DIGITAL INSIGHT FOUNDATION

Digital Insight Foundation

Whitepaper

Digital Insight Foundation (DIF)

Introduction

The Digital Insight Foundation (DIF) is a non-commercial organization dedicated to the decentralization, growth, and security of the DIG blockchain ecosystem, protocol, and network. Our mission is to transform web3 through world-class interactive entertainment products, immersive experiences, bleeding-edge technology, and all powered by the community.

Digital Insight Foundation's Core Initiatives:

DIG Blockchain Protocol, Ecosystem, and Network

Fostering an open community to spur the development of a robust network of products and services to accelerate the broader recognition and adoption of the DIG blockchain and platform

Decentralization

Growing the network by adding more validator nodes and widening the reach of the DIG ecosystem

Education

DIF aims to educate ecosystem participants through educational resources, documentation, and updates

Grants

Awards and funding to support initiatives aimed at growing the DIG blockchain protocol and network

Security

Facilitate reward incentives via open community support and improving the security and efficiency of the DIG blockchain

$DIG TOKEN

$DIG is a token supporting the DIG blockchain protocol, its ecosystem, and the world of web3. The $DIG token stands at the center of the DIG blockchain, an open ecosystem, and should be adopted by all supported game titles that live on the DIG platform. $DIG can be used for all transactions on the DIG blockchain for buying, selling, borrowing, and lending in-game digital items. It's intended to serve as an in-game currency and in-game governance that allow holders to play and participate in the DIG ecosystem. It also represents a stake in all supported titles on the DIG blockchain, permits staking to receive rewards across current and future titles, and is utilized in securing the DIG blockchain via a proof-of-stake consensus mechanism. Additionally, $DIG could be used for network transaction fees on the DIG blockchain, and a seemingly endless number of additional use cases as determined by the DIG ecosystem.

Examples of Potential $DIG Token Use Cases:

- **In-game currency** for current and future DIG ecosystem supported titles
- **Governance** across current and future DIG ecosystem supported titles
- **Security incentives** for validators to secure the DIG blockchain
- **In-game rewards** in supported games
- **Network transaction** fees on the DIG blockchain
- Other ways that will evolve with the future of blockchain/web3 technology and the DIG ecosystem as determined by the DIG ecosystem

Token Design

$DIG can be used as a governance mechanism for all supported titles on the DIG blockchain. This allows holders to vote on key game development decisions because gamers should actively participate in decision-making on the games they devote themselves to. We believe the two-token design currently found in other GameFi and Play-to-Earn (P2E) games is insufficient: when one token for game currency and rewards is inflationary, and the governance token is limited, it segregates and misaligns the investor base and players. Hence, we believe in a limited supply token that is utilized as both in-game currency and rewards while acting as a governance token across all titles on the DIG blockchain.

And importantly, a key goal was to design a system that does not affect the accessibility of DIG blockchain titles. Supported games could be designed so that progressing through such games do not require additional payments, but where $DIG expenditures could serve to accelerate progression or for aesthetic purposes. Additionally, supported games could be designed so that non-paying players could also earn $DIG through their in-game achievements.

Security and Staking Mechanisms

As a custom subnet, the DIG blockchain's network security is correlated to the amount of $DIG staked at one time. Therefore, there will be substantial network benefits to staking $DIG and aiding in securing the blockchain.

Sustainable Incentives for Securing the Network

In order to keep our $DIG tokens capped at 8 billion, we must ensure that all $DIG tokens remain in a closed ecosystem – as a result, the security incentives should consist of all network fees and a portion of supported in-game expenditures.

Decreased Cost of Progression

Supported systems that require in-game currency to advance should be reduced for players who stake $DIG.

VIP Benefits

Players who stake $DIG will receive a VIP benefits package for supported blockchain titles.

Leveling System

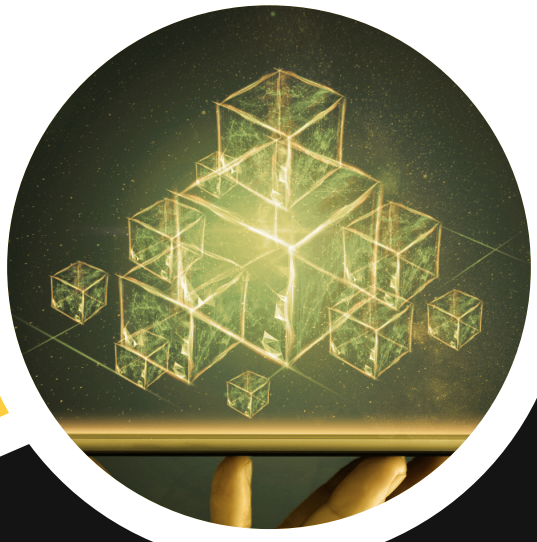
Various in-game bonuses should be given for a higher amount of tokens locked as VIP level rises.

