



WHITE PAPER 3.2

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Introduction

Blockchain infrastructure is entering a more demanding phase. The first public networks proved that **decentralized systems could secure value, run programmable logic, and operate without centralized intermediaries**. What comes next asks for more: infrastructures that scale without breaking their economic model, that keep operating costs readable, that integrate into real processes without requiring years of tolerance for instability, and that hold up as the technology around them changes.

Quantum computing is part of that shift, and it is arriving faster than most blockchain architectures have accounted for. It is no longer sufficient for a Layer 1 to be fast or interoperable. The assumptions behind public-key cryptography, open transaction propagation, and classical mining models are under real and growing pressure. Meanwhile, developers, enterprises, and institutions are still waiting for blockchain infrastructure that is practical enough to commit to and credible enough to build on over the long term.

DAC was built in response to both of those needs at once. It is an **EVM-compatible Layer 1** designed for smart contracts, tokenized ecosystems, and decentralized applications. However, it takes a fundamentally different view of how a blockchain should handle **coordination, transaction protection, and long-term security**. DAC is not presented as a refinement of the prevailing model. It is **infrastructure designed to age well**.

This White Paper explains DAC at a strategic and architectural level and is written to be accessible to a broad audience. The formal protocol logic, cryptographic assumptions, and detailed technical specifications are addressed in the DAC Yellow Paper.

Mission and Vision

DAC's mission is to provide **secure, scalable, and forward-looking blockchain infrastructure** capable of supporting decentralized applications, tokenized ecosystems, and enterprise-grade digital workflows within a single Layer 1 environment.

The vision goes further than improving on what already exists. DAC is built on the conviction that blockchain adoption will ultimately be decided not by marketing narratives, but by whether networks can be integrated into **real operational processes** without sacrificing reliability, economic legibility, or long-term security. The goal is an infrastructure that remains useful and technically credible as decentralized systems move into a more complex and more consequential phase.

Three principles guide this direction.

First, **operational clarity**: DAC separates network participation and access from transactional utility through a dual-asset structure, giving the ecosystem a cleaner economic framework and more honest incentive design.

Second, **infrastructure readiness**: DAC is built for real applications: tokenization, auditable workflows, automated services, smart contract execution, and machine-driven interactions across sectors.

Third, **long-term resilience**: DAC introduces protocol-level choices intended to reduce exposure during transaction propagation and to prepare the network for the technological shift that quantum computing will force on every blockchain that ignores it.

Our Goals

DAC's development is shaped by a set of practical objectives. Some respond to adoption needs that already exist today. Others reflect what the protocol is being built to handle as the environment around it changes.

The first objective is **enabling real-world blockchain adoption**, supporting applications that require reliability, programmable execution, and transparent coordination between users, organizations, and digital systems. The aim is to move blockchain beyond isolated pilots and into repeatable operational use.

The second is **scalability**. Through its layered architecture and sharded execution model, DAC provides a foundation capable of absorbing higher transaction volumes and more advanced application logic without losing coherence as the network grows.

The third is **transaction confidentiality**. DAC introduces a protocol direction focused on reducing transaction exposure during broadcast, a phase that conventional public blockchains leave more open than they should. The objective is a safer and more trustworthy environment for network activity and data-sensitive operations.

The fourth is **open participation**. DAC is built as an extensible infrastructure whose economic and technical model rewards active contributors, including developers, validators, and long-term infrastructure participants, while remaining accessible enough to attract a broad builder community.

The fifth, and most forward-looking, is **quantum readiness**. DAC's broader aim is to offer a blockchain model that stays relevant as the cryptographic assumptions underpinning today's networks are tested by the computational advances already in progress.

Cryptocurrencies: Coin and Token

At the core of the DAC ecosystem are two distinct digital assets: **DAC Token (DACT)** and **DAC Coin (DACC)**. Together, they define the network's economic structure and allow DAC to separate network participation, access, and infrastructure utility.



DACT is the **utility token** of the DAC ecosystem. It carries a fixed supply, and its sole function is to enable the holder to take up the properties of a node on the DAC blockchain, namely the activation of Validator Nodes and Supervisor Nodes. DACT is issued on the Ethereum blockchain. DACT confers no claim against DAC Labs Sagl, no right to repayment, no share in revenues, profits or assets, and no voting or governance right.

DACC is the **native operational coin** of the DAC blockchain. It is used for transaction fees, smart contract execution, and the reward logic associated with the



nodes actively contributing to network operation. Its issuance is linked to network activity, keeping the operational side of the economy grounded in real protocol usage rather than disconnected supply expansion.

The distinction is worth being precise about. **DACT supports access, network participation and node-related utility. DACC enables execution, transaction fees and infrastructure rewards.** That separation gives the model economic clarity and predictable incentives. Both functions are usable at the time of issue.

DAC for the Community

DAC is designed as **open public infrastructure** that allows **developers**, **independent contributors**, and **early-stage projects** to participate through application development, node operation, and service experimentation. Its architecture is built to support a wide range of users, from advanced protocol builders to participants who simply want accessible tools for interacting with decentralized systems.

By combining open participation with a more structured protocol design, DAC creates an environment where **innovation can accumulate rather than remain isolated**. The ambition is to make room for reusable components, more reliable shared infrastructure, and a healthier contribution cycle, where what gets built on DAC becomes part of a **growing commons** rather than a collection of disconnected experiments.

DAC for the Industry

For **enterprises and institutional users**, DAC provides blockchain infrastructure that supports **auditable workflows, programmable business logic, tokenized assets, and predictable execution conditions**. The point is not simply to host decentralized applications, but to support operational systems where traceability, consistency, and controlled automation genuinely matter to the organizations running them.

DAC combines EVM compatibility with a more advanced security and coordination architecture, positioning it for organizations that want a public blockchain environment without inheriting the vulnerabilities of a purely speculative model. That combination — **open enough to integrate, structured enough to trust** — is what enterprise adoption has always needed and rarely found.

Use Cases

Supply Chain and Product Traceability. DAC supports systems in which products, certifications, and process events must be recorded in a verifiable and auditable way. This is particularly relevant for industries where provenance, transparency, and accountability are non-negotiable business requirements.

