COMPLETE GUIDE TO INJECTIVE

FOUR PILLARS

Korea Blockchain Week KBW

TOKEN2049

TABLE OF CONTENTS

7. Injective: The Relentless Powerhouse

1. Why Injective Now?

Recently, a list of "zombie blockchains" published by the renowned media company Forbes garnered significant attention in the market.The term "zombie projects" refers to projects that, while still technically alive, have shown little to no notable activity for an extended period. This list included well-known names such as Ripple (XRP), Cardano (ADA), Litecoin (LTC), Bitcoin Cash (BCH), and Ethereum Classic (ETC).

This phenomenon underscores the nascent nature of the blockchain market, where entities emerge and disappear at a rapid pace. As someone who has been involved in the blockchain space since 2017, I've witnessed numerous blockchain projects that once seemed promising fade into obscurity (becoming "zombie blockchains"). While this could partly be attributed to my limitations as a researcher, I believe it also reflects the market's immaturity, which makes definitive assertions challenging. This situation may well persist.

There's no guarantee that the blockchains currently ranking in the top 50 by market capitalization will maintain their positions four years from now. In fact, the odds are they won't.

In this dynamic market environment, I've come to value two key attributes: consistency and sustainability. Which projects are not merely surviving but consistently evolving, developing, and proving their worth? Are there any Layer 1 blockchains demonstrating such sustainability?

As a researcher, I believe my role is twofold: to examine newly emerging Layer 1 blockchains and to study successful Layer 1 chains that continually reassess and prove their value. By exploring the reasons for their success and continued relevance, market participants can gain valuable insights.

Today, I'd like to introduce a blockchain that's intriguing on several fronts: 1) Despite originating in the ICO era, it continues to exert significant influence in the market, and 2) It has quietly grown amidst market noise to achieve a high ranking by market cap (ranked 43rd on CoinMarketCap at the time of writing). This blockchain is none other than Injective.

While the improving market conditions have led to the emergence of various smart platforms, Injective has a relatively long history. As I'll elaborate later, Injective's origins

can be traced back to 2018, making it a project that began nearly six years ago. So why should we pay attention to Injective now? The answer lies in its embodiment of the two values I emphasize: **consistency and sustainability.**

Therefore, examining Injective's history and strategy, and the lessons we can derive from them, holds significant value. Let's begin by exploring Injective's history.

2. Injective's History and Background

2.1 Injective Labs

Recently, as Injective Network has successfully built its ecosystem, there seems to be a lot of interest in the network and its ecosystem. However, many people are not well-informed about the members of Injective Labs, one of the core contributors to Injective. Personally, I believe that when investigating a blockchain network, the people behind it are just as important as the technology itself. Although blockchain claims to be a trustless network, ultimately, everything is done by people. As networks mature, early core contributors may become less crucial in the distant future, but for now, when evaluating most networks, information about the labs' members who are heavily contributing to the network is still very important. Therefore, let's take a closer look at the co-founders and core members who contributed to Injective in its early days, as well as the key team members who are still working alongside the co-founders of Injective Labs.

First, **there's CEO Eric Chen**. Eric has been interested in blockchain technology for quite some time. He conducted research at New York University's blockchain labs while studying there, and later handled protocol research at Innovating Capital. While there are many protocol research companies now, such in-depth protocol research was rare at that time, and Eric's background likely proved to be a significant advantage in creating and operating Injective.

CTO Albert Chon earned his bachelor's and master's degrees in computer science from Stanford University. After working as a developer at major tech companies like Amazon, he became interested in Tendermint (Cosmos' consensus engine) and became a Tendermint fellow. Albert had a keen interest in blockchain and Bitcoin since his undergraduate days at Stanford, and his experience working at companies like Amazon

likely became valuable assets in designing Injective.

Mirza Uddin, the Head of Business Development at Injective Labs, graduated from Harvard University and gained experience at Two Sigma, one of the world's largest quantitative hedge funds. He then joined Injective Labs and now oversees all business-related aspects of Injective.

Julie Lee, the Head of Marketing at Injective Labs, graduated from UCLA and built her career as a marketing specialist at Samsung Electronics before moving to Tesla, where she was in charge of marketing. She then joined Injective Labs and is now responsible for overall marketing.

As we can see, the members of Injective Labs have cultivated their respective competencies through diverse experiences in both blockchain and non-blockchain fields. Their backgrounds seem to be the driving force enabling Injective to lead various initiatives today.

2.2 How It All Started

Injective first emerged in 2018 through Binance Labs' incubation program, receiving pre-seed funding from Binance Labs. Even then, their goal was to establish a decentralized exchange where Ethereum-based assets (like ERC tokens) could be traded conveniently. Built on Tendermint, it was capable of extremely fast processing speeds (likely with future connections to the Cosmos ecosystem and IBC in mind).

While it's common now to create chains using Cosmos and Tendermint, at that time, building a chain with Tendermint was quite novel. Additionally, there were no decentralized exchanges with ample liquidity and low trading costs, so Injective's move garnered significant attention. Perhaps as a result, in the summer of 2020, they received about $2.6 million in investment led by the renowned crypto investment firm Pantera Capital, with Hashed also participating as an investor (this attracted considerable attention as it was Pantera Capital's first investment after the COVID-19 outbreak). Subsequently, in 2021 and 2022, they received large-scale investments from firms like Pantera Capital and Jump Capital, further increasing their market visibility. Interestingly, during this period, Mark Cuban, the famous American billionaire and investor, participated as a strategic investor.

Mark Cuban, both then and now, was not an investor known for aggressive blockchain

investments. So, why was Injective able to attract investment from such prominent figures and VCs?

2.3 Blockchain Built for Finance

Despite the numerous reasons why Injective attracted market attention, the most outstanding aspect was its singular focus from the very beginning. The vision of "Blockchain Built for Finance" presented a remarkably fresh direction in a market that was busy building general-purpose blockchains at the time.

Simultaneously, when considering it closely, the most fundamental activity in blockchain is trading. Blockchain began with a financial asset (Bitcoin), and even now, the aspect of blockchain considered most innovative is its ability to tokenize everything. Therefore, while Injective is a blockchain focused on finance, it can also perform the role of a multi-purpose blockchain. Injective has simply strengthened the most fundamental aspect of blockchain and designed its blockchain more suitably for this purpose (It can be argued that all activities we currently perform on blockchain are not unrelated to finance. Even NFTs and games can be seen as built on the foundation of finance in the Web3 vision).

