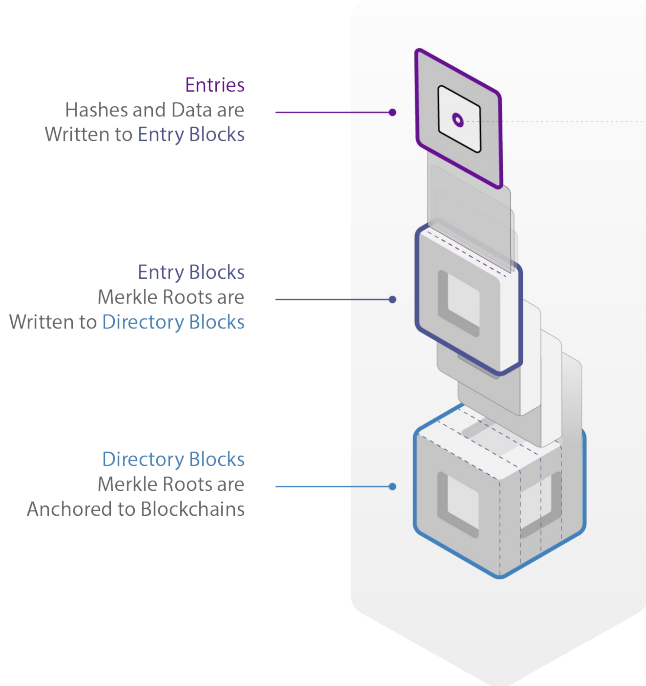- Programmatic Trust

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Solving Document Challenges
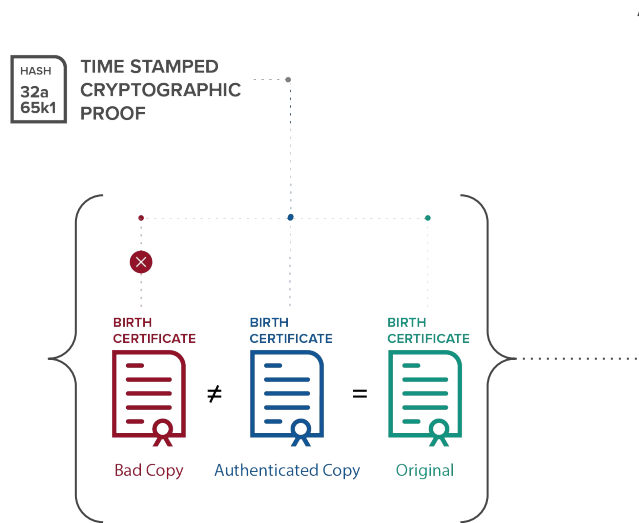
Document proof is published in a global, immutable ledger

Public Distribution of Proof
Document proof and validity published globally

Entries
Hashes and Data are
Written to Entry Blocks

Entry Blocks
Merkle Roots are
Written to Directory Blocks

Directory Blocks
Merkle Roots are
Anchored to Blockchains

HASH
32a
65k1

**TIME STAMPED
CRYPTOGRAPHIC
PROOF**

BIRTH
CERTIFICATE

BIRTH
CERTIFICATE

BIRTH
CERTIFICATE

≠   =

Bad Copy   Authenticated Copy   Original

Private Data Stays Private
Data, XML, PDF's stay in private applications

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Factom Clients and Collaborators

Healthcare

BILL & MELINDA GATES *foundation*

Mortgage Services

eEQUATOR®

vodii

Supply Chain

Linxens
crafting the future of connections

Government

U.S. DEPARTMENT OF HOMELAND SECURITY

spa
SYSTEMS PLANNING AND ANALYSIS, INC.

Other

DOCS 4 EVER

FPT
Fpt Software

HashQuark

Real world Content and IP protection

In the case of TikTok vs Baidu the Internet Court of China allowed for evidence to be submitted that was stored with blockchain technology.

It proved that TikTok was the original owner of the content and it was ruled that even 15 second short videos can be protected under copyright. The evidence of this copyright infringement is stored on the Factom blockchain.

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How is Factom used in Healthcare?

BILL *&* MELINDA
GATES *foundation*

In developing nations the issue of patient record stability and ownership is critical because of this Factom has developed a portable medical wallet for the Bill & Melinda Gates Foundation.

