



# factom

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## **Intro**

Disclosure: [David Johnston](#), who is invested in Multicoin Capital both as an LP and GP, is a cofounder and Chairman of [Factom, Inc.](#) He has not provided any input in this asset analysis or seen it prior to release.

Note: in this analysis, we will refer to Factom in two contexts:

Factom, Inc. - a Texas-based, venture backed C-corporation

Factom - an open source blockchain protocol and network developed by the Factom Foundation

In this analysis, we'll examine Factom, a blockchain protocol, and its native token, FCT, AKA Factoids. We will provide an overview of the Factom protocol, explain its function and use cases, and offer a price target for Factoids.

The most compelling feature of Bitcoin is that its ledger is immutable. No one can modify its history because it's secured by tremendous computing power. However, the data model in Bitcoin is rigid. It supports basically one type of transaction: send money from point A to point B. The Factom protocol allows any user to commit any data to the Factom blockchain. The Factom network will then secure that data to the Bitcoin blockchain. This provides users the best of both worlds: the flexibility of defining one's own data model and the security of the Bitcoin blockchain.

The open-source Factom software is currently live, but it is in ongoing development. It is controlled exclusively by the Factom Foundation today. The Factom Foundation has outlined three major milestones that must be completed before the protocol can be considered fully deployed, two of which have already been achieved. The final milestone will be the deployment of independent servers to maintain the network, ensuring perpetual decentralization.

## **Summary**

### **Background**

Bitcoin is the largest, most secure, and most trusted distributed ledger that exists in the world today. This is a function of network value and hash power. Bitcoin leads all cryptoassets on both. Data contained in the Bitcoin blockchain is immutable and auditable in a way that was impossible before Bitcoin was created. While the majority of development within the Bitcoin ecosystem has focused on Bitcoin as a payment or value transfer mechanism, the security and immutability of the Bitcoin blockchain can be leveraged in novel ways. Outside of payments, one of the most compelling use cases for blockchain technology is the ability to record and secure arbitrary kinds of data.

Specific pieces of data can be written onto the blockchain, proving their existence at a certain point in time. Because the Bitcoin blockchain has an [extremely high level of security that makes changes to its ledger nearly impossible](#), its data is proven and immutable. [Proof of Existence](#), for example, is a simple service that allows you, for a small fee, to upload a [cryptographic digest](#) (AKA a hash) of a document to the Bitcoin blockchain to prove that it existed at a certain point in time. For example, a writer could upload her article to Proof of Existence; if that article were later published without her permission or credit, she could easily prove that she had written the article prior to it being published fraudulently by referring to the cryptographic timestamp on the Bitcoin blockchain.

This utility is perhaps even more compelling for large businesses, as billions of documents are generated and proper management is slow and expensive. Paper records, which are still in use in many major industries today, are [costly](#) to maintain, store, organize, and audit. Digital data is a better alternative in many ways, but current structures leave this data vulnerable to [hacks](#) and digital tampering. Blockchains provide a technological framework for solving these issues in a way that increases security, decreases regulatory risk, and provides huge cost savings.

These solutions are especially apparent for data that's required by more than one organization; mortgage documents, supply chain verification, medical records, and other documents that are regularly audited are all examples. Because these documents frequently change hands among different organizations, each must independently audit the documents to ensure that they haven't been altered or fabricated. That creates significant operational costs that are largely avoidable.

The security and immutability of the Bitcoin blockchain offer a backbone onto which this data can be written. However, doing so by interacting with the Bitcoin blockchain directly is not only difficult but also prohibitively expensive. Factom provides a secure and cost-efficient mechanism for anchoring large amounts of data onto the Bitcoin chain.

### **Why Factom and not just Bitcoin?**

There are several reasons why enterprise clients, especially those dealing with large amounts of data, would not want to record that data directly onto the Bitcoin blockchain:

- Bitcoin's 10-minute average block times create forced delays that slow down the securing of data (usually up to 60 minutes per entry for full confirmation).