While there are now many blockchains focusing on finance, Injective holds profound significance as arguably the pioneer of finance-focused blockchains. It would be unwise to assume that Injective is technologically behind just because it was the first blockchain to focus on finance. Injective has many innovative features, both technologically and tokenomically, which we will examine in the next section.

3. What Differentiates Injective?

From my perspective, the aspects that distinguish Injective from other projects can be divided into technical and non-technical areas. The technical differentiators include their attempts to reduce block time by modifying the Tendermint core and make Injective more scalable and MEV-resistant through Frequent Batch Auctions (FBA), as well as creating a developer-friendly environment through Plug-and-Play Modules. As for the non-technical aspects, I believe they lie in the Injective team's consistency, their willingness to try various approaches in response to market conditions, and their persistent communication of the value they aim to deliver. Let's examine these two aspects in detail.

3.1 Technical Differentiator 1: FBA (Frequent Batch Auction)

Injective currently has a block time of 650ms (0.65 seconds, thanks to Altaris) and a TPS (Transactions per Second) exceeding 25,000. While block time in the microsecond range is already achievable by several Tendermint-based chains, a TPS of over 25,000 is an unprecedented achievement for any Tendermint-based blockchain. How is this possible?

TPS, as the name suggests, is a metric that indicates how many transactions a network can process per second. To achieve a high TPS, the number of transactions processed simultaneously must be high. In this context, Injective's Frequent Batch Auction (FBA) is a crucial element to consider when discussing the network's TPS. FBA can be defined by approximately three features:

3.1.1 Discrete Time

Discrete time means that the time variable only takes values at specific points. For example, if we denote time as t and have a specific time interval [t0, t10], if the possible time points within this interval are finite, such as t = t0, t1, t2, ..., it's discrete time. If there are infinitely many possible time points within this interval, it's continuous time. In Injective's auction, discrete time is used to settle specific types of orders within certain time intervals. The order of settlement is as follows:

- Market orders are settled first.
- Next, limit orders not executed in the previous auction are settled.

- Finally, the most recent auction's limit orders are settled.

If the supply and demand for a particular order don't match, the orders with smaller quantities are settled first, and the larger orders are settled pro rata (proportionally).

3.1.2 Uniform Clearing Price

The Uniform Clearing Price in auctions refers to the execution of limit orders at the price point where the most trades occur. The detailed explanation is as follows:

Limit Orders

A limit order is an order to buy or sell an asset at a specific price or better. A buy limit order can only be executed at the specified price or lower, and a sell limit order at the specified price or higher.

Crossing Orders

In the context of auctions, an order crosses when the price of a buy order is equal to or higher than the price of a sell order. This signifies that a trading opportunity has arisen, as the needs of the buyer and seller match.

Maximum Quantity of Crossing Orders

The Uniform Clearing Price is determined at the price level where the quantity of crossing orders is the highest. This can be considered the price that maximizes trade volume, thereby enhancing market efficiency.

Midpoint Price of Equal Quantities

When bidding and selling prices at various points cross at equal quantities, the midpoint of these prices is often used as the single clearing price. This is seen as a fair way to balance the interests of buyers and sellers.

3.1.3 Sealed Bid

Sealed Bid means that orders are not posted to the order book until the batch auction is executed. Injective uses this method to prevent transaction front-running. This feature relieves market makers from the responsibility of addressing front-running issues on their own. As a result, Injective is not subject to MEV or other attack vectors that commonly affect other blockchains. Consequently, it enables market makers to provide ample liquidity near the market price. This scenario undoubtedly offers benefits such as providing more equitable pricing for retail traders and minimizing volatility.

While these three features—discrete time, uniform clearing price, and sealed bid—are not invented by Injective, it is the first blockchain to implement all three. Together with these features, the Frequent Batch Auction (FBA) aggregates various orders and transactions within the network and sequentially incorporates them into blocks. This method differs from traditional blockchain approaches, which prioritize transactions based on transaction costs. The combination of FBA with customized Tendermint, which instantly finalizes blocks, allows for the rapid processing of complex transactions. Thanks to these advantages, Injective has been designed as a blockchain suitable for use by institutions and professional traders.

3.2 Technical Differentiator 2: Plug-and-Play Modules

I believe that the customers of a Layer 1 blockchain should be builders, not just users. And for a healthy ecosystem, the builders on this Layer 1 blockchain should consider their end-users as their customers. From this perspective, the primary challenge for a Layer 1 blockchain is to create the most developer-friendly environment possible. While providing financial grants to developers is beneficial (though not sustainable), reducing their time and effort, as well as minimizing friction for non-Web3 developers to build on top of Injective, is crucial for enhancing the overall developer experience. Injective aims to address this through Plug-and-Play modules. As the name suggests, these are pre-built infrastructures that allow developers to easily construct their applications. Let's take a look at the modules available on Injective.

3.2.1 Exchange Module

The exchange module is an indispensable component of Injective, central to its identity. This module not only enables traders to engage in various types of trading (spot or derivatives) but also manages on-chain order books and order matching (matching engine). These functions are invaluable from a builder's perspective, as previously, decentralized finance (DeFi) applications required developers to construct their matching engines and order books, which are now facilitated by the exchange module, saving time and elevating the quality of DeFi applications.

Moreover, the on-chain order book in the exchange module provides shared liquidity, significantly reducing costs for early DeFi protocols, as they do not need to issue and distribute their tokens to ensure liquidity (because they don't need to bootstrap their own liquidity). Therefore, the exchange module is crucial in making Injective an infrastructure that is friendly for builders by 1) minimizing the time and resources needed to build financial applications, and 2) ensuring sufficient liquidity without the need for their governance tokens, which makes it a vital element of Injective's builder-friendly infrastructure.

Currently, the decentralized order book exchange Helix utilizes Injective's exchange module.

3.2.2 Automated Smart Contract / WASMX Module

Being a Tendermint-based blockchain, Injective supports WASM-based virtual machines (CosmWasm). While this might seem standard, Injective goes a step further by offering two exciting features: the WASMX Module and automated smart contracts.

What are automated smart contracts? Typically, smart contracts require input from a third party (usually users) for execution. However, Injective has designed its contracts to execute automatically with each block, enabling builders to create a broader range of applications. Immediate applications include automating tasks like payroll or subscriptions for services.

The WASMX Module facilitates the easy implementation of these automated smart contracts on the Injective chain. Currently, registering a smart contract through the WASMX Module requires a governance proposal, highlighting its role in managing automated smart contracts, including registration, deactivation, and setting up wallets to pay for execution fees.