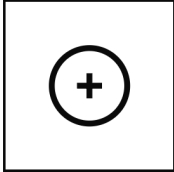
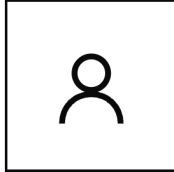
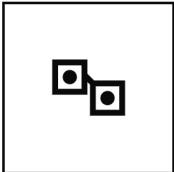
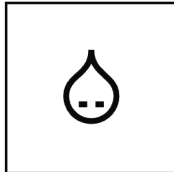
Tokenized Assets and Real-World Assets. DAC's EVM compatibility and tokenization capabilities make it suitable for the digital representation of assets, rights, and structured economic instruments, both fungible and non-fungible, across a wide range of sectors.

Digital Identity and Verifiable Access. DAC supports identity-linked workflows in which access rights, certifications, or machine identities are managed through programmable logic and secure on-chain verification.

Machine-to-Machine and IoT Automation. The protocol's architecture supports automated interactions between services, devices, and smart contracts, making DAC relevant for machine-driven processes where execution rules and event verification need to operate with minimal manual intervention.

Confidential Enterprise Workflows. DAC's protected transaction approach makes it particularly relevant in environments where process visibility must be managed with more discipline than a standard public mempool allows, wherever sensitive operational data, execution timing, or internal workflow logic should not be exposed unnecessarily.

Carbon, ESG, and Audit-Oriented Systems. DAC also supports systems where verifiable records, certification flows, and structured reporting are essential. Programmability, traceability, and tokenization work well together in these contexts, and DAC is designed to serve them.

01  Supply Chain & Product Traceability PROVENANCE AUDIT	02  Tokenized Assets & Real-World Assets FUNGIBLE NFT	03  Digital Identity & Verifiable Access DID SSI
04  Machine-to-Machine & IoT Automation M2M IOT	05  Confidential Enterprise Workflows PRIVACY WORKFLOW	06  Carbon, ESG & Audit-Oriented Systems ESG REPORTING

DAC Design

DAC is an **open blockchain infrastructure** built for a more advanced form of **decentralized coordination**. Its design starts from a straightforward premise: public networks should not only be programmable, but structurally capable of handling growth in transaction volume, application complexity, and security requirements as they evolve over time.

Rather than relying on a single flat execution model, DAC is built around a **layered architecture** that **distributes responsibility** across different parts of the network. This supports more efficient processing, clearer coordination between node types, and a protocol structure that is genuinely suited to **real applications**, not a one-layer design stretched to cover everything at once.

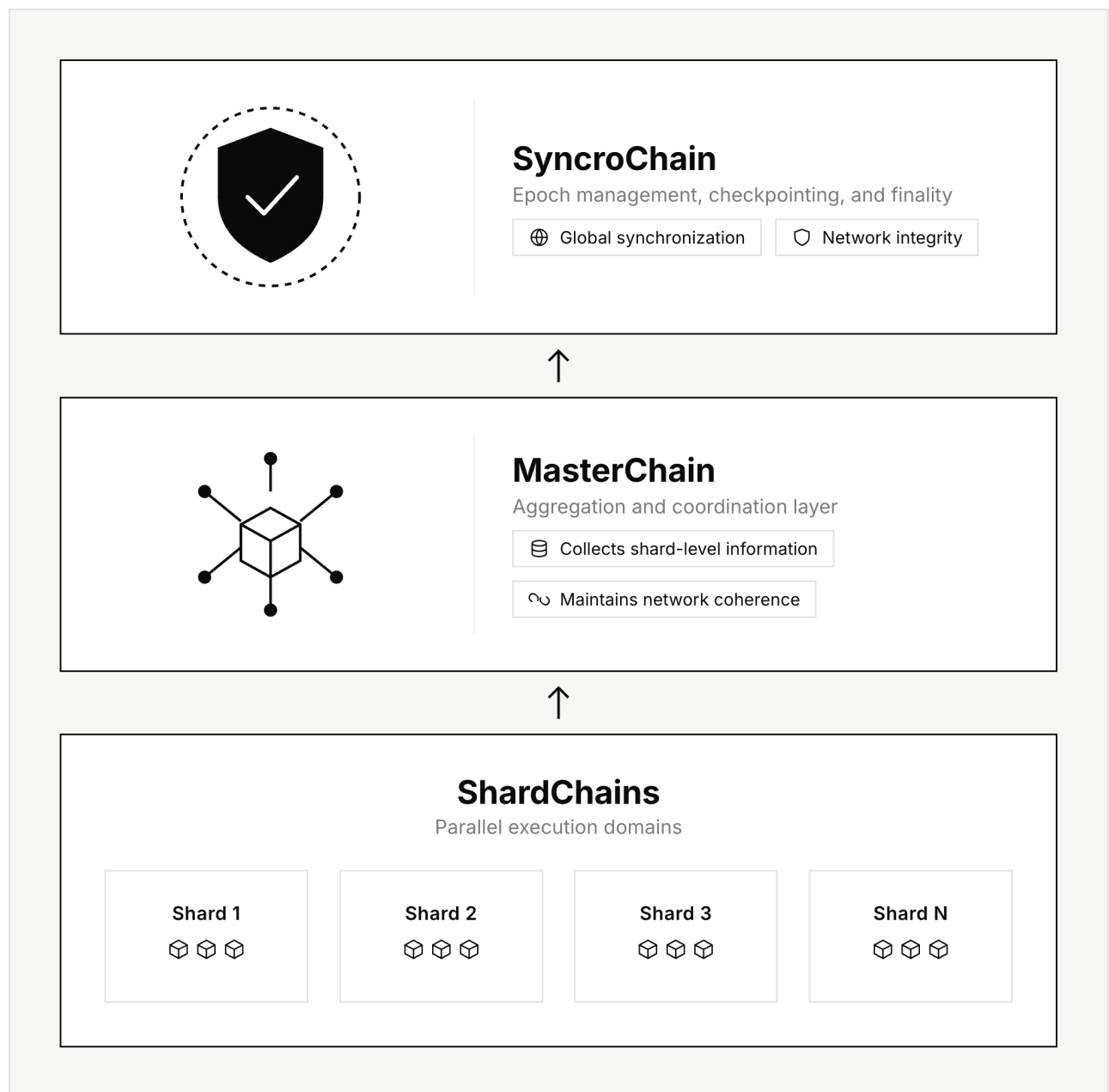
Technical Overview

DAC is an **EVM-compatible, sharded Layer 1 blockchain**. Developers build decentralized applications using **Solidity** and established **Ethereum tooling**, which provides a low-friction path for migration, experimentation, and deployment while preserving the familiarity of the Ethereum development environment.