- Adding data directly to the Bitcoin blockchain is expensive and the cost is unpredictable. Bitcoin network fees are denominated in Bitcoin. Therefore increases in BTC-USD prices increase the USD cost to commit data to the Bitcoin blockchain.
- The Bitcoin blockchain cannot currently support the number of transactions needed for record keeping. Bitcoin supports about 7 transactions per second (TPS). This is far too low for organizations that need to secure large amounts of data to the blockchain.
- With Bitcoin, the entire ledger is needed to verify individual pieces of data. This is computationally expensive. Factom allows for data to be grouped and examined at the group level, reducing the computational and storage cost for an individual organization.
- Using Bitcoin (the currency) has implications for enterprise users, both legally and financially. Some businesses, nonprofits, and other enterprise clients will not want to transact or hold cryptocurrencies. Not only would this present a financial risk (due to volatility), it may also present regulatory risk.

Factom was built specifically to provide data security solutions for enterprise clients. By creating its own protocol that exists as a layer above the Bitcoin blockchain, Factom allows for data to be committed to a blockchain continuously and in real-time, secured by the consensus mechanism of the Factom protocol itself. The Factom protocol takes this security one step further by anchoring the results of this consensus to the Bitcoin blockchain every 10 minutes using a data-efficient Merkle tree. Factom understands that Bitcoin, as the blockchain with the most hashing power, is the most secure ledger in existence. (For more information about hashes and Merkle trees, this [short video](#) provides an overview. For a more in-depth presentation of these mechanics, see Factom, Inc.'s own resources [here](#).)

In the Factom network, data is organized into specific groups, and each group can be tracked or examined individually (although grouping is possible in Bitcoin using colored coins, verification requires the entire ledger back to the genesis block). In Factom, users write to and read from groups that they're interested in. This is extremely valuable to users, especially as the size of the overall data set grows. Users do not need to sift through a huge data set, most of which is irrelevant to them. They can simply identify the subset they are interested in and focus on that.

Enterprise users also value USD-denominated price stability, which protocols such as Bitcoin don't offer. The Factom protocol has a mechanism that maintains the price per 1KB entry at about \$0.001. This is explained in the next section. Finally, Factom has a mechanism in place that allows enterprise clients to utilize the blockchain without having to hold or transact in cryptocurrencies.

We've summarized the Factom value propositions below:

- Enterprises spend a tremendous amount of money to secure their data and prove it has not tampered with. Factom provides an inexpensive, scalable, and more secure solution than either writing to Bitcoin directly or maintaining a centralized proprietary database.
- Factom allows for data to be entered continuously and timestamped precisely (Bitcoin doesn't offer precise time stamping).
- Factom uses an efficient data-compression strategy that reduces costs and blockchain bloat.

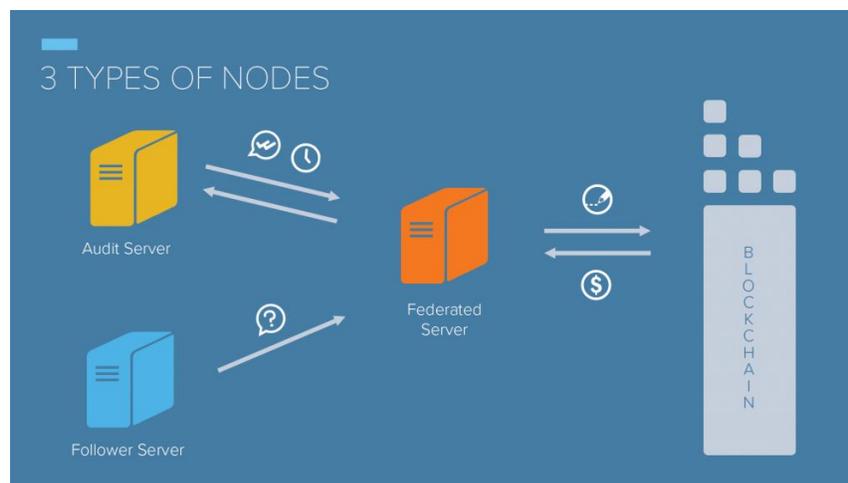
- Factom is built as a Layer-2 protocol on top of other blockchains. It is not as constrained by scalability issues.
- Factom creates sub-chains that allow for users to only examine the chains and data relevant to them.
- Factom allows enterprise clients to utilize blockchain software without having to hold volatile cryptocurrencies.

## Factom Protocol Mechanics

The Factom protocol works as follows:

Factom is maintained by two different groups of network actors: **Federated Servers** and **Audit Servers**.