3.2.3 RWA (Real World Asset) Module

With the rise of projects like Ondo Finance, RWAs have become a highly watched sector within blockchain. Given Injective's financial focus, it supports RWAs through a module that allows institutions to easily tokenize real-world assets (like fiat currencies or bonds). The nature of the RWA sector necessitates restricted access to tokenization and trading rights (RWA project has to do this for compliance reasons), and Injective's RWA module grants these abilities on-chain to designated institutions and entities. Ondo Finance currently supports Injective, and many more RWA initiatives are expected to unfold on Injective.

3.2.4 Auction Module

The auction module collects a portion of revenue accumulated on dApps using the exchange module into a basket and auctions them off to the highest bidder in INJ tokens, which are then burned. This mechanism allows Injective to continuously reduce the supply of its tokens, adding an interesting dimension to the value of Injective tokens. However, the process described here pertains to INJ 1.0, and currently, Injective is expanding the types of fees collected in the basket, a topic that will be discussed further when explaining INJ 3.0.

Additionally, Injective offers various other modules to assist developers, which can be explored here.

3.2.5 Governance with Real Utilities

An intriguing aspect of exploring Injective's modules is their close relationship with its governance. Unlike most Layer 1 chains where governance is nominal, Injective uses its governance to 1) list assets on spot markets, 2) determine smart contracts for registration on the WASMX module, and 3) adjust various parameters, including those typically seen in other Cosmos chains. This capability to expand token utility with chain growth makes Injective's diverse governance powers particularly compelling.

3.3 Continuous Development for Better Infrastructure: Altaris Upgrade

While the technical differentiators I mentioned above are elements that make Injective stand out, what makes Injective even more formidable is that **they continue to prioritize technological development even at this very moment**. As I mentioned at the beginning

of the report, Injective is a team that shows more consistency than any other project, and I believe this consistency is the element that makes Injective shine the brightest. Perhaps the most recent example of this consistency is the Altaris upgrade, which is arguably the most important among Injective's mainnet upgrades. So, what changes will Altaris bring to Injective? Let's examine them in order.

3.3.1 Overall Performance Enhancement of the Blockchain

When discussing blockchain performance, one typically refers to network scalability, smart contracts, interoperability, and developer tools. Through the Altaris upgrade, Injective has significantly improved all these aspects. In terms of chain speed, they have greatly enhanced it by optimizing data and resource management. For smart contracts, they have introduced WASM 2.0, allowing developers to use smart contracts more flexibly. Interoperability has been improved by adopting IBC hooks and Packet Forward Middleware (PFM), which enhances cross-chain interoperability.

3.3.2 RWA Oracle

While the previous Volan upgrade introduced the first RWA module, the Altaris upgrade further enhances the safety of operating RWAs by introducing a dedicated RWA oracle. This will enable Injective to become a more financial institution-friendly blockchain. This development is also in line with the ETPs (Exchange Traded Products) of Injective token launched by 21 shares (Four Pillars wrote about this before)

3.3.3 A Better Economic Model

Injective has demonstrated an ongoing commitment to enhancing its tokenomics, an effort that continues with the implementation of the Altaris upgrade. A key feature of this upgrade is the introduction of a Pool Auction contract to the existing token burn mechanism. This innovative addition enables smart contract participation in auctions, allowing users to collectively pool funds into contracts to compete in high-value auctions that typically involve hundreds of thousands of dollars. By facilitating community-driven token auctions and burns, this feature significantly increases accessibility and introduces a more dynamic element to Injective's deflationary model. This approach not only democratizes participation in the token burn process, but also potentially amplifies its impact on the overall tokenomics of the ecosystem.

Furthermore, Injective has modified its existing fee discount model (which previously offered trading fee discounts based on 30-day trading volume and INJ token staking

amount). With this update, traders can now receive discounts of up to 50% on trading fees, making Injective an even more trader-friendly platform. Notably, they have also adjusted the tier levels to ensure that even traders who don't trade frequently can maximize their benefits. Lastly, they've introduced a staking grant feature that allows existing Injective stakers to allocate a portion of their staked amount to traders, helping them reduce trading fees. Through this mechanism, stakers can indirectly create additional incentives for traders to use Injective. From a staker's perspective, having more traders use Injective is beneficial as it generates more fees. Therefore, this initiative is considered to align the interests of both stakers and traders effectively.

Additionally, Injective has upgraded its bridge to enhance speed and security, simplified the process of listing assets on the perpetual options market, and introduced a partial liquidation model to make trading more flexible. These initiatives collectively aim to improve the experience for traders and users.

3.3.4 Takeaway

In the blockchain industry, many claim to "work hard," but often there are few tangible results. However, Injective has undergone two major updates this year alone. I believe most blockchains are currently in a transitional period. Therefore, I think it's a time when they need to continuously adjust their infrastructure according to market conditions and their pursued objectives.

A blockchain that is safer, faster, and more user-friendly - it's easy to say, but teams that consistently work towards these results are truly rare. Is Altaris the end? Likely not. I believe Injective will continue to develop their infrastructure next year and the year after, providing a financial infrastructure that more people can use comfortably. That's why I continue to be interested in Injective and watch them with anticipation.

The reason Injective's upgrades are interesting each time is that we can see their intention to align the incentives of users, traders, stakers, and builders through various changes. I don't think any blockchain has perfectly aligned the incentives of these four stakeholders yet, but Injective seems to be gradually aligning their interests, which makes their future developments very noteworthy.

3.4 Non-Technical Differentiator: Adaptability to Dynamic Markets

As mentioned in the introduction, the blockchain market is still in its infancy and highly dynamic. The most crucial value in such an environment is adaptability—the ability of a project to recognize market trends and launch initiatives that align with these trends. Injective has demonstrated considerable adaptability in this regard, as evidenced by its ongoing collaborations with prominent projects.

3.4.1 Continuous Collaboration with Promising Projects

Projects like Ondo Finance, Ethena, and Jambo share a commonality: they are among the most popular in the current blockchain market. Moreover, they are all collaborating with and utilizing Injective. Ethena first expanded beyond the Ethereum ecosystem with Injective, highlighting Injective's quick adaptability to align with market trends and meet user needs, a capability underscored by recent collaborations, including Xion citing Injective as a prime example of chain abstraction.

3.4.2 Launch of Institution-Friendly Product, ETP

This year in the blockchain market can be summarized as 'institutional participation', with a significant influx of institutional funds into crypto assets. Injective, not missing this trend, collaborated with 21 Shares to launch an ETP product. But what exactly is an ETP?

ETP stands for Exchange Traded Products, also known as 'listed index products' in some languages. Simply put, it refers to products listed on exchanges that track the value changes of underlying assets. The AINJ, launched by Injective, is an ETP based on the Injective token INJ, which has garnered significant attention.