Beyond compatibility, DAC extends the standard Layer 1 model through a more advanced structure for coordination, execution, and transaction handling. A defining element of this architecture is that transactions are not treated as purely transparent mempool events. The protocol introduces a **protected transaction flow** designed to **reduce exposure during broadcast**, one of the most structurally overlooked vulnerabilities in conventional public blockchain design. The detailed mechanism is specified in the DAC Yellow Paper.

Network Structure

DAC is organized through a hierarchical architecture composed of three functional layers: **ShardChains**, **MasterChain**, and **SyncroChain**. Each layer performs a distinct role in execution, coordination, and finality, allowing the network to scale in a structured way that a single-chain model cannot match.



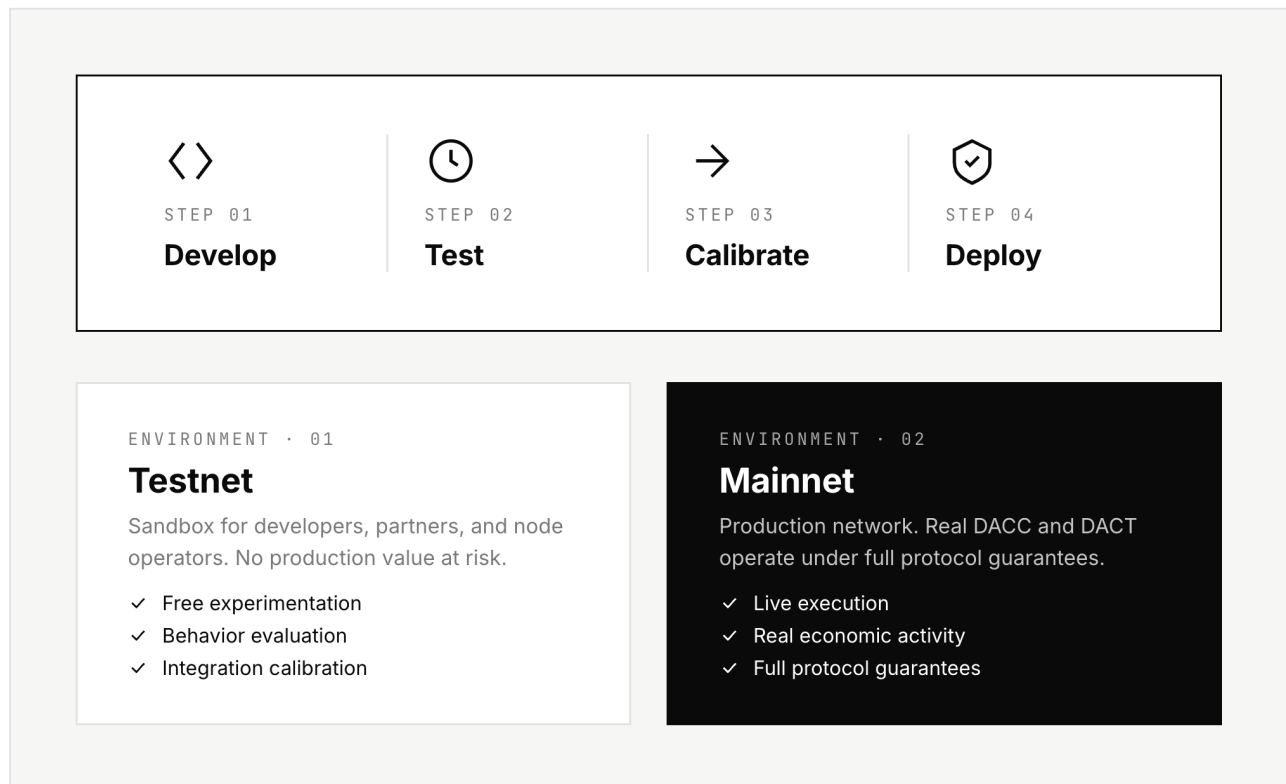
ShardChains handle **transaction execution and smart contract processing**. By distributing activity across multiple parallel execution environments, DAC achieves higher throughput without concentrating load at a single point.

MasterChain acts as the **aggregation and coordination layer**. It collects shard-level information, validates broader network outcomes, and maintains the coherence of the system as a whole.

SyncroChain provides the upper coordination layer for **epoch management, checkpointing, and finality**. It maintains global network integrity and drives the structured synchronization that DAC's multi-layer design depends on.

DAC Mainnet and Testnet

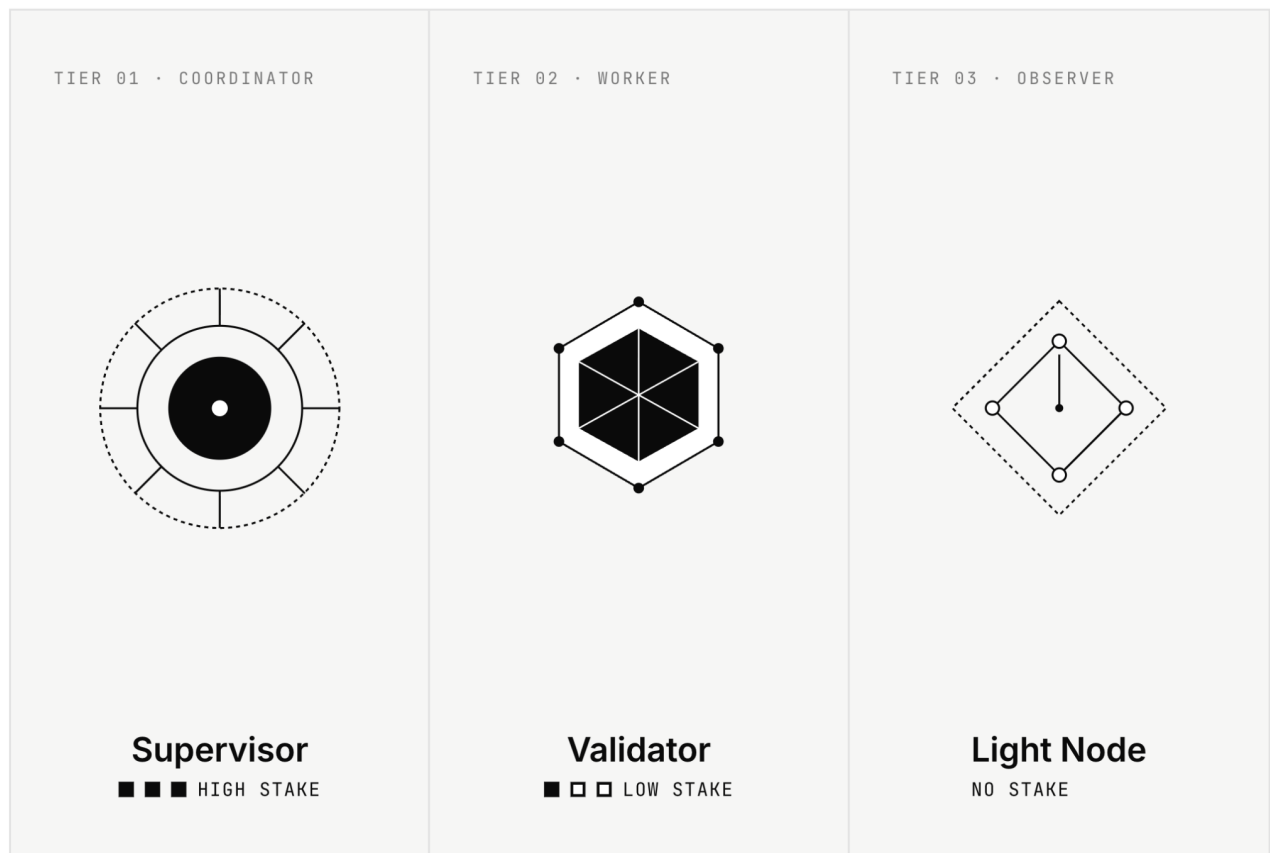
DAC includes both a **Testnet** and a **Mainnet** environment to support **progressive development and controlled deployment**. The Testnet allows developers, partners, and node operators to test applications, evaluate behavior under different conditions, and calibrate execution dynamics before moving into production.