- Federated Servers are the main nodes in the network, and they have the ability to actually write data to Factom chains. They are compensated for their work in Factoids.
- Audit Servers do not have the ability to write data onto chains, nor are they compensated, but they monitor the entire network, watching for accidental or malicious misbehavior on the part of the Federated Servers.
- Both types of servers are ranked by a vote of Factom users. If one of the Federated Servers misbehaves and is voted out, the highest ranking Audit Server takes its place, becoming a Federated Server.



[Image Source](#) (Audit Servers monitor Federated Server activity. Follower Servers submit queries to Federated Servers. Federated Servers write information onto the blockchain and are compensated for their work).

In order to actually enter any data into the Factom blockchain, users need to purchase **Entry Credits**, a secondary token of the Factom protocol. Entry Credits can only be created by converting Factoids into

Entry Credits at the exchange rate set by the Federated Servers (the rate is determined by a majority vote of all Federated Servers. Currently each Entry Credit costs ~\$0.001). Each Entry Credit entitles the owner to enter 1KB of data into Factom. Entry Credits are non-transferrable. They are programmatically tied to their first and only owners. They do not suffer from risk of price fluctuations or theft.

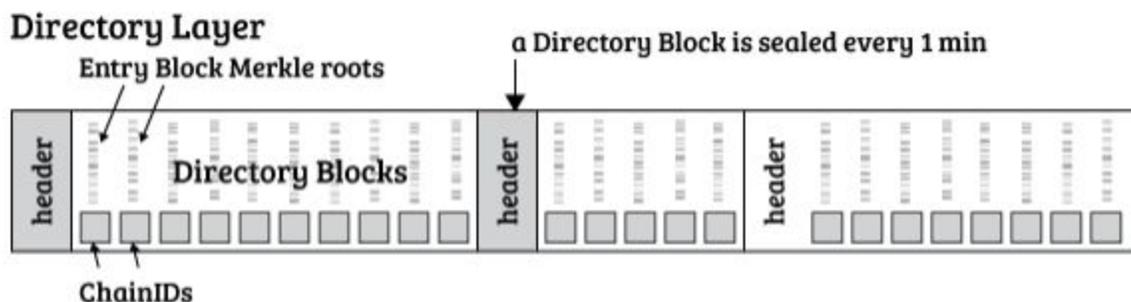
Because of this system, end users and businesses never have to worry about holding a volatile cryptocurrency such as Bitcoin (good for both financial and regulatory reasons), and they can easily access Factom and enter data into it. Entry Credits are non-transferable, so they are not valuable to anyone other than the original owner. There is no liquid market for Entry Credits, meaning they only way to obtain them is to create them from Factoids, or to purchase them from a Factoid owner. Once purchased, however, Entry Credits cannot be transferred or sold— they can only be used to enter data into Factom. Factoids that are converted to Entry Credits are burned, meaning they are permanently removed from circulation.

### Data Organization

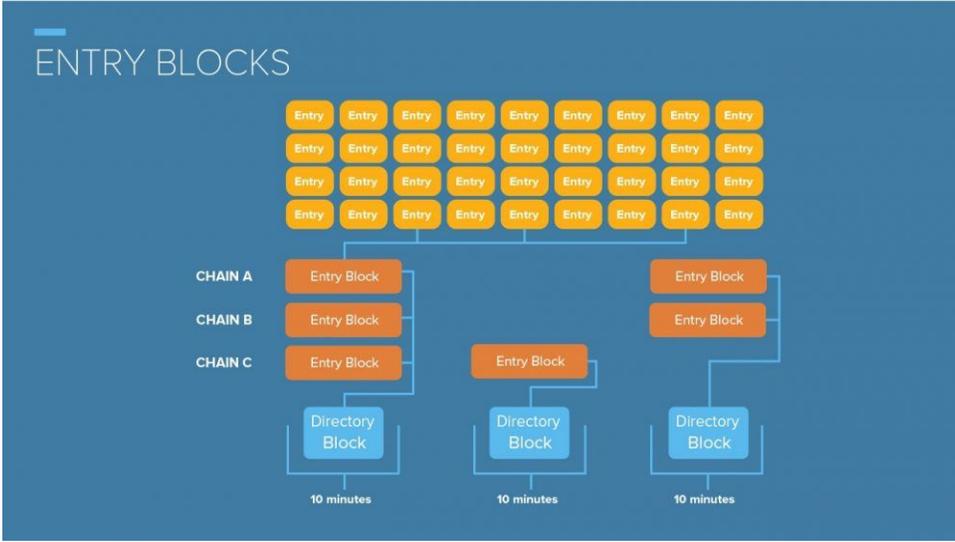
*Disclaimer: This section requires a basic understanding of Merkle trees. Please see [this link](#) for resources.*