An interesting aspect of AINJ is that it can also earn staking rewards. Literally, it allows investors to capture the upside of Injective while being tradable on stock markets due to its ETP nature.

I have two opinions about this ETP launch and Injective's move. First, I realized that Injective has a vision to embrace the entire financial sector, not just decentralized finance. Second, it creates the possibility of tying more people to the INJ token as an incentive. Moreover, I think the launch of the ETP product is a suitable example of how well Injective reads market trends.

3.4.3 Support for Multiple VMs

Finally, there's the multi-VM support. As I will explain in more detail later, Injective was among the first Layer 1 blockchains to show movement towards supporting multiple Virtual Machines (VMs). While projects like Arbitrum's Stylus or Initia are now showing efforts to support multiple VMs through rollups, Injective announced multi-VM support before these projects and has already implemented it in many areas. I'll discuss the detailed structure later.

Considering that Injective started in 2018, this demonstrates remarkably impressive adaptability. When you think about projects that launched around 2018, it's hard to name any that read and applied market trends as well as, or better than, Injective. This capability certainly deserves attention. Let's take a closer look at the multi-VM structure.

4. Multi-VM Environment

As mentioned earlier, blockchain platforms have recently started to move away from a single virtual machine (VM) model. For instance, Sei is now supporting both WASM and EVM in its V2 update. However, Injective has been working to create a development environment that can utilize various virtual machines for some time now. As a blockchain researcher, I believe that the primary customers of Layer 1 blockchains should be builders, not just users, and the users should be customers of these builders. From this perspective, enabling builders to easily create applications by supporting multiple virtual machines is a logical step for any Layer 1 blockchain (this aligns with Injective's approach of supporting various modules at the chain level).

However, Injective's approach to supporting virtual machines is somewhat unique. Instead of supporting VMs directly on the main chain, Injective has created separate rollup chains. This design maximizes developer autonomy while ensuring that value is transmitted back to Injective's native assets. Let's explore these rollups in detail.

4.1 inSVM

inSVM is the first SVM (Solana Virtual Machine) based rollup in the Cosmos ecosystem. Utilizing Solana's Solana Virtual Machine enables the parallel processing of transactions and offers a significant advantage in easily integrating various interfaces existing in Solana, including Solana wallets. This creates a particularly favorable condition for Solana developers to onboard easily. But how does inSVM function?

4.1.1 How It Works

The initial plan for inSVM is to be developed in collaboration with teams that have expertise in SVM and rollups. As for its operation, it is an injective-based rollup, which means it will function in the same way as conventional rollups. Like any rollup, there will be a sequencer that collects transactions and submits them to the DA layer. Ultimately, the goal is to decentralize the sequencer, with Injective acting as the settlement layer, and Celestia participating as the DA layer.

4.1.2 Why Is It Important

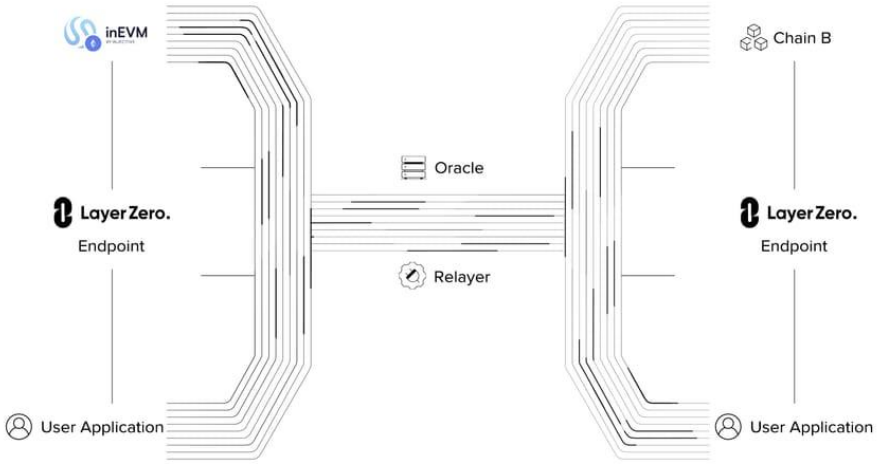
The importance of Injective's inSVM lies in providing an alternative environment to developers who have been isolated within the Solana ecosystem, and offering talented Solana developers the opportunity to deploy their applications within the Injective ecosystem as well (similar to how Ethereum-native applications are deployed across chains compatible with EVM).

4.2 inEVM

Source: Injective Blog

While inSVM is Injective's SVM rollup, inEVM represents Injective's EVM (Ethereum Virtual Machine) rollup. As widely known, EVM is the virtual machine with the most extensive use cases and developer community in the blockchain industry. It's a must-have in any multi-VM support system. In the case of inEVM, it has been designed to communicate with WASM-based applications on the Injective chain through a bridge

called Hyperlane. Essentially, Hyperlane enables Solidity-based applications on the inEVM chain to interact with WASM-based applications on the Injective chain. This interoperability feature of Hyperlane allows Injective to build an ecosystem where various VMs coexist without being isolated from each other. Moreover, the modules within the Injective Network core are also readily accessible within the inEVM ecosystem, providing an experience that is rare in other blockchains.



Source: InEVM Document

Hyperlane serves as a bridge connecting rollups with each other, as well as applications between rollups and the Injective chain, while LayerZero aids inEVM in communicating with ecosystems outside of Injective. This is referred to as Omni-chain Apps (OApps) in Injective. Utilizing LayerZero's infrastructure, calls from chains external to Injective are containerized into message packets for transmission and reception. Additionally, there exists an OFT OApp extension that enables cross-chain NFTs, allowing for the implementation of Omni-chain NFT products that are compatible across various chains connected to Injective.

In this manner, Injective, while being a Layer 1 platform, supports various VMs through rollups and facilitates seamless communication between them using Hyperlane. At the same time, it uses LayerZero to connect these rollups with chains outside of Injective.

This highly distinctive Multi VM structure is worth a closer examination, but its advantages are clear: it can potentially integrate more VMs in the future, following a similar implementation model. This not only prepares it for future technological

advancements but also enables it to incorporate the most popular features of current blockchain ecosystems—combining the interoperability of Cosmos, the scalability of Solana, and the vast developer community of Ethereum. While the outcomes of this strategy will need to be monitored over time, if Injective's multi-VM structure proves successful, it could serve as a benchmark for many players in the field.

Injective's inEVM has recently collaborated with Arbitrum Orbit to bring various toolkits into inEVM, creating a more developer-friendly environment for Ethereum developers. It appears they are continuously working to enhance the ecosystem. If you're an EVM builder, it might be a good idea to take a look at inEVM at least once.

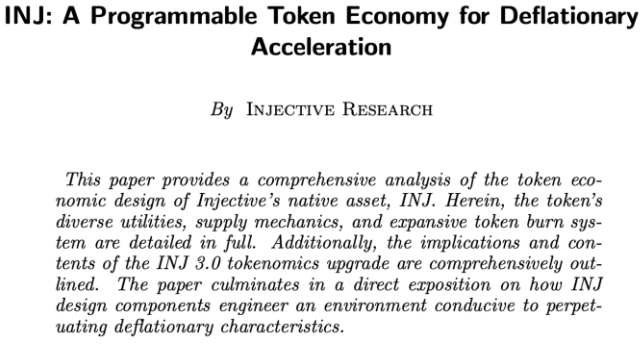
5. Unique Features of Injective

Beyond the aforementioned elements, Injective possesses several interesting features. Some of the features I find particularly fascinating include:

5.1 Gas Compression

Following the introduction of blobs through EIP-4844, the transaction costs for rollups have become significantly lower. This has sparked discussions about transaction fees across various Layer 1 networks. Comparing the transaction costs of networks like Base and Solana, rollups have now reached a level where transaction fees are more user-friendly. Lower fees generally indicate how "easily accessible" a chain is to users, meaning the lower the transaction fees, the better for users (though, from a tokenomics perspective, whether low fees are always beneficial warrants additional discussion). So, how low are the transaction fees on the Injective Network? While network conditions and external variables can vary, Injective's fees are even lower than those of Solana (in the case of Injective, it is $0.0003, whereas in Solana it is $0.00045). This is made possible by a unique feature called Gas Compression, which essentially compresses transaction costs. Injective achieves this through Transaction Batching (bundling various transactions into one batch reduces computational costs) and Data Storage Optimization.

5.2 Injective's Tokenomics



INJ: A Programmable Token Economy for Deflationary Acceleration

By INJECTIVE RESEARCH

This paper provides a comprehensive analysis of the token economic design of Injective's native asset, INJ. Herein, the token's diverse utilities, supply mechanics, and expansive token burn system are detailed in full. Additionally, the implications and contents of the INJ 3.0 tokenomics upgrade are comprehensively outlined. The paper culminates in a direct exposition on how INJ design components engineer an environment conducive to perpetuating deflationary characteristics.

Ultimately, the most important keyword to describe the INJ token is "deflationary asset." Injective also emphasized in their paper that the most significant difference between $INJ and other PoS chain governance tokens is its deflationary nature. Injective's

tokenomics are quite fascinating, and there are concepts from monetary economics that could be applied here. Let's examine them one by one.

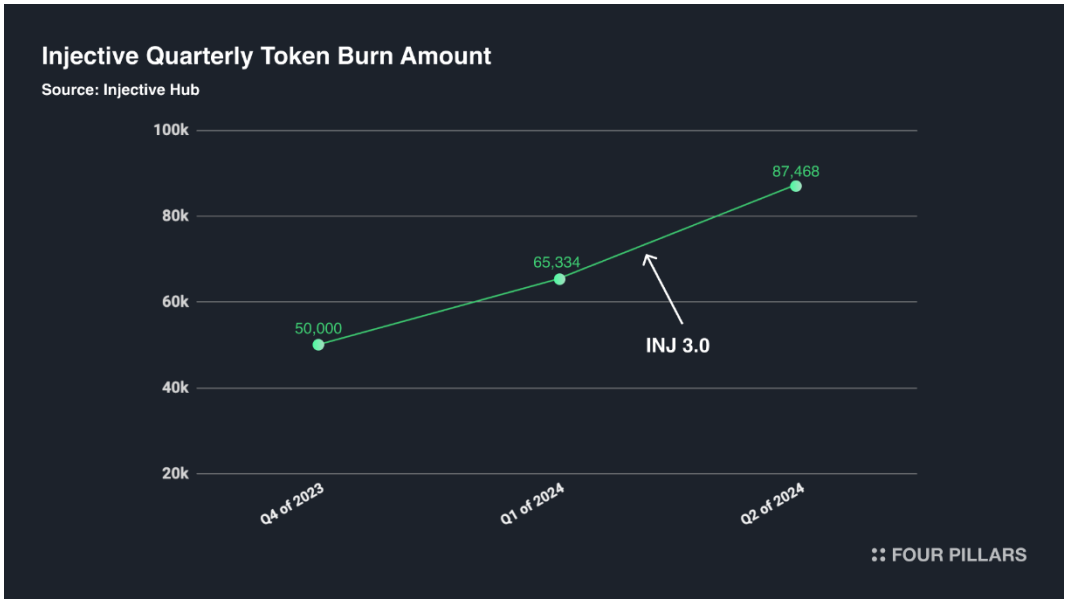
5.2.1 Injective's K Percentage Rule

Milton Friedman, the great American economist, criticized the lax monetary policy of the United States and emphasized that the money supply should be regulated based on a pre-determined rule, not exceeding that limit. Injective's token supply policy reminds me of Friedman's rule-based approach.

This is because Injective's token supply is regulated by a single criterion: the Goal Bonded Percentage. What this means is that if the actual supply of INJ falls below this threshold, the supply increases, and conversely, if it exceeds the threshold, the supply decreases. This mechanism aims to avoid excessive monetary policy by the protocol itself. Ultimately, the beneficiaries of this principled monetary policy are the holders of the asset.

As Injective's tokenomics enters the INJ 3.0 phase, this criterion becomes even stricter (the lower bound of the threshold decreases from 5% to 4%, and the upper bound decreases from 10% to 7%). This means that the overall supply will decrease even further in the future.

5.2.2 Injective's Deflation



Injective manages the total supply of its tokens according to a set rule, maintaining value

through continuous token burns. The deflationary mechanism of Injective has undergone three significant changes and has now evolved to leverage the entire ecosystem. In INJ 1.0, a portion of the fees from the exchange module was auctioned, and the INJ received from the auction was burned. In INJ 2.0, this was expanded to include not just applications using the exchange module but all applications, allowing the entire fee to be allocated for auction. Starting with INJ 3.0, general users were also able to contribute to the auction, increasing the number of tokens burned. The amount of INJ tokens being burned has been continuously increasing (refer to the graph in section 4.2). As of August 2024, approximately 6,179,035 INJ tokens have been burned, which amounts to a total value of 114 million USD.