DIG Blockchain Technology

Digital Insight Foundation (DIF) has selected Avalanche as its blockchain network as it is an incredibly fast solution (>4500/TPS) that finalizes transactions in a couple of seconds or less, and it is 100% environmentally friendly by being net carbon neutral. Avalanche is an already well-established network with many successful DeFi, NFT, and GameFi projects.

DIF will utilize an ERC-20 (Ethereum) compatible token ($DIG), which through the Avalanche Bridge will allow access to the liquidity on the Ethereum network. A recent announcement expands the Avalanche Bridge with Bitcoin support, further expanding the liquidity that can be brought into the DIG platform. The Avalanche Bridge utilizes Intel SGX Enclave technology, a breakthrough in secure computing that facilitates all operations in a closed environment, ensuring it is tamper-proof. The DIG platform inherits this high level of security.

Blockchain technology will be seamlessly integrated into all titles, allowing regular gamers who are unfamiliar with traditional blockchain concepts like wallets, tokens, and governance to start playing on the ecosystem. Crypto concepts are optional and progressively introduced as players advance and grow more familiar with different titles.

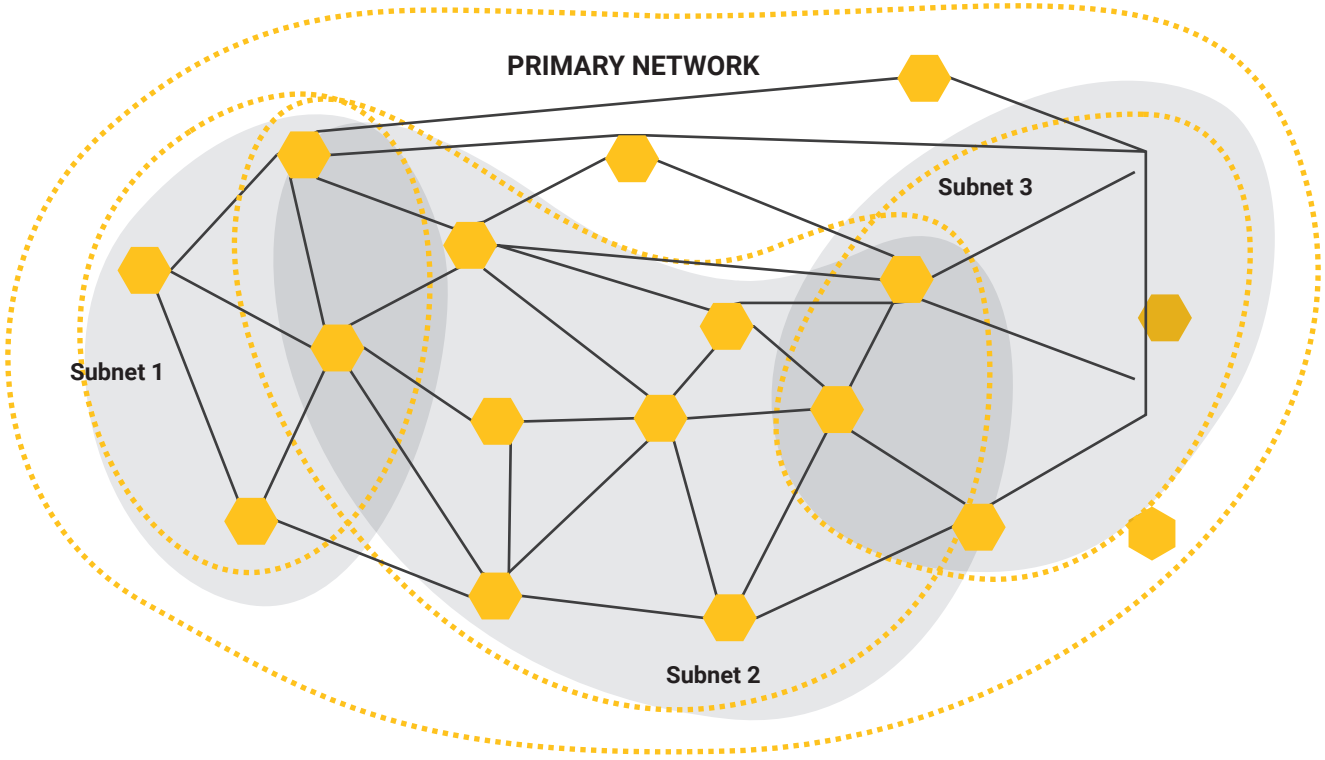


DIG Subnet

Operating on the Avalanche network, the DIG subnet allows for the implementation of a private chain (a.k.a. subnet). This resolves the dependency on a public chain solution where many other games and offerings are simultaneously being launched and operated. The transaction load fluctuation of public chains can lead to slowdowns in a game's responsiveness, widely fluctuating gas fees, as well as potential downtime if the larger network has problems.

The subnet can be built from different types of virtual machines. The Avalanche Virtual Machine can be used for the fastest throughput, utilizing consensus built on a Directed Acyclic Graph (DAG) structure. The EVM-compatible virtual machine can be utilized when sequential transaction recording is required (best for DeFi applications). The option to mix and match provides ultimate flexibility. Should business needs dictate, Avalanche subnets can be configured to run a customized virtual machine, while still leveraging the robust infrastructure of the Avalanche ecosystem. Hence, Digital Insight Foundation has chosen all of this as its solution.

With a subnet, gas fees can be customizable and held at a level that provides a positive experience for all gamers. Additionally, subnets allow for contract deployment to be restricted to specified whitelisted addresses, maintaining protection of the network.



Source: Avalanche

Privacy

There are several security benefits of a private blockchain. Specifically, the ability to lock down exposures and selectively open interfaces only where needed remains of crucial importance. This results in a far smaller footprint to be scrutinized for vulnerabilities; e.g., the hardware the validators run on, their OSs, and the deployed software, are not seen publicly. Instead, only the interfaces used to transact with external sources of liquidity are exposed through the use of the industry-leading Avalanche Bridge.

Security

Subnets use transport layer security (TLS) to protect node-to-node communication from eavesdroppers. TLS combines the practicality of public key cryptography with the efficiency of symmetric key cryptography. It is also used to authenticate stakers while avoiding the need for costly public key cryptography for signing network messages. Avalanche employs self-signed TLS certificates for a self-sovereign identity layer – this avoids needing to use certificates issued by third-party authenticators.

Scalability

Additional DIG subnet benefits include value capture at a protocol level with excellent scalability for future titles, access to the broader Avalanche ecosystem of DeFi, NFTs, and GameFi, a well-audited, unhacked system, compatibility with EVM chains, real-time scalability maintenance of the DIG subnet itself, a gasless environment for the player, and total sovereignty of the game network.