To use Factom, a user submits a payment with an **Entry Credit**. One of the Federated Servers accepts this payment and broadcasts that acceptance to all of the servers in the network. Once the user knows his or her payment has been accepted, he or she submits the **Content** (the data they wish to commit to the blockchain). This is submitted along with a **Chain ID**, which is a piece of data that identifies which particular sub-group the data should be added to, and all of the servers on the network receive the entry, comprised of content and a chain ID. A federated server adds the entry into an **Entry Block** and broadcasts the addition so that all other federated servers update their ledgers with the latest changes.

This process takes place in 60 second increments. At the end of each 60-second window, each of the servers confirms the state of its ledger, and the entry blocks from all of the servers are assembled into a **Directory Block**. A directory block consists of the chain IDs of each chain that was updated during those 60 seconds, each paired with a hash of the entry block that contains the entry or update.

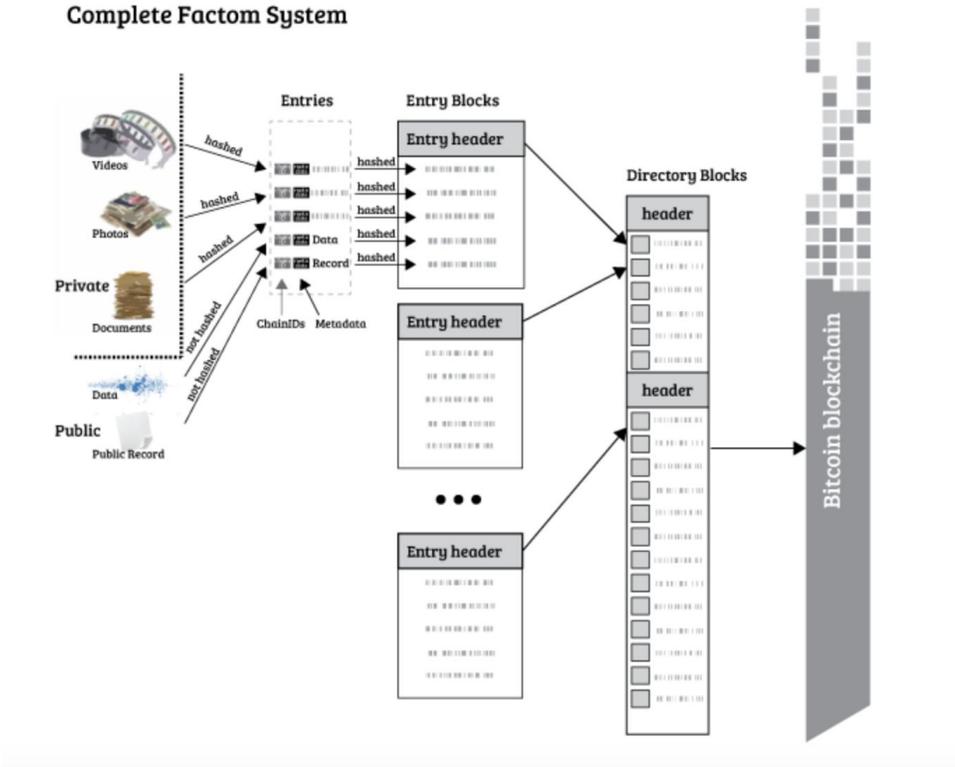


[Image Source](#)



[Image Source](#)

This process takes place 10 times total, per round. When the 10th directory block has been created, the hash of each individual directory block is taken. Then the federated servers hash those 10 hashes as the definitive anchor to be added onto the Bitcoin blockchain. One of the servers is randomly chosen to add the anchor root to the Bitcoin chain, and the entire process begins again.