5.2.3 No Unlocked Tokens

According to Injective, as of January 2024, all the initially locked tokens have been fully distributed. This stands in contrast to many other Layer 1 projects that have token unlock schedules spanning several years into the future.

5.2.4 Personal Thoughts

Injective is a fascinating project in many ways. It is the only project that has consistently adjusted its tokenomics since its mainnet launch, with a clear focus on maintaining and increasing token value. The burn mechanism itself is designed in a way that aligns the interests of the Injective Foundation and the community perfectly.

If users increase their usage of the protocol, generating more fees, a larger amount of assets will go to auction, requiring more INJ to be purchased, which in turn reduces the supply of INJ and increases its value. This positive feedback loop is expected to encourage the Injective team to bring in better applications (such as Ondo and Ethena) and for users to actively use and promote them.

6. Injective Ecosystem

The core of Injective's tokenomics is essentially that "the more it is used, the more the supply of Injective tokens decreases." For the Injective Network to be widely used, the most important factor is its ecosystem. The more interesting applications there are, the more users will use the Injective Network, which in turn will reduce the supply of Injective tokens. Therefore, it is crucial to examine the Injective Network's ecosystem. So, we have prepared this: Four Pillars' highlights of the Injective ecosystem.

6.1 Liquid Staking

6.1.1 Hydro Finance

Hydro Finance is the premier Liquid Staking Protocol on Injective, holding the top spot in TVL.

However, it is planning to offer more than just liquid staking services. Hydro has already launched the Restakable Liquidity Pool (LRP), a crucial component of its three-phase plan for Real Yield Asset (RYA).

LRP enables users to enhance yields by staking LP tokens for additional rewards. RYA, which has not yet launched, aims to diversify yields within a single basket, combining revenues from margin trading, fee shares, staking APY, and collateralized RWAs, similar to an ETF. In RYA, LRP assets are high-yield, $INJ and liquid staked tokens like hINJ are mid-yield, and stablecoins/RWAs are low-risk assets.

6.1.2 Stride

Stride is a multi-chain liquid staking chain within the Cosmos ecosystem. Stride offers liquid staking services to Injective by leveraging IBC interoperability.

6.1.3 Kakeru

Kakeru is designed to enhance LSDfi (Liquid Staking Derivatives finance) by allowing users to unlock liquidity typically tied up in staked assets. It aims to be the first comprehensive lending market within the Injective ecosystem, integrating liquidity across different chains without the need for cross-chain operations.

They recently launched iUSD which is their stablecoin backed by liquid staked Injective (nINJ in this case).

This stablecoin integration simplifies user operations and enhances asset utilization. Moreover, most of the fees generated by the Kakeru lending agreement are returned to decentralized Liquidity Provider (dLP) holders, who supply liquidity to the platform.

6.2 Derivative

6.2.1 Levana Protocol

Levana Protocol is a decentralized perpetual protocol designed for leveraged positions on various assets. Operating within the injective, Sei, and osmosis ecosystems, it offers a fully collateralized platform for perpetual swaps, allowing users to trade native tokens with up to 30x leverage (10x leverage for injective).

The protocol's "well-funded" approach ensures all positions are fully collateralized, eliminating insolvency risk and guaranteeing fair settlement payouts in any market conditions.

6.2.2 Thetanuts Finance

Thetanuts Finance is a decentralized on-chain option protocol focused on altcoin options. Launched in September 2021, the platform initially introduced Basic Vaults, which offered out-of-money (OTM) European cash-settled options to accredited market makers, generating yields for users through option premiums. With the v3 upgrade, Thetanuts Finance will transition to a decentralized on-chain options protocol focused on altcoin options. This new v3 architecture leverages existing Basic Vault LP Tokens to introduce novel use cases across on-chain options trading. This functionality is supported by a Lending Market and Uniswap v3 Pools, all integrated within the new v3 interface.

They are one of the first protocols to support inEVM, the EVM-compatible rollup created by injective.

6.3 Asset Management

6.3.1 Mito Finance

Mito Finance is a decentralized asset management protocol built on top of Injective. Mito is focused on automated trading and yield generation, as well as launchpad.

Automated Trading Vaults utilize sophisticated strategies to generate passive income for users. Each vault is designed with specific risk tolerances and target return objectives. With Mito, users can enjoy hassle-free asset management, as Mito handles everything on their behalf.

Mito is also known for its permissionless vaults. Permissionless vaults allow projects to create and manage their own vaults independently, without intermediaries. These smart contract-based pool funds from multiple users to optimize yield farming or liquidity provisioning strategies automatically. Users can create vaults by selecting INJ as the quoted market and Constant Product Market Maker (CPMM) as the vault type. Mito ensures security with a vault creation fee, minimum initial subscription, and automatic ownership assignment to prevent withdrawal of initial funds. This innovation aims to enhance decentralization and user empowerment in the DeFi ecosystem.

Additionally, Mito offers launchpad services, allowing early projects on Injective to receive financial and social support from the Injective community, provided the projects are approved through community voting.

6.3.2 Exotic Finance

Exotic Finance is a decentralized option protocol on injective. It allows users to engage with exotic financial products that offer customizable risk-to-maturity profiles. The platform aims to maximize investment opportunities through sustainable yield generation and diverse financial instruments.

6.4 Stablecoin

6.4.1 Ethena

Ethena is mutlichain-based protocol that issues a synthetic dollar asset called USDe. Unlike traditional stablecoins, USDe is backed by a combination of crypto assets and futures positions, employing a delta-neutral strategy to maintain its value independent of market volatility. This method allows USDe to be redeemed at a 1:1 ratio at any time. Ethena uses the liquidity of centralized exchanges to avoid scalability issues and relies on institutional-grade custodians for asset safety. The goal is to provide a stable, on-chain dollar asset not tied to traditional financial systems.

Although Ethena is an Ethereum-centric protocol, the integration with injective was possible due to Injective's implementation of EIP-712, allowing Ethereum wallets to seamlessly connect to the Injective Network.

6.4.2 Paypal USD(PYUSD)

PayPal USD (PYUSD) is a stablecoin issued through a partnership between Paypal and Paxos. Like $USDT and $USDC, it is backed 1:1 with reserve composed of cash and cash equivalent assets held in banks insured by the Federal Deposit Insurance Corporation. The inclusion of PYUSD will facilitate easier entry and exit points for users interacting with the Injective ecosystem, promoting broader crypto adoption and bridging the gap between traditional finance and decentralized platforms.

6.4.3 USDC (Circle USD)

USDC is one of the most widely used stablecoins in the industry. Integrating USDC with the Injective holds substantial significance for both the Injective ecosystem and its users.