This staged model reduces integration friction and supports a more structured path **from experimentation to real network usage**. This matters both for application quality and for the credibility of the ecosystem as it grows.

Network Nodes

DAC includes three principal categories of nodes, each with a distinct **role** in the performance, security, and accessibility of the network.



Supervisor Nodes operate at the highest **coordination layer of the protocol**. They contribute to epoch sealing, checkpointing, and network-wide synchronization, making them central to finality and structural integrity. Operating a Supervisory Node requires a significant DACT commitment, reflecting the level of responsibility involved.

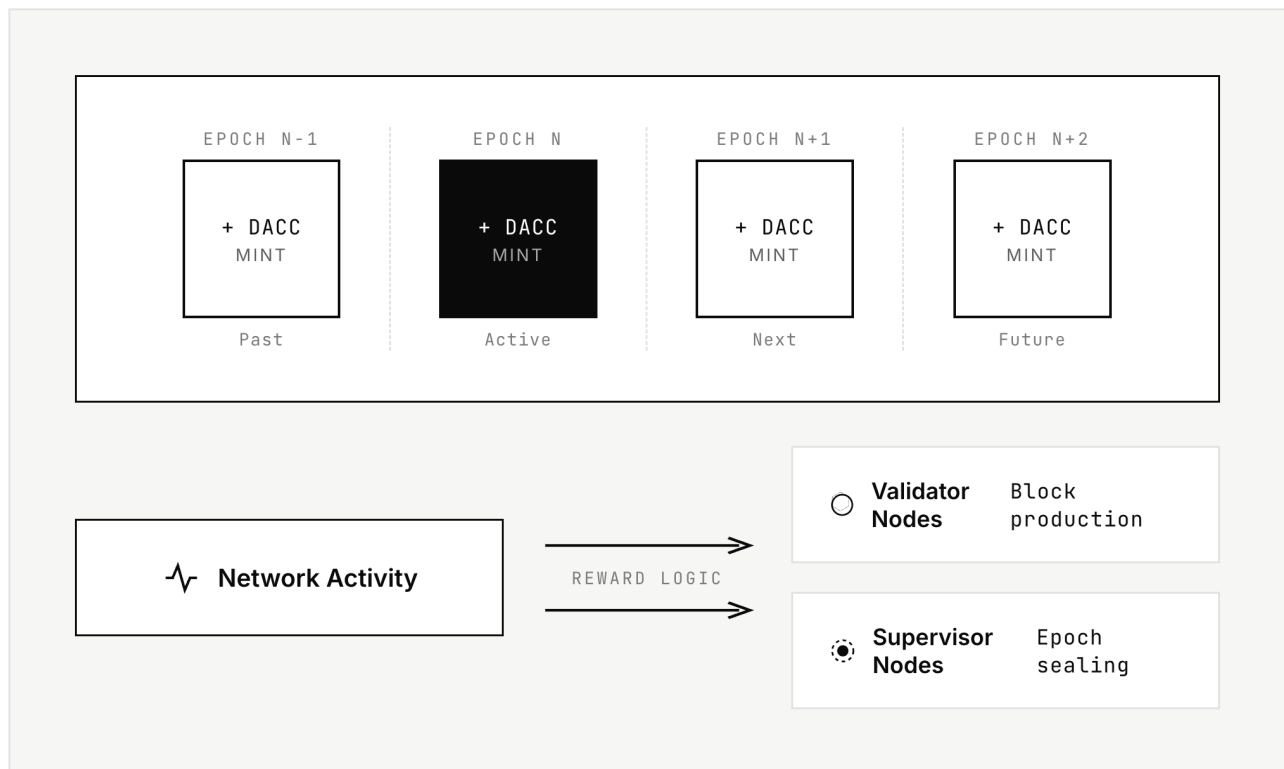
Validator Nodes are responsible for **transaction validation, block proposal, and active participation in network execution**. Within DAC's architecture, validators also play a central role in the protected transaction flow, making them critical not only

for consensus but for secure transaction handling. Validator participation is enabled through DACT staking and dedicated node software.

Light Nodes provide relay, access, and network query functions **without participating directly in consensus**. They strengthen decentralization and make DAC accessible to lower-resource environments and a broader class of connected applications.

Minting DACC

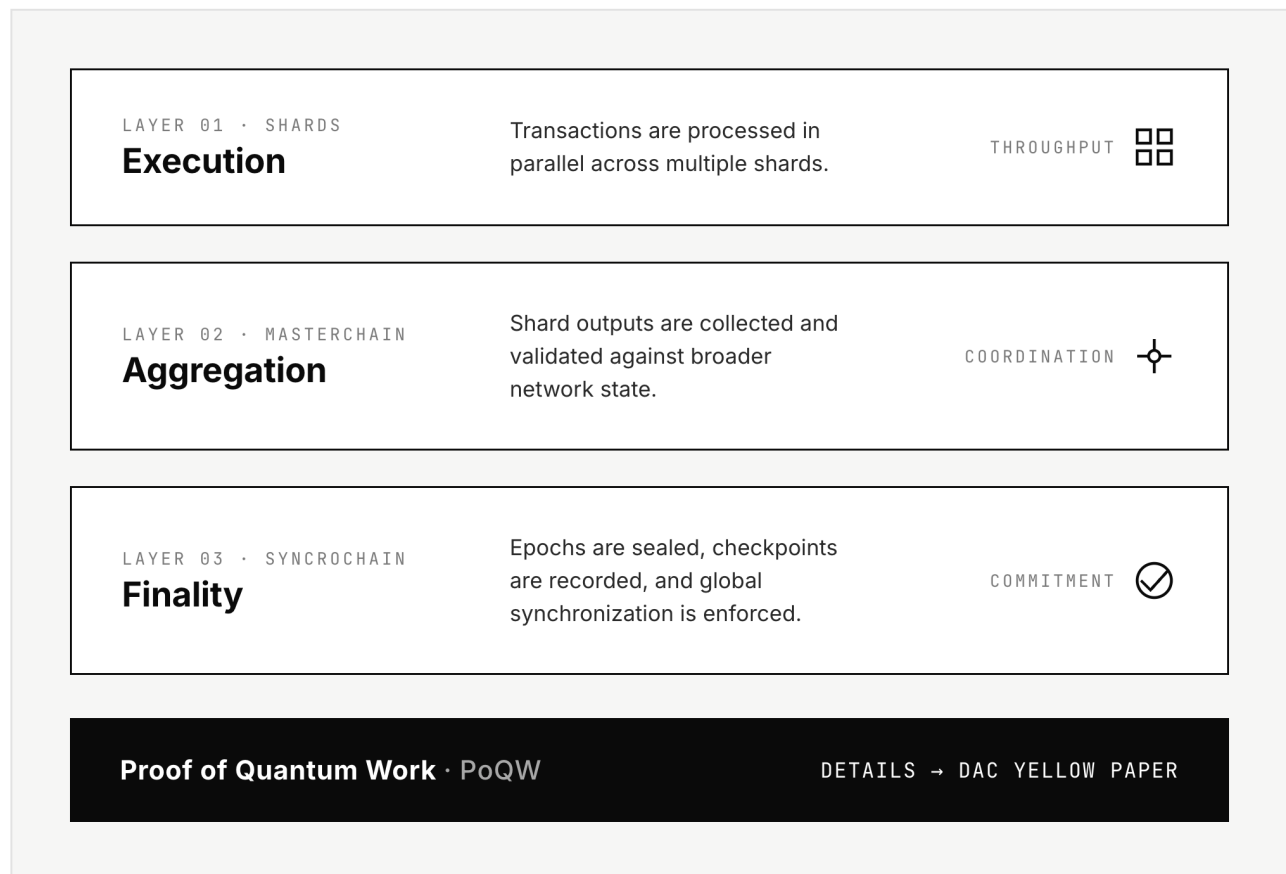
DACC is the **native operational coin** of the DAC blockchain, generated through the network's minting logic in **direct response to protocol activity**. This model aligns issuance with usage. The operational coin of the ecosystem remains connected to real execution demand rather than an arbitrary supply schedule.



At each epoch, newly generated DACC is allocated to the nodes actively contributing to network operation and consensus: **Validator Nodes and Supervisory Nodes**, with reward distribution reflecting their level of participation and responsibility. This reinforces DAC's broader economic logic, **infrastructure activity is rewarded through the native coin**, while network participation and access remain anchored in DACT. DACC issuance is determined at protocol level by the blockchain's smart contract. Neither DAC Labs Sagl nor DACT holders can influence the quantity of DACC generated as a reward, and DAC Labs Sagl owes no reward to any holder.

Consensus Mechanism

DAC adopts a **multi-layer consensus architecture** designed to support scalability, integrity, and long-term resilience. Transaction execution takes place across parallel shards; aggregation and finality are coordinated through the upper network layers. This allows DAC to distribute work efficiently without losing coherence at the protocol level.



At the block production level, DAC is built around a **Proof of Quantum Work (PoQW)** model, which incorporates features of Proof-of-Stake protocols. The commitment of DACT is a technical precondition for the activation and operation of Validator Nodes and Supervisor Nodes, and therefore for the network's capacity to reach consensus. The model moves beyond classical hash-based competition and

gives the network a consensus foundation coherent with how quantum computing is expected to reshape blockchain security.

In practical terms, DAC's consensus architecture integrates three functions: **execution at the shard level, aggregation at the MasterChain level, and finality at the SyncroChain level.**

This creates a structured, layered relationship between throughput, validation, and system-wide coordination. The formal description of PoQW, including its technical assumptions and implementation model, is presented in the DAC Yellow Paper.