[Image Source](#)

The use of hashes and merkle trees to compress and organize data means that very large amounts of data can be contained within Factom, identified by a very specific path, and anchored into the Bitcoin blockchain using a very small amount of data. This minimizes costs, provides all necessary flexibility, and maximizes network security.

## Chain IDs

By assigning Chain IDs that identify specific chains of information within the Factom ecosystem, Factom allows applications and businesses to much more easily track and manage the information that they need to access. Instead of having to audit all of the data on the entire blockchain, Factom users can name specific sub-chains, write data to that chain, and refer only to the data that is relevant to them. This allows users to design their own data model and more efficiently manage and retrieve the information they need from the entire blockchain.

Factom servers gather all of the entries that are submitted, organize them based on their Chain ID, present them in a final order, and anchor them to the Bitcoin blockchain. Factom federated servers *do not* audit the entries to check for validity, instead pushing this responsibility to the application that created the entry. The reason for this is clear: the Factom protocol is designed to let users define their own data structure, not to bound users to a specific data structure, like in Bitcoin.

By eliminating the need for servers to audit the entire blockchain, Factom is able to operate more quickly and efficiently, while also allowing for the nuances that define modern real-world business use cases. Rather than defining the rules that govern each chain *within the protocol*, Factom allows client-side applications to define the data model of submissions of content that pertain to their chains. Factom is agnostic to all data. The protocol accepts any content that is paid for with Entry Credits.

This setup means that organizations can define data verification rules for their own chains, allowing for an unlimited number of different applications to be built on top of Factom. Furthermore, it creates logical groupings of the data such that users can only focus on the parts of the database that they need to access.

## **Factom Inc. + Factom Foundation**

The Factom protocol is an open-source software project that is maintained by the Factom Foundation, a UK-based nonprofit. Factom, Inc., on the other hand, is a for-profit company founded by the original designers of the Factom protocol. Factom, Inc. builds and markets enterprise software that makes it easier for users to interact with the Factom protocol.

We believe that Factom, Inc. is an incredibly important and positive part of the Factom ecosystem, and our confidence in the Factom, Inc. team is a major part of our bullishness on the project itself. The Factom protocol, while enabling a variety of use cases, is new technology. The protocol was designed with the intention of having applications running on top of it, and Factom, Inc. is leading the way in

designing applications that solve real-world business problems. These applications make it far easier for enterprise clients to access and utilize the Factom protocol.

The efforts of the Factom, Inc. team will ultimately serve to increase the usage of the Factom protocol. As we will see in our analysis of Factoids, the price of the underlying token correlates to overall use of the protocol. We see Factom, Inc. as a positive for the Factom ecosystem and for Factoid holders.

Peter Kirby, CEO of Factom Inc., [describes](#) the company's mission to "create software that makes it impossible to change the past and point that software at places where it solves valuable business problems." Currently that is manifested in two products, Factom Harmony and dLoc by SMARTRAC.

Harmony is a full document management solution aimed at the mortgage industry. dLoc by SMARTRAC is a digital sticker that can be added to any sort of document. It authenticates the document and allows for the document to be easily tracked using [SMARTRAC's](#) SMART COSMOS platform.

Anyone can build on top of the Factom protocol without the permission of anyone else. We expect end-user organizations such as banks and pharmaceuticals, as well as consulting firms such as Accenture and Deloitte, to design custom applications on top of the Factom protocol.

## Team

Factom, Inc. has one of the strongest [teams](#) of any blockchain startup. Both David Johnston, who helped develop the ideas behind Factom, and Paul Snow, who designed the protocol, are current members of the team. Headquartered in Austin, Texas, the company also has team members in China, Europe, and California. Factom, Inc. has an eleven person team dedicated to development, three people dedicated to marketing, and twelve senior executives with experience across a variety of industries including finance, software development, real estate, distributed systems, and more.

In October of 2016, Factom recruited three new executives. One executive, Mahesh Paolini-Subramanya, has held top-level positions in engineering and R&D at Ubiquiti Networks and Cielo24, two companies working on industrial-scale distributed computing systems. He also founded and served as CTO of Aptela, a cloud communications platform that was acquired by Vonage.

Factom, Inc. also recruited two other executives, Laurie Pyle and Jason Nadeau, both of whom have extensive experience in the mortgage technology. Both are alumni of Corsair Associates and Stewart Lender Services, where they held senior positions providing strategic consulting to companies working in the mortgage technology sector. Factom, Inc.'s first product is aimed at the notoriously complex mortgage industry, and these hires give us great confidence in their ability to navigate this sector.

## Milestones

- In December of 2015, Microsoft [announced](#) its partnership with Factom, Inc. for their Azure Blockchain as a Service platform.
- In June of 2016, Factom, Inc. [announced](#) a partnership with the U.S. Department of Homeland Security.
- In October of 2016, Factom, Inc. [raised](#) a \$4.2 million Series A, led by prominent blockchain investor Tim Draper.
- In November of 2016, Factom, Inc. [announced](#) a grant from the Bill & Melinda Gates Foundation to create secure medical records using blockchain technology.
- In April of 2017, Factom, Inc. [raised](#) just over \$8 million in an extension of its Series A.

## Token Supply Mechanics

Factom's dual token system is one of the most well-designed blockchain systems that we've studied. It utilizes a simple inflationary/deflationary system to achieve price equilibrium based on overall protocol usage.

Currently, there are 8,753,219 FCT [in circulation](#). This number will decrease slightly (as FCT are burned to create Entry Credits) until the protocol has been completely deployed following Milestone 3. After that point, 73,000 new FCT will be created each month, by the protocol, to pay the Federated Servers.

There is a relatively simple equation for determining the non-speculative price of Factoid tokens once Milestone 3 has been reached:

$$\text{FCT Equilibrium Price} = (\text{Entries per month} * \text{Entry Credit Price in USD}) / 73,000$$

While the price of Factoids, like that of any other cryptoasset in 2017, is heavily influenced by speculation, the protocol is designed in such a way that the price of Factoids will increase with network usage.

The price of Factoids is currently a function of usage of the platform, creation of additional tokens, and speculation. Speculation is likely to cause sharp jumps in price when Factom, Inc. announces new partnerships, releases new software, or reaches other milestones.. For this valuation, we will attempt to focus on price as only a function of the underlying token mechanics; we ignore all speculation.

In order for Factom to reach a supply equilibrium (meaning there is neither inflation nor deflation), 73,000 FCT must be burned each month in the process of creating Entry Credits (since 73,000 new FCT are created by the software). Because Entry Credits have a fixed price (\$0.001), the number of Entry Credits created by burning a single Factoid is directly related to the price of that Factoid. At the [current price](#) per Factoid of ~\$25, each Factoid that's burned creates 25,000 Entry Credits.

As such, if the Factom protocol were to be fully deployed with FCT at current prices, the protocol would reach an equilibrium (where the number of Factoids burned equals the number created) at 1,825,000,000 entries per month.

- \$25/FCT = 25,000 Entry Credits created per Factoid Burned  
→ 73,000 Factoids Burned = 1,825,000,000 Entry Credits Created

If the demand for Entry Credits were less than that amount, then the amount of new Factoids generated would be higher than the amount burned. This inflation should decrease the value of each Factoid.

As the value of Factoids falls, so too does the amount of Entry Credits generated per Factoid (because Entry Credits have a fixed price). Eventually, the price would fall to the point where the amount of Entry Credits created per Factoid matched demand.

If the number of Entry Credits being used each month is 730,000,000, then only ~29,000 Factoids would be burned each month at the \$25/FCT price. This would mean that ~44,000 new Factoids would enter the system each month. This inflation would drive down the price of Factoids until it matched the actual use. Eventually, at a price of \$10/FCT, the number of Factoids burned would equal the number created, and an equilibrium would be reached.

- \$10/FCT = 10,000 Entry Credits per Factoid Burned  
→ 73,000 Factoids Burned = 730,000,000 Entry Credits Created

Conversely, if demand for Entry Credits exceeds equilibrium, the number of Factoids burned each month would exceed the amount created. This would create deflation, reducing the total number of Factoids in circulation and making each Factoid more valuable as a result. Eventually, the price of Factoids would increase until the equilibrium is reached.

At a fixed conversion rate of \$0.001 per Entry Credit, we only need to estimate the number of entries per month to arrive at an estimate of the price.

As these numbers show, the long-term price per Factoid is simply a function of how much the protocol is being used. As usage of the platform increases, so too does the price of each Factoid.