This medical wallet records a patient's medical information on the Factom blockchain. Each individual has a secure medical identity that cannot be compromised regardless of changing governments or healthcare environments. Each healthcare record can be securely transported between different clinics and the owner can be assured of the record's integrity. Because records are checked against a blockchain, and not a potentially corrupt or temporary landscape, the data remains safe forever.

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How is Factom used in IoT?

Creating identity logs on the Factom blockchain provides data assurance, including: protection from spoofing, elimination of traditional repeater attacks, and confirmation of data integrity.

These identity logs capture the identification of a device, who manufactured it, lists of available updates, known security issues and granted authorities while adding time-stamping for added security.

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How can Factom used in Supply Chain?
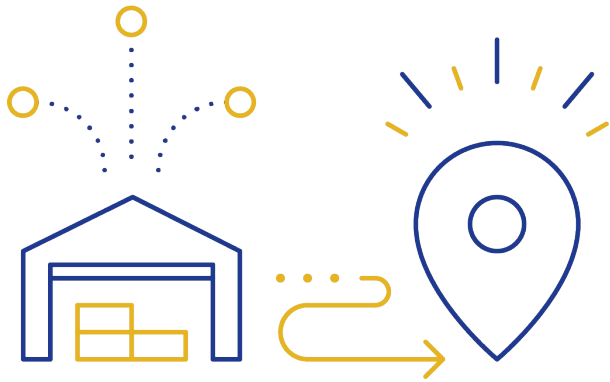
An international supply chain firm is exploring Factom Harmony to create a competitive advantage through trade finance.

Integrating immutable audit records with Factom Harmony to track the movement of goods in and out of their warehouses. This allows the firm to negotiate better trade finance terms for goods in the transshipment warehouse between input manufacturers and finished goods manufacturers.

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Thank You!

Contact Us

www.factom.com

hello@factom.com

@factom

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What is Blockchain Technology?

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Blockchain 101
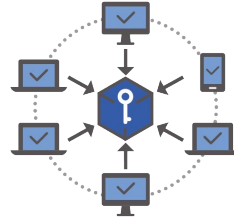
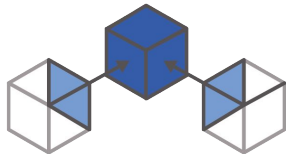Everything you need to know and a little extra

A transaction is requested
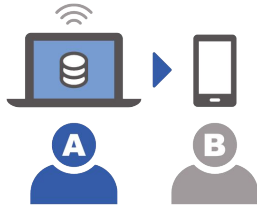
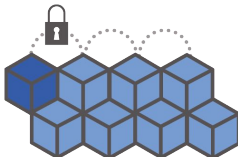**The transaction is broadcasted to a network of nodes**
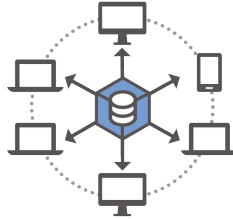
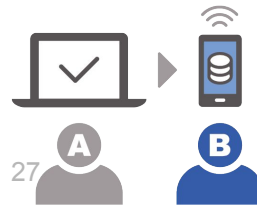**The network validates the transaction using known algorithms**

The transaction is unified with other transactions as a block of data.

The new block is added to the blockchain in a transparent and unalterable way.

The transaction is complete

A blockchain is a digital ledger grouped into blocks, chained together using cryptography.
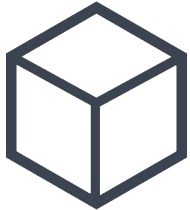
Think of blockchains as shared databases managed by a global network of computers. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data. Unlike databases, there is no editing or deleting contents in a blockchain.

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What makes a Blockchain?

The Block, the Chain and the Network
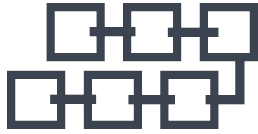
Chain

Block

The Network

First, data is written to the blockchain. **The network**, or group of computers (a.k.a. nodes) powering the blockchain, agree to the entry according to their consensus algorithm, verify the transaction, and when the nodes verify the entry, the data is entered into a block.

A **block** is a collection of data that is gathered for a set amount of time. At the end of that period, the entire block is published and chained to the rest of the blockchain.

Blocks are linked together referencing hashes, unique cryptographic proofs, from the previous block. As a block contains data from the previous block, it would not be possible to remove the block or any piece of data inside the block. This forms the **chain**.

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How Entries are Created

CHAIN ID

Entry Blocks
Merkle Roots are
Written to Directory Blocks

Directory Blocks
Merkle Roots are
Anchored to Blockchains

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