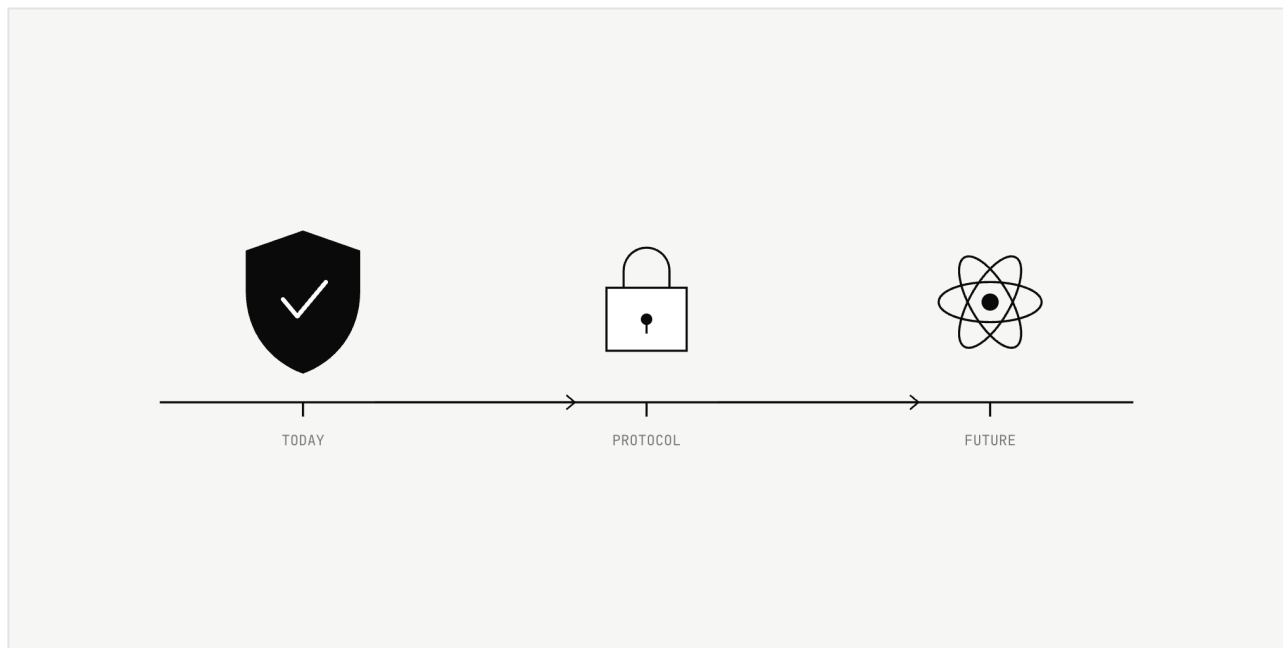
Data Security

Security in DAC is a **protocol-level principle**, not a secondary layer appended after execution. The network is designed to protect **integrity, resilience, and operational trust** across the full lifecycle of blockchain activity, from transaction handling to validation and auditability.

Its multi-layer architecture distributes responsibility rather than concentrating it, while the validator structure and execution model support both scalability and stronger control over how transactions are processed and confirmed. This makes DAC relevant not only for open decentralized applications, but for any system where **verifiable behavior and structured execution** are essential to the people depending on it.

Quantum-Ready Security

The long-term impact of **quantum computing** is a structural challenge for blockchain infrastructure, not a speculative one. It affects the security of public-key cryptography, the visibility of transactions during broadcast, and the assumptions that classical mining models rest on. DAC is designed with that challenge as a **first-order concern**.



A central element of DAC's security architecture is its **entropy-based transaction protection model**. Rather than exposing transaction content during propagation, the protocol reduces visibility in the broadcast phase through a **protected transaction flow**, a meaningful departure from the standard public mempool model, and one of the clearest points of architectural differentiation in DAC's design.

DAC also preserves **Ethereum-compatible ECDSA signing** for user transactions. That choice is deliberate. It maintains continuity with existing tools and workflows while extending security through protocol architecture rather than forcing application-layer migration before the ecosystem is ready for it.

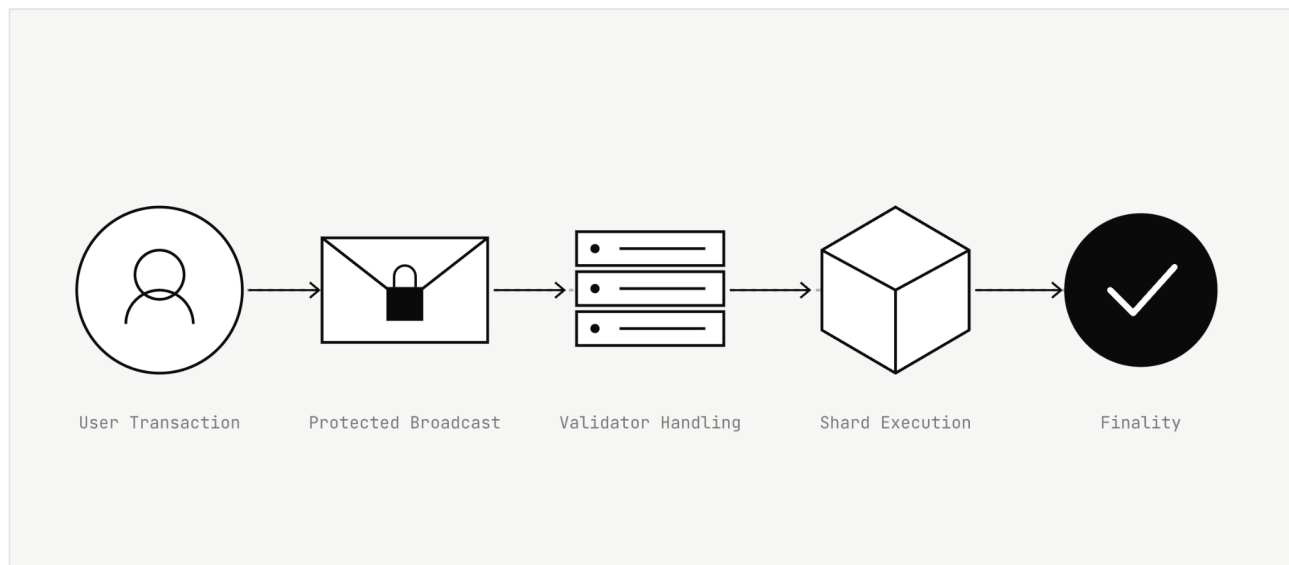


Over time, DAC's security roadmap includes additional hardening for validator communication, entropy distribution, and other protocol-level components. The objective is not to appear future-ready, it is to address **quantum-era risks** through concrete and verifiable technical choices.

Protected Transaction Flow

In conventional public blockchain models, **transaction details are exposed during broadcast and mempool propagation**. DAC is built on a different assumption: that this phase deserves stronger protection than it typically receives, and that the failure to address it is a structural weakness, not a minor inconvenience.

DAC's **protected transaction flow** is based on protocol-level entropy assignment and a protected broadcast mechanism designed to reduce information visibility during propagation. The objective is to strengthen confidentiality in the most exposed phase of the transaction lifecycle without sacrificing compatibility with the broader EVM environment.



In practice, this means **reduced information leakage, limited transaction-level observation**, and a stronger foundation for sensitive on-chain activity. The technical mechanics are specified in the Yellow Paper. What matters at this level is the architectural conviction behind the choice: transaction privacy during propagation is not an optional feature — it is a **design requirement** for infrastructure that intends to support serious use.

Smart Contract Library

DAC provides infrastructure for a more efficient and reliable **smart contract development environment**. Its Smart Contract Library encourages the use of **validated and reusable components**, helping developers accelerate deployment while avoiding unnecessary duplication across applications.

This approach raises the quality baseline across the ecosystem, particularly in contexts where scalability, code reliability, and operational consistency matter more than novelty for its own sake. A shared library of well-tested components is one of the more underrated contributions a blockchain ecosystem can make to developer productivity and long-term network quality.