## **Market Potential**

We can see that the current price of Factoids is being driven mostly by speculation, not current utility value.

The protocol has not yet begun paying servers in Factoids, so the token mechanics described in the above section are not yet in play. Still, once that mechanism is triggered, about 1.8 billion data entries would be required *each month* to justify an intrinsic value of \$25/FCT.

At present, about 10 million [entries](#) have been added on Factom. Usage of the Factom protocol will have to increase by upwards of two orders of magnitude in order to justify an increase in the intrinsic value per Factoid. We are bullish on Factom because we believe that the number of entries on the platform will far exceed that in the medium term.

Because Factom is aimed at enterprise clients, and because it offers a utility that is needed across *almost every* industry, the potential market that exists is enormous. Even when looking at individual industries, the numbers are staggering.

Mortgage Compliance Magazine, in [an analysis](#) of the revealings of the Home Mortgage Disclosures Act, found the following: In 2014 alone, 10 million applications, each of which contained 500 pages, and each of which was copied an average of two times, were filed on paper. That amounts to upwards of 5 billion documents for home mortgage applications alone in a single year.

The article also states, “According to Fannie Mae, anywhere between 40 percent and 60 percent of the repurchase requests it issues are resolved by simply supplying key documents that were omitted from the loan file when it was originally submitted.” Another industry study reported that 26.4% of all loan defects were the result of issues with loan package documentation. Lost documents, which are a common occurrence, cost industry players dearly.

In addition to ensuring that documents aren’t lost, companies must also go to great lengths to ensure the integrity of their documents and data. Fraudulent and/or altered documents can present a massive financial and regulatory burden. The article goes on:

“Regulatory compliance risks caused by inaccurate data don’t stop there. Lenders also face potential liability and penalties under the TILA-RESPA Integrated Disclosure (TRID) rules, the Home Mortgage Disclosure (HMDA), Home Ownership Equity Protection (HOEPA), Equal Credit Opportunity (ECOA), Fair Housing (FHA) and False Claims Acts; and a plethora of state and local rules and regulations.”

This data shows two things: the amount of data that industrial clients need to secure is massive, and Factom provides a utility that could save these industries significant time and money. If even one major institution in this industry were to begin to use Factom, billions of records need to be committed to the Factom blockchain.

The mortgage applications in the example above would constitute at least 5 billion documents per year, for applications alone. New documents added to the applications would require additional entries, as would changes or updates to the documents. If enterprise clients secured the documents each time they were updated (which would be ideal for compliance and record-keeping), the number of entries

needed would far exceed the original 5 billion. Furthermore, if the company decided to backlog previous documents into Factom to make them permanent and tamper-proof, they would potentially enter hundreds of billions of documents.

Mortgages are just one industry (and mortgage applications are just one subset of documents used in that industry). Factom could provide similar utility to hospitals, pharmaceutical companies, insurance companies, property registries and many, many more. We believe that many of the most heavily regulated of these industries will choose Factom not just for the cost savings, but also for the increased assurance that they are fully compliant.

## Price Target

The price target for FCT is primarily based on the number of entries to the Factom blockchain per month, as described in the token supply mechanics section above. The more entries there are, the more Factoids need to be burned to create the required Entry Credits.

The following table shows how many Factoids would be added to or removed from the supply given a certain price and number of monthly entries.

Entries per month (millions)	Price USD				
	\$10	\$25	\$50	\$100	\$200
100	63,000	69,000	71,000	72,000	72,500
500	23,000	53,000	63,000	68,000	70,500
1,000	(27,000)	33,000	53,000	63,000	68,000
5,000	(427,000)	(127,000)	(27,000)	23,000	48,000
10,000	(927,000)	(327,000)	(127,000)	(27,000)	23,000

The addition or removal of Factoids from the supply will cause the price to move towards equilibrium. The following table shows how many entries are required per month to maintain equilibrium at a given price.

Price	Required number of entries per month for equilibrium (millions)
\$10	730
\$25	1,825
\$50	3,650
\$100	7,300
\$200	14,600

Given the size of the addressable market, as well as the number of documents being utilized by large enterprise clients across many different industries, we believe that Factom will see hundreds of billions of entries, each year, in the long term. We expect to see a 10-15x price increase in that time period.

## Risks

We've identified three major areas of risk for Factom: scalability, centralization, and timing.