DIG Blockchain

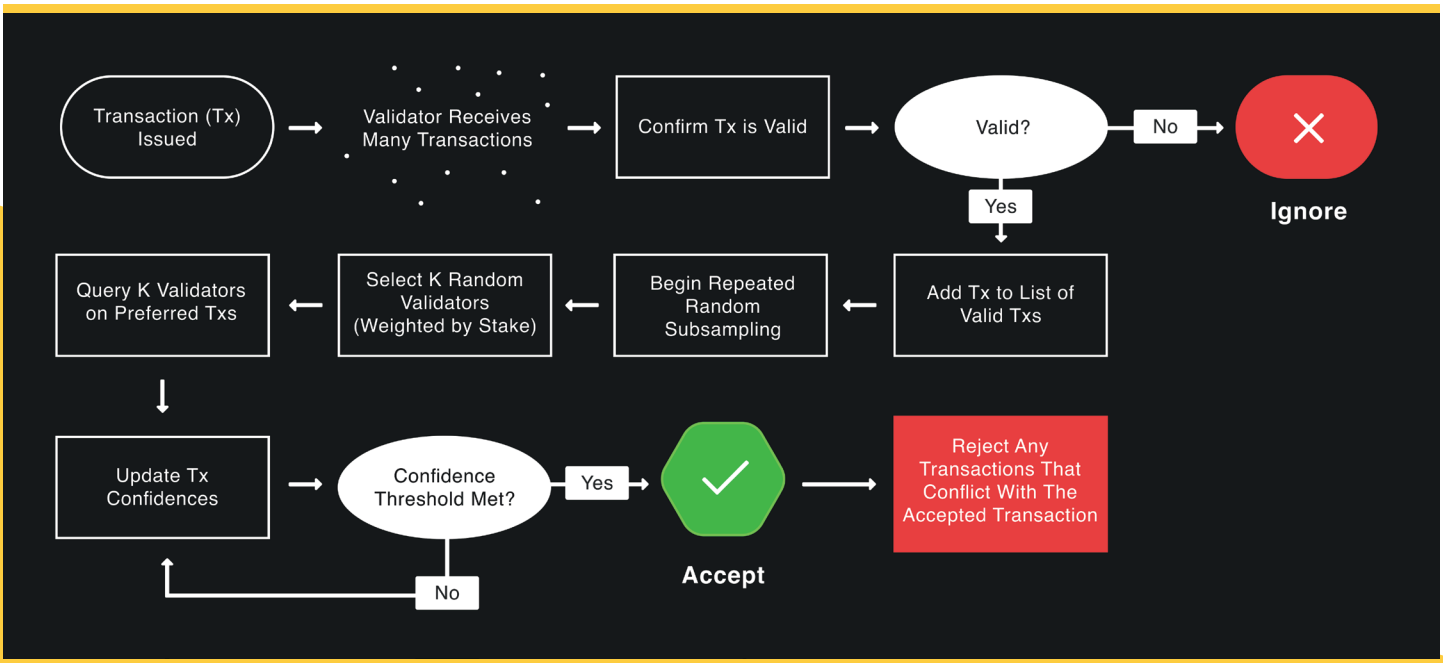
Consensus Protocol

The DIG blockchain (utilizing Avalanche) uses a powerful consensus mechanism of repeated sub-sampled voting known as the Snowball Algorithm to operate at consistent speeds virtually impervious to demand. Put simply, the DIG blockchain is built on Avalanche and uses its architecture. This near-instant transaction finality is a key difference between Avalanche and other decentralized networks. Through a unique approach at achieving strong safety guarantees, low latency, and high-throughput without compromising decentralization, the Avalanche consensus protocol stands above the others. A comparison of consensus protocols is shown below:

	Classical	Nakamoto	DIG/Avalanche
Scalable		✓	✓
Robust		✓	✓
Highly Decentralized		✓	✓
Low Latency	✓		✓
High Throughput	✓		✓
Lightweight	✓		✓
Green, Sustainable	✓		✓
Resilient to 51% Attacks			✓

Source: Avalanche

DIG Blockchain (utilizing Avalanche) consensus protocol works as follow:



Source: Avalanche

A validator asks a random subset of validators whether or not a transaction should be accepted. In the case that the transaction is invalid, the validator replies that it should be rejected. Otherwise, it is accepted. When a large portion of validators think that the transaction should be accepted, the validator prefers to accept the transaction. In other words, when asked about the transaction in the future, it will respond that it anticipates the transaction should be accepted. Additionally, the validator prefers to reject a transaction if a large portion of validors thinks it should be rejected. When there are no conflicts, finalizations happen very quickly. When conflicts exist, validators cluster around transactions to enter a positive feedback loop waiting for all correct validators to prefer this transaction. Ultimately, non-conflicting transactions and the rejection of conflicting transactions occur.

Through the Snowball Consensus algorithm, these transactions will be backed by the powerful decision making of a well thought-out machine. Avalanche illustrates this with the example of choosing what to have for lunch between pizza and barbecue. They explain how, “Everyone has an initial preference for pizza or barbecue.” A group of people is asked what they prefer. If A or more people give the same response, that response is adopted as the new preference. If the new preference is the same as the old preference, a “consecutive successes” counter is incremented. If the new preference is different, the “consecutive successes counter is set to 1.” This is repeated until they get a quorum for the same response B times in a row. If one person decides on pizza, then every other person following the protocol will eventually also decide on pizza.

Random changes in preference, caused by random sampling, cause a network preference for one choice, which begets more network preference for that choice until it becomes irreversible and then the nodes can decide. A visual representation of this can be seen at: *https://tedyin.com/archive/snow-bft-demo/#/snow*

Ecosystem and Partners

The Digital Insight Foundation Grant Program: Come Build With Us!

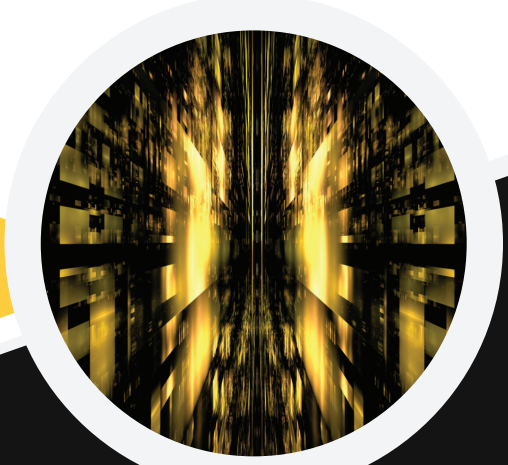
To further promote decentralization, Digital Insight Foundation has created The Digital Insight Foundation Grant Program. This provides milestone-based funding to support initiatives aimed at decentralizing, growing, and securing the DIG network and building on the DIG blockchain protocol/platform. Anyone can apply for a grant from the Digital Insight Foundation. This includes: individuals, validators, teams, governments, nonprofits, companies, universities, and academics.

Validator Nodes

Key stakeholders for the Digital Insight Foundation Grant Program will be validators. In order to ensure the security and speed of the DIG subnet, DIF is utilizing our grant program to increase the attractiveness of adopting a validator node, which the community could actively engage with.

Educational Resources

DIF intends to create a backlog of educational content consisting of articles, documentation, and videos on the DIG blockchain. This will comprise of how blockchain mechanisms works, state of the blockchain, and how to utilize the DIG ecosystem. Through educational resources, we can widen the reach of the DIG ecosystem and increase user adoption.



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info@digitalinsightfoundation.org

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