6.4.4 USDM

USDM is the first yield-bearing stablecoin issued by Mountain Protocol. Similar to USDT or USDC, USDM's value is backed by U.S. Treasury Bills. However, the key difference is that while the interest generated from treasury bills for USDT or USDC is retained by the companies, the interest from USDM is distributed to its users (as of August 2024, it generates approximately 5% interest). Mountain Protocol, the issuer of USDM, has successfully raised investment from Multicoin Capital, Coinbase Ventures, and others.

6.5 Decentralized Exchange

6.5.1 Helix

Helix is the most well-known and widely used DEX protocol built on Injective. Leveraging the exchange module and scalable infrastructure from injective, Helix offers CEX-like user experiences. Helix is also known for quickly listing blue-chip assets, attracting aggressive traders in the industry.

For institutional traders, Helix facilitates large-scale trading and liquidity provision through its custom APIs.

To date, Helix has handled over **$34B** in total trading volume.

6.5.2 Dojoswap

DojoSwap is the first automated market maker (AMM) decentralized exchange (DEX) built on the Injective, inspired by Uniswap. It enables decentralized on-chain trading of various assets within the Injective ecosystem. As the first native AMM DEX on Injective, DojoSwap facilitates efficient trading and liquidity mining, allowing users to swap tokens seamlessly and at low cost, thanks to Injective's minimal gas fees.

DojoSwap also supports the launch of new projects through its launchpad platform. This platform aids small projects with fundraising and exposure, offering $DOJO token holders early access to new tokens and trading opportunities.

6.5.3 Astroport

Astroport is an AMM protocol created by Delphi Labs. It is one of the well-known DEXs in the Cosmos ecosystem, deployed on multiple cosmos-based chains. Astroport's deployment on Injective enhances the ecosystem by providing robust liquidity solutions, advanced trading features, and efficient cross-chain operations, making it a crucial component of the Injective DeFi landscape.

6.5.4 White Whale

White Whale, an interchain liquidity protocol, has deployed on Injective, introducing advanced DeFi tools such as flash loans and arbitrage to the Injective ecosystem. This integration aims to tackle market inefficiencies and leverage price disparities across various chains within the Cosmos ecosystem. By connecting liquidity across the Cosmos network, White Whale strives to address the challenges of fractured liquidity and unstable pricing, ultimately fostering a more efficient and integrated market environment.

6.6 Lending Protocol

6.6.1 Neptune Finance

Neptune Finance is a peer-to-peer lending protocol on the Injective Protocol, aimed at boosting capital efficiency and liquidity within the Injective and broader Cosmos ecosystems. Users can lend, borrow, and manage assets with better rates and greater modularity (modularity in this case refers to the platform's design that allows it to be composed of independent, interchangeable components.). They currently offer over

14% interest for $INJ and over 20% interest for USDT deposits.

6.6.2 Injera

Injera is a synthetic dollar protocol built on the Injective Protocol, offering a stable, globally accessible, crypto-native dollar-denominated instrument. Injera also features a money market where users can lend, borrow, and stake USDi, generating yield from staked assets and borrowing spreads from the CDP (collateralized Debt Position) money market. Since Injera has its own synthetic dollar asset, it can also be categorized as part of the stablecoin section.

6.6.3 Timeswap

Timeswap is a decentralized lending protocol integrated into the Injective ecosystem (specifically inEVM), offering a unique approach to lending and borrowing without relying on traditional oracles or liquidations. This fully permissionless and non-liquidatable protocol focuses on fixed maturity lending and borrowing, enhancing capital efficiency and security within the DeFi space.

6.7 NFT Marketplace

6.7.1 Talis Protocol

Talis is a decentralized NFT marketplace on the Injective network, designed to facilitate the creation, trading, and management of NFTs. It aims to provide a robust platform for artists, collectors, and traders by leveraging Injective's high-speed, low-cost blockchain infrastructure. In Talis, users can stake $TALIS tokens to earn rewards (an $xTalis staker earns monthly rewards proportional to their staked amount.) This feature incentivizes participation and engagement within the Talis ecosystem, promoting a vibrant community of creators and collectors.

6.7.2 Dagora

Dagora, created by coin98_labs, is another prominent NFT marketplace integrated with Injective, focusing on making NFTs accessible to a broader audience. It supports multichain operations, allowing users to interact with NFTs across different blockchain networks.

6.8 Mobile

6.8.1 Jambo Technology

Jambo Technology, established in 2021, democratizes Web3 technology in Africa through the Jambo SuperApp, which offers Web3 education and income-generation tools, and the Jambo Phone, an affordable Web3 smartphone. Operating in over 19 regions, Jambo collaborates with partners like Injective and Aptos to boost digital financial inclusion and economic growth.

6.9 RWA (Real World Asset)

6.9.1 Ondo Finance

Ondo Finance bridges traditional finance and decentralized finance by offering tokenized real-world assets like USDY and OUSG, providing exposure to U.S. Treasuries. It emphasizes regulatory compliance and has partnered with BlackRock for significant transactions, enhancing its presence in the DeFi ecosystem.

6.10 Launchpad

6.10.1 Moon App

Moon App is a DeFi platform offering a launchpad and advanced trading tools like MEV, sniping, and on-chain limit orders. It features non-custodial crypto access and the $APP token, which can be staked for participating in IDOs within the Injective ecosystem. With over 250,000 users, Moon App aims to reach 10 million by the end of 2024, emphasizing mobile accessibility and comprehensive DeFi functionalities.

6.10.2 Mito Finance

Mito Finance also offers launchpad services, allowing early projects on Injective to receive financial and social support from the Injective community, provided the projects are approved through community voting.

6.10.3 Dojo Swap

DojoSwap also supports the launch of new projects through its launchpad platform. This platform aids small projects with fundraising and exposure, offering $DOJO token

holders early access to new tokens and trading opportunities.

6.11 SocialFi

6.11.1 Out App

Out App is a SocialFi project on Injective, designed to reward users for high-quality content and foster community interaction. This decentralized application combines social networking features with financial incentives, allowing users to earn rewards based on their contributions. Out App is built as a Progressive Web App (PWA), which allows it to ensure accessibility across various platforms and devices.

6.11.2 Ninja Garden

Ninja Garden is a groundbreaking SocialFidecentralized application built on Injective. The platform offers a liquid staking derivative, issuing gINJ to users who stake INJ, with an APY of over 17%. It also includes a social dApp where users buy and sell keys to access rooms and engage in community discussions. The $KUNAI token, used for governance and rewards, is distributed based on user activity and engagement within the platform.

6.12 GameFi

6.12.1 Ninja Blaze

Ninja Blaze is a GameFi project on Injective that offers a variety of chance-based games with a focus on transparency and fairness. Utilizing Injective's speed and low transaction fees, Ninja Blaze ensures that every game and transaction is recorded with integrity. The platform currently features games like Jackpot, Roshambo, and Double. In addition to gaming, Ninja Blaze incorporates NFTs that offer enhanced rewards and influence within the project. The platform also has a vibrant community supported by an ambassador program and engagement initiatives.

6.12.2 Jutsu TCG

Jutsu TCG is a GameFi platform on Injective, designed to create the first on-chain CW404(CW404 is a new token standard introduced by Injective, modeled after the experimental ERC-404 standard from Ethereum. This standard is designed to combine the features of CW-20 (fungible tokens) and CW-721 (non-fungible tokens) to create "semi-fungible" tokens. These semi-fungible tokens allow users to own fractions of

NFTs, unlocking liquidity and enabling new decentralized finance (DeFi) opportunities)fantasy card game. Players can battle, trade, and reroll (“Jutsu”) to build and enhance their card collections, providing a dynamic and engaging gaming experience. Similar to Ninja Blaze, they also aim to build a vibrant community through various engagement initiatives like social engagements(twitter spaces), community events, and NFTs that grant additional benefits within the game.

6.12.3 SA world

SA World, a major GameFi platform previously on Polygon and Binance Smart Chain, has migrated to Injective to enhance its gaming infrastructure. This move aims to leverage Injective's fast transaction speeds and low fees to provide a seamless and efficient gaming experience. SA World offers a variety of games and management tools, with notable title called Summoners Arena. The integration also introduces SA World’s NFTs and native assets into Injective’s ecosystem, enhancing interoperability and maximizing asset value within the Web3 gaming industry.

6.13 Wallet

6.13.1 Ninji Wallet

Ninji Wallet is the Injective Native wallet designed for seamless and efficient management of digital assets. It allows users to effortlessly trade on decentralized exchanges on Injective (DEX) and stake assets for passive rewards. Ninji Wallet emphasizes user-friendly interactions with Injective dApps, ensuring a smooth experience for those navigating the ecosystem.

6.13.2 Leap Wallet

Leap is a comprehensive digital wallet tailored for the Cosmos ecosystem, including Injective. Available as a mobile app and browser extension, it provides seamless management of digital assets across multiple chains. Users can perform various DeFi activities such as staking, participating in governance, and managing NFTs. Leap Wallet also facilitates secure and efficient bridging of assets between Ethereum and Injective, enhancing interoperability within the blockchain ecosystem. With features like IBC transfers, real-time price updates, and extensive support for dApps, Leap Wallet ensures a robust and user-friendly experience for interacting with Injective and other Cosmos chains.

6.13.3 Keplr Wallet

Keplr is the most famous crypto wallet within the Cosmos ecosystem, supporting over 40 blockchains, including Injective. It offers a comprehensive suite of features, such as asset management, IBC transfers, staking, and governance participation. Users can connect Keplr to the Injective Hub for seamless staking of INJ tokens, bridging assets, and participating in governance activities. The wallet is available as a browser extension and mobile app, providing secure and user-friendly access to the Injective ecosystem and facilitating interactions with various dApps and blockchain services.

6.13.4 OKX Wallet

OKX Wallet is known for its intuitive UI/UX design. With its Injective integration, users can manage Injective-based tokens, perform transactions, and participate in DeFi activities directly through the OKX Wallet app, browser extension, and web dashboard. By offering seamless access to the Injective network, OKX Wallet promotes interoperability and simplifies asset management across multiple blockchain networks.

6.13.5 MetaMask

MetaMask is the most famous crypto wallet provider in the industry. Its integration with Injective lets users bridge ERC-20 tokens from Ethereum to Injective. This allows participation in staking, governance, and DeFi activities. Users can connect MetaMask to the Injective Hub for seamless transactions and staking rewards, making it easier to interact with Injective's blockchain services.

6.13.6 Tria Wallet

Tria is a chain abstraction-focused wallet. Although it is not live yet, major protocols like Injective, Monad, and Polygon have partnered with Tria. With Tria, users on Injective will be able to access dApps with any social account, use assets from any chain, and pay gas fees with any token. This will enable a seamless, chain-abstracted user experience.

7. Injective: The Relentless Powerhouse

Injective seems to be a blockchain with a well-rounded set of advantages. While many projects are High FDV Low Float (high market cap based on total supply, but few tokens actually circulating), Injective is one of the few projects where the entire token supply is already in the market. This indicates they've been building in the market for a very long time. However, unlike other older projects, they haven't failed to catch up with market trends.

Perhaps Injective combines the trendiness of new projects with the advantage of older projects having no more locked-up tokens. How many projects that appeared in the market five years ago do we still remember today? And among these, how many are still dynamically active? Injective caught my eye, and during my research, I was quite surprised. While many people were focused on numerous noises, Injective quietly and consistently worked hard to enhance their value.

They created modules to make it easier for developers to create applications, supported multi-VM to create an environment where developers from diverse backgrounds can onboard, and expanded the Burn Auction method to exchange more fees for INJ, which is then burned to increase the token's value. Moreover, through swift collaborations with the most promising projects/institutions in the market, they provided users with opportunities to quickly try out the most promising projects. It's also very impressive that they consistently implement infrastructure upgrades, maintaining performance that doesn't fall behind newly emerging fast blockchains.

I wanted to highlight their consistency. While the name Injective itself might not feel fresh for a project that's over 6 years old from its initial idea stage, I believe we should spotlight projects that haven't simply endured for 6 years but have made their own challenges and achieved big and small accomplishments. This might lead to more such cases. While focusing on narratives is good and concentrating on immediate hype is important, is there a virtue more necessary in this current market than persistently pushing forward with the project you initially started, like Injective? This is why we should be interested in the future that Injective will create.
If you found the Injective team at Korea Blockchain Week or TOKEN2049, why not have a more serious and constructive conversation with them?

Disclaimer:

The following article was written with the partnership with Injective Labs. This article is intended for general information purposes only and does not constitute legal, business, investment, or tax advice. It should not be used as a basis for making any investment decisions or relied upon for accounting, legal, or tax guidance. References to specific assets or securities are for illustrative purposes only and do not represent recommendations or endorsements. The opinions expressed in this article are those of the author and do not necessarily reflect the views of any affiliated institutions, organizations, or individuals. The opinions reflected herein are subject to change without being updated.