Factom is, by design, more scalable than almost any currently implemented blockchain protocol. It was specifically designed to address Bitcoin's scalability challenges. As such, the scalability issues that currently plague Bitcoin and Ethereum don't apply directly to Factom. However, in order to handle billions of entries per day, Factom will likely have to implement sharding, a protocol update that is the focus of the most cutting-edge research on blockchain scalability. This is an issue that every system within the blockchain ecosystem faces, and scalability research will likely be the main focus of protocol developers for the next few years. We are confident that advancements will be made on this front.

While the Factom protocol is currently live, it has not yet been fully deployed according to the original design specifications. In a sense, one can view the current environment as Factom with training wheels. Currently there are 9 Federated Servers and 9 Audit Servers. Factom's goal is to have 33 Federated Servers and 31 Audit Servers, which anyone can choose to run. The network will not be considered complete, and the protocol will not be fully deployed, until that milestone is reached. As such, both Factom Inc. and the Factom Foundation maintain a great deal of control over the protocol. The full protocol will not be deployed *until* 33 Federated Servers and 31 Audit Servers exist.

The Factom Foundation is currently working to establish Federated Servers in different locations and jurisdictions, and under the control of many different parties. While it is theoretically possible that Factom Inc. or the Factom Foundation could maintain control over all 64 of these servers, that is neither practical nor likely.

Once the protocol is deployed, anyone willing to run a server can use the open-source software to do so. Because servers are compensated in Factoids, participants have an economic incentive to run a server. Because users of the network maintain control (through weighted voting) over which servers are allowed to participate, network participants could vote out misbehaving servers and vote in servers not controlled by any centralized party.

Misbehavior is easy to identify on the Factom network, so collusion and/or censorship would be obvious. It is in the interest of both Factom, Inc. and the Factom Foundation to promote the widespread adoption of the Factom protocol. This is *only* possible in a decentralized environment, and thus would be impeded by obvious collusion. We recognize the need for some level of centralization as the protocol gets off the ground, and are confident that the system will evolve to become fully decentralized within 12 months given the economic incentives for independent actors to run servers.

Finally, we see a potential risk in the market timing of Factom. While we have deep convictions about the viability and utility of the product for enterprise clients, we understand that any new and disruptive technology faces the possibility of slow adoption. However, given the expertise of Factom, Inc. and the easy-to-use products they are developing, as well as the protocol's two-token design, we believe that enterprise clients will be compelled to adopt Factom.

## Competitors

### [Tierion](#)

Tierion is Factom's main competitor among blockchain-based alternatives. CEO Wayne Vaughn is a former Factom Inc. consultant. Tierion has been in operation for several years as a centralized portal to allow for customers to enter data onto the blockchain. Currently, they are building a decentralized network, similar to Factom, that will operate as a backend for the Tierion application and others. Factom has a healthy head-start on Tierion, and Factom, Inc.'s products offer similarly easy-to-use access portals. Furthermore, Factom's use of Chain IDs is a critical design feature that is not present in Tierion. We find Factoids to be a much more compelling investment vehicle than Tierion tokens.

### Proof of Existence Services

Services that offer simple proof-of-existence mechanisms to write data directly onto the Bitcoin blockchain provide a great solution for individual users, but they are not designed to work at scale, like Factom is.

## Conclusion

We believe that Factom will become the de-facto second-layer protocol for securing data onto blockchains. While current development has focused on securing data to the Bitcoin chain, we are confident that Factom will be used not only to secure data onto many chains, but also to secure data from entire blockchains onto one another. This cross-anchoring will help ensure the security of the entire network of blockchains that will exist in the future.

While large industry players have been reluctant to adopt blockchain technology, often because of regulatory concerns, we believe that Factom's dual token system will allow for easy and compliant integration of this technology. This will pave the way for enterprises to take advantage of Factom's cost savings, which will further drive adoption.

Factom has a secure, well-designed protocol that offers cost savings and compliance advantages to industries that need it most. From an investment standpoint, the token mechanics are extremely compelling— increased usage of the Factom platform will result in higher prices for Factoids. For these reasons, we are currently bullish on Factoids and expect them to increase 10-15x or more in value over the medium to long term.

Please email [research@multicoin.capital](mailto:research@multicoin.capital) with any questions or comments.