Smart Contracts

Smart contracts on DAC are deployed through dedicated on-chain transactions and use **DACC** as the **native execution resource**. This keeps application activity tied to the operational economy of the network and ensures execution is supported through a coherent infrastructure layer.

Tokenization of Assets on DAC

DAC supports asset tokenization through full compatibility with **Ethereum standards** and the **Solidity development environment**. This allows businesses, developers, and ecosystem participants to create both **fungible and non-fungible token** models using established smart contract frameworks without rebuilding from scratch.

Tokenization on DAC covers a wide range of real-world and digital use cases: **financial instruments, property-linked structures, digital certificates, access models, and sector-specific asset representations**. It is not treated as an isolated feature, but as one of the core utility layers of the network. It is a direct expression of what programmable infrastructure should be able to do.

Token Economy

DAC's **dual-asset economic model** is designed to separate **network participation, access, and operational utility** in a way that remains readable as the ecosystem scales. That readability matters. Token models that conflate too many functions become harder to reason about as networks grow, and that opacity tends to erode trust at exactly the moment adoption should be accelerating.

DACT is the utility token of the DAC ecosystem. Its function is to activate node roles on the DAC blockchain. Its supply is fixed at 1 billion units, which defines the quantity of node-access rights the protocol can support.

DACC is the native operational coin. It handles fees, execution, and validator rewards, with issuance tied to network activity. This creates a more operationally honest model: transactional utility expands in proportion to real usage, not speculation.

Together, DACT and DACC define an ecosystem in which **network participation and operational execution are clearly separated**. This is what makes it possible for DAC to pursue adoption and scalability without compromising the economic integrity that serious participants require.

Conversion Model

DAC includes a **technical conversion framework** that supports interoperability between DACT and DACC within the ecosystem. Its purpose is to allow users to access the operational functions of the network while maintaining the distinct utility roles of the two assets.

Token conversion between DACT and DACC is supported through non correlated decentralized swap environment based on an **Automated Market Maker (AMM)**, following the constant product model:

$$x \cdot y = k$$

where **x** represents the DACT reserve, **y** the DACC reserve, and **k** the constant product of the liquidity pool. This model provides a transparent and widely understood basis for conversion within the ecosystem.

DAC Labs Sagl neither maintains nor guarantees any exchange ratio, price or value for either asset, and operates no stabilization or price-support mechanism. The DACT and DACC price will be determinate by the market.

In addition to market-based conversion, DAC incorporates lock-based and burn-based balancing mechanisms designed to support the functional relationship between DACT-based network participation and DACC operational use.

When users lock DACT in the protocol, DACC can be minted according to a conversion coefficient determined by network conditions:

$$\text{DACC Minted} = \text{DACT Locked} \cdot \text{Rlock}$$

where **Rlock** is the minting rate applied at the time of conversion.

Conversely, DACC may be burned in order to unlock DACT from the reserve, according to the following relation:

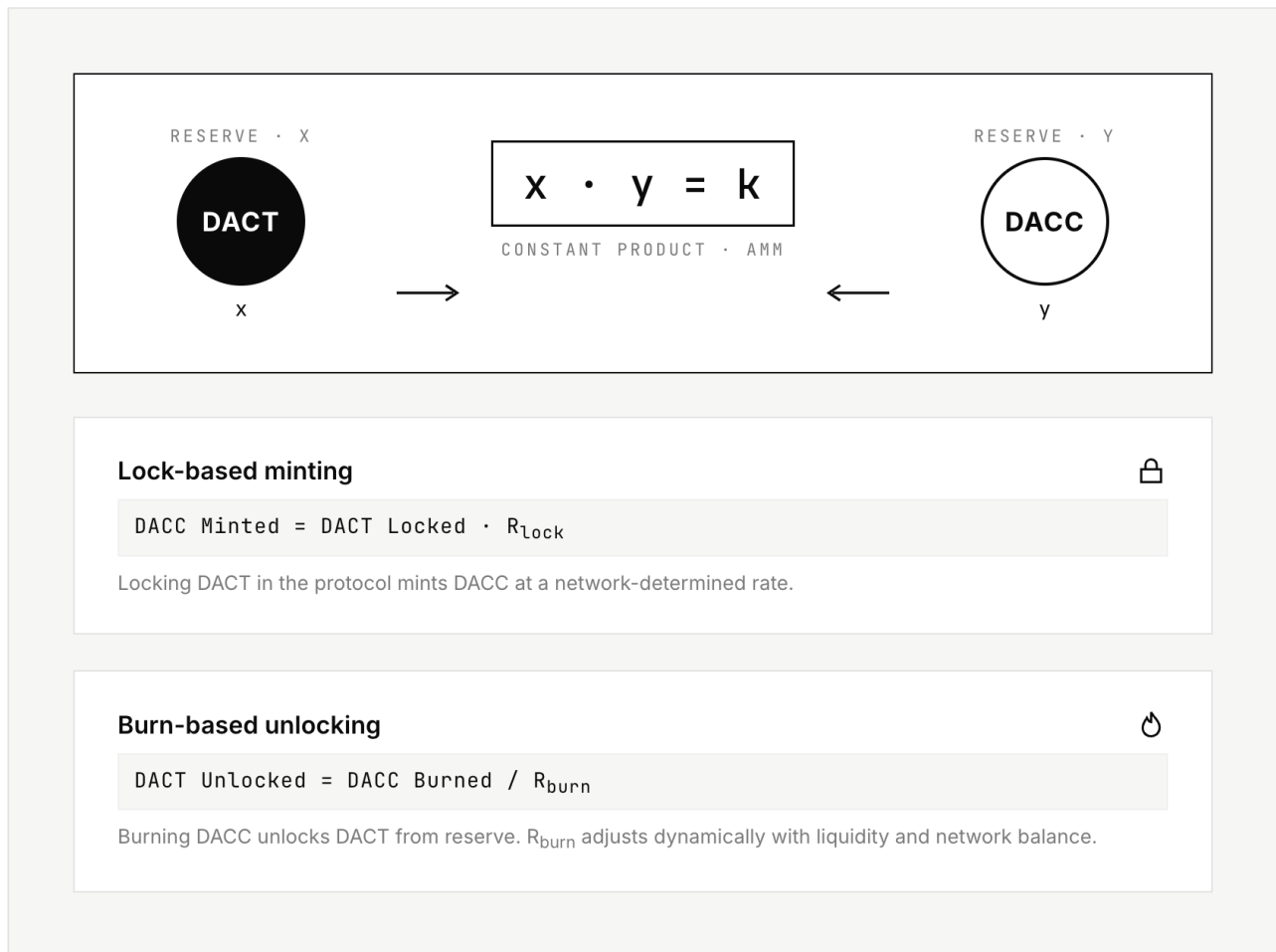
$$\text{DACT Unlocked} = \text{DACC Burned} / \text{Rburn}$$

where **R_{burn}** is a dynamic conversion parameter that adjusts according to liquidity, reserve conditions, and overall network balance.

DAC's conversion logic also incorporates a burn mechanism tied to network activity. Where applicable, a portion of DACC used in transactions is permanently removed from circulation according to the following rule:

$$\text{DACC Burned} = \text{DACC Tx} \cdot \text{Burn Rate}$$

This mechanism links network usage to the functional management of DACC supply. Together, the **AMM formula**, **minting logic**, **conversion mechanism**, and **transactional burn model** form the core of DAC's conversion and stability framework.



The operating parameters of conversion, minting and stability controls may be refined as the protocol matures, but the underlying logic remains unchanged: the economic model must remain usable, transparent, and sustainable.

Scope of DACT's Function

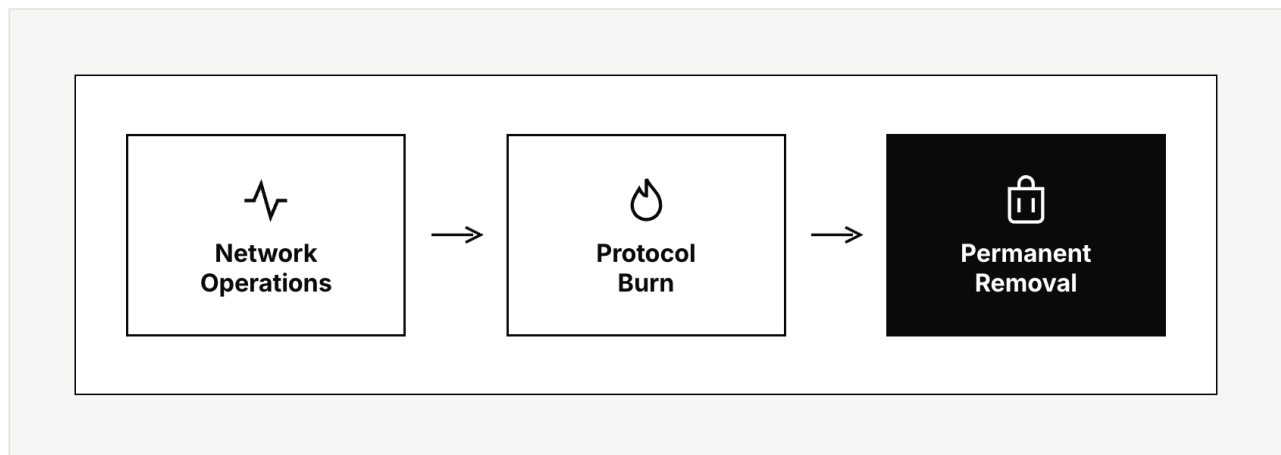
DACT's function is defined and usable at the time of issue: it enables the activation and operation of nodes on the DAC blockchain.

Token Burn Mechanism

DAC incorporates a **token burn mechanism** linked to the functional **use of tokens** within the ecosystem.

Where applicable, a portion of the tokens used in network and ecosystem operations is permanently removed from circulation. The burn mechanism is therefore directly connected to the use of the tokens and to the **functional activity** of the DAC ecosystem.

Token burn events are executed transparently and can be independently **verified on-chain**.



Token Distribution

The total supply of **1 billion DACT** is allocated according to a **predefined distribution model**. The proceeds of the token issue are used exclusively to finance the development and operation of the DAC blockchain and its ecosystem and are designed to balance fundraising, ecosystem growth, operational development, and long-term sustainability.



This allocation is designed to support both the early growth of the network and its long-term operational development, with a distribution weighted toward ecosystem participation and infrastructure rather than concentrated in early private allocations.

Digital Identities and Signatures

DAC is designed to support a wide variety of actors, including **individuals, enterprises, IoT devices, and automated services**. Its identity and addressing model is flexible enough to cover different operational needs without sacrificing usability for any of them.

For user transactions, DAC preserves **Ethereum-compatible ECDSA signing**. This is an intentional choice: it ensures continuity with existing wallets, developer tools, and application standards while allowing the protocol to extend security through architecture rather than forcing immediate migration to new transaction-signing models. DAC's broader security direction strengthens transaction handling through **protected broadcast logic**, with additional hardening strategies applicable to other layers of the network and **validator environment** over time.

Nature of DACT and DACC

DACT and **DACC** are utility tokens. Each confers exclusively a right of access to a digital use of the DAC blockchain, and each is usable for that purpose from the time of its issue. DACT enables the activation and operation of nodes. DACC pays for transactions on the network and is the unit in which the protocol rewards node operators.

Neither asset represents a claim against DAC Labs Sagl. Neither confers a right to repayment, a share in revenues, profits or assets, a voting or governance right, or any right to a payment from DAC Labs Sagl. DAC Labs Sagl does not accept either asset as a means of payment for goods or services, and neither asset is offered or intended as a means of monetary or value transfer.

This White Paper is not an offering document, a prospectus within the meaning of Art. 35 et seq. of the Federal Act on Financial Services (FinSA), or an invitation to invest. It contains no forecast, representation or assurance as to the price or value of DACT or DACC, and none may be inferred from it.

Conclusion

The question DAC is built to answer will become more pressing every year: how can a public Layer 1 remain **scalable, economically coherent, and genuinely secure** as both adoption demands and quantum-era risks continue to grow? That is not a theoretical problem. It is a practical one that most blockchain architectures are not currently designed to solve.

DAC's answer is not a single feature. It is the integration of several architectural commitments: a dual-asset economic model that separates network participation and access from operational utility, **EVM compatibility** that makes adoption practical, **layered scalability** that distributes execution coherently, **protected transaction handling** that takes broadcast-phase security seriously, and a **quantum-oriented consensus direction** that prepares the network for what is coming rather than hoping to retrofit it later.

Taken together, these choices define an infrastructure built not only for the decentralized applications of today, but for the wider transition toward more automated, tokenized, and security-sensitive digital systems that is already underway. DAC's ambition is to be the **infrastructure layer that is still worth building on** when that transition arrives in full.