QCS TOKEN WHITEPAPER

—Governance Protocol Token Description Based on Quantum Compass System (QCS)

Legal and Usage Disclaimer

This whitepaper is intended to systematically explain the design background, necessity, functional positioning, operating mechanisms and governance framework of QCS Token within Quantum Compass System (QCS), providing system participants, institutional users, partners and technical reviewers with a clear and comprehensive basis for understanding.

This document does not constitute any form of investment advice, return commitment or securities issuance document. QCS Token does not represent any equity, debt or income rights of Nautical Echo Capital（NEC） and its market trading behavior does not constitute a system design objective nor does it represent any commitment regarding future value.

August 2023

Nautical Echo Capital

Table of Contents

Chapter 1 System Background of Quantum Compass System

Quantum Compass System (QCS) is an intelligent decision-support system designed for financial investment markets characterized by a high degree of uncertainty. Its core objective is not to predict a single market outcome, but to help professional decision-makers understand risk structures, directional confidence and potential pathways through probabilistic structure modeling, system dynamics analysis and multi-scenario simulations.

Against the backdrop of an unstable global macro environment, increasing asset correlation and the frequent emergence of systemic risks, traditional model frameworks that rely on linear assumptions or a single optimal solution have gradually revealed their limitations. QCS was proposed precisely in this context, with the aim of providing institutional users with a more robust, interpretable and collaborative decision-support framework.

Chapter 2 The Evolution Logic of QCS from a Decision System to Infrastructure.

In its early stage, QCS primarily operated as a research-oriented and professional tool system, serving a limited number of institutional and research users. As the system became more widely applied to asset allocation, risk management and cross-market scenario analysis, its role gradually began to evolve.

When a decision system is simultaneously relied upon by multiple parties, its outputs inevitably generate external effects. At this point, the system is no longer merely a tool, but begins to assume the characteristics of infrastructure, placing higher demands on stability, fairness and governance mechanisms.

Chapter 3 Formation of Protocol Governance Requirements and the Rationale for Introducing QCS Token

Under conditions of scaled operation, relying solely on centralized organizations to manage system rules faces challenges such as insufficient
transparency, rising coordination costs and blurred trust boundaries.
The introduction of QCS Token is intended to transform the following key matters from manual or organizational judgment into protocol-level rules:

- Hierarchical management of system usage permissions
- Priority scheduling of limited computing resources
- Negotiation mechanisms for parameter adjustments and system evolution
- Long-term incentives and responsibility constraints

Chapter 4 Functional Positioning and Design Principles of QCS Token

QCS Token is the protocol-layer governance instrument of the QCS system. Its core functions are centered on system order management rather than the expression of economic returns. Its design adheres to the following principles:

- Functionality first: the token must possess irreplaceable system-level functions
- Behavior-oriented: system behavior and contributions determine weighting
- Long-term alignment: the time factor occupies a central position in governance and permissions
- Rule transparency: all key rules are verifiable and auditable

Chapter 5 Public Circulation of QCS Token and Its Institutional Significance

QCS Token is planned to enter a public circulation environment in November 2023. Its institutional significance lies in providing protocol governance components with a neutral, accessible and non–centrally permissioned form of existence.
Public circulation ensures that system participation eligibility is not determined by any single entity and provides an institutional foundation for different roles to enter, exit or adjust their level of participation under a unified set of rules.

Chapter 6 System Structural Boundaries: NEC, QCS and QCS Token

Nautical Echo Capital (NEC): responsible for the research and development, deployment and commercial operations of QCS;
Quantum Compass System (QCS): the core system that provides decision-analysis capabilities;
QCS Token: the protocol-layer component used for governance, coordination and order management.
The three remain clearly separated at the legal, financial and governance levels.

Chapter 7 Token Technical Parameters and Engineering Implementation Standards

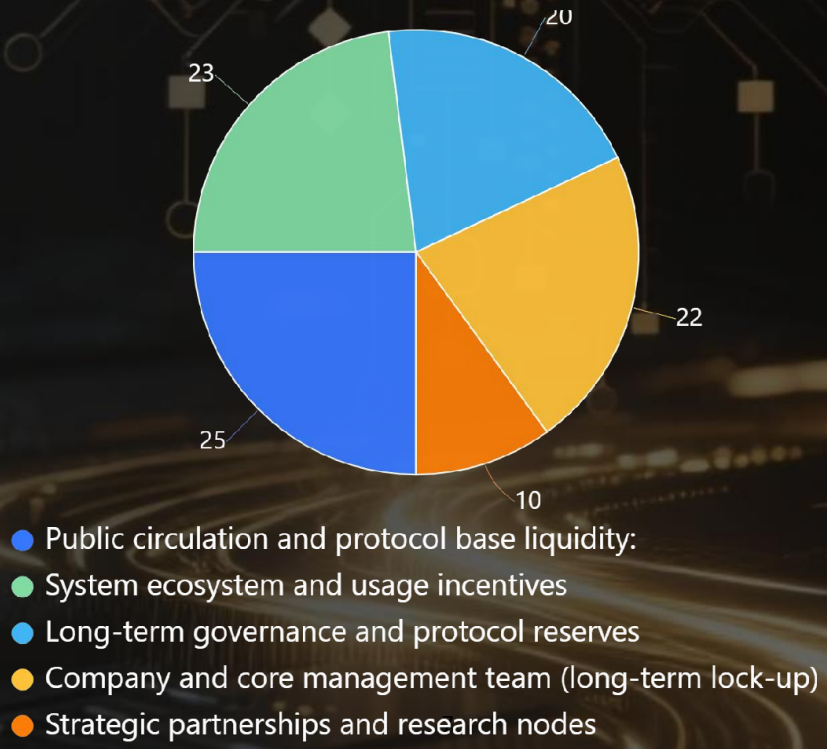
QCS Token is deployed on the Ethereum network using the ERC-20 standard.
The total supply is fixed at 100,000,000 tokens.
The token adopts an 18-decimal precision to support fine-grained staking, governance weight calculation and computing-power proportion allocation.
This precision design belongs strictly to engineering implementation standards and does not involve any economic attribute configuration.

Chapter 8 Token Allocation Structure and Long-Term Responsibility Alignment Mechanism

The allocation of QCS Token is designed around long-term system stability, governance effectiveness and responsibility alignment. The core logic of the allocation structure is as follows: those who bear long-term responsibility for the system must accept corresponding lock-up requirements and constraints; those who participate in system usage and governance obtain tokens through rule-based mechanisms.

8.1 Overall Allocation Ratios

Public circulation and protocol base liquidity: 25%
Purpose: to provide the system with a neutral and accessible source of tokens for staking, governance participation and system access. This portion constitutes the primary source for exchange trading and on-chain circulation.
System ecosystem and usage incentives: 23%
Purpose: to reward genuine system usage behaviors, testing contributions, model feedback and long-term active participants. Tokens are released gradually according to rules, with no concentrated distribution.
Long-term governance and protocol reserves: 20%
Purpose: to serve as a system security buffer, support governance upgrades and handle extreme events. This portion can only be utilized through governance procedures.
Company and core management team (long-term lock-up): 22%
Purpose: to bind long-term system responsibility. This portion is subject to a multi-year lock-up period with a linear vesting mechanism and does not participate in short-term circulation.
Strategic partnerships and research nodes: 10% Purpose: to support system-level collaboration with research institutions, infrastructure nodes and long-term strategic partners.



8.2 Design Principles Explanation

• No one-time large-scale release exists

• All non-circulating portions are subject to time-based and condition-based constraints

• The allocation structure prioritizes governance integrity and system security rather than market stimulation

Chapter 9 Incentive Mechanisms: An Executable Closed-Loop Design Based on Behavior and Contribution

9.1 Incentive Design Objectives

The core objective of the QCS incentive mechanism is not to stimulate token holding, but to continuously guide behaviors that have a positive impact on long-term system stability, usability and decision quality.

All incentives must satisfy the following criteria: verifiable, auditable and traceable.

9.2 Incentive Behavior Categories and Access Conditions

(I) System Usage Incentives

Trigger conditions include, but are not limited to:

• Stable invocation of core QCS modules over consecutive cycles

• Compliant usage maintained during periods of high system load or critical market events

• No records of abnormal high-frequency requests or interface abuse

(II) System Contribution Incentives

Including:

• Submission of verified feedback that improves model stability

• Participation in test networks and completion of predefined testing benchmarks

• Provision of reproducible data structures or risk-identification recommendations

(III) Risk-Bearing Incentives

Applicable to:

• Early-stage deployment of new models or new modules

• Usage behaviors during periods when system parameters are still in the convergence phase

(IV) Governance Participation Incentives

Including:

• Submission of qualified governance proposals

• Continuous participation in and supervision of governance voting

9.3 Incentive Distribution and Effectiveness Mechanism

Incentives are first recorded in the incentive accounting ledger (Reward Ledger);

Incentive tokens must satisfy a minimum lock-up period before they can be converted into effective governance or permission weights;

Incentives do not guarantee immediate entry into free circulation.

Chapter 10 Permission Control and Computing Power Scheduling Mechanisms

10.1 Overall Structure of the Permission System

QCS adopts a multidimensional permission model rather than a simple hierarchical grading system:

- Functional tiers: determined by staking ranges
- Computing power priority: weighted by staking amount and staking duration
- Stability score: determined by historical behavior

10.2 Permission Calculation Factors

Permissions are jointly determined by the following factors:

- Effective amount of staked tokens
- Staking duration (time-weighted)
- Historical usage stability score
- Whether any violations or abnormal behavior records exist

10.3 Scheduling Rules Under High Load and Extreme Conditions

When system resources are constrained, the scheduling priority order is as follows:

- Institutional users with long-term stable staking
- Participants actively performing governance responsibilities
- General compliant users
- Accounts associated with short-term or high-risk behaviors

Chapter 11 On-Chain Verification, Wallet Binding and System Permission Mapping

The QCS system maps the holding and staking status of QCS Token to system permissions through on-chain state reading and wallet signature mechanisms. The system does not custody user assets and performs state verification only.

11.1 Wallet Binding Procedure

- The user initiates a binding request within the QCS system
- The user completes a one-time signature via an on-chain wallet
- The system establishes a mapping relationship between the user account and the wallet address

11.2 On-Chain State Data Retrieved

The system reads only the following on-chain data:

- Token holding amount
- Staking status and lock-up period
- Voting behavior records within governance contracts

The system does not custody or transfer user assets.

11.3 Permission Mapping and Update Mechanisms

- On-chain state changes are synchronized to the system on a periodic basis
- Permission updates are subject to a buffer period to prevent frequent switching
- Measures are in place to prevent manipulation of permissions through instantaneous transfers

Chapter 12 Governance Framework and Parameter Adjustment Procedures

The governance process includes proposal submission, technical and risk simulation evaluation, a discussion period, multi-factor voting and execution or rollback mechanisms. Governance is strictly limited to system parameters and operating rules.

12.1 Scope of Governable Parameters

Governance applies only to the following:

- Permission thresholds and staking ranges
- Incentive release pacing
- Computing power scheduling weights
- Risk and security thresholds

12.2 Governance Process Steps

- Proposal submission (subject to a minimum staking requirement)
- Technical and risk simulation evaluation
- Public discussion period
- Multi-factor voting mechanism (Token × time × behavior score)
- Progressive execution or rollback

12.3 Governance Pace Control

- All parameter adjustments are subject to a cooling-off period
- This prevents frequent changes from undermining system predictability

Chapter 13 Governance Security, Anti-Abuse and System Protection Mechanisms

The system introduces time weighting, behavior scoring and permission fallback mechanisms to prevent governance manipulation and resource abuse. In cases of serious violations, a token burn mechanism may be triggered following governance confirmation, with complete audit records retained.

13.1 Primary Risk Scenarios

- Short-term concentrated token holdings used to manipulate governance
- Incentive extraction through abusive or artificial system calls
- Exploitation of system boundaries to occupy excessive computing resources

13.2 Defensive Measures

- Time-weighted governance voting power
- Behavior scoring–based weight adjustments
- Automatic permission fallback mechanisms

13.3 Token Burn (Burn) Mechanism

The token burn mechanism may be triggered under the following circumstances:

- Confirmed malicious attacks
- System-level abuse behaviors
- Repeated records of serious violations

Any token burn must be confirmed through the governance process and be subject to full public audit. It is not designed as a routine punitive tool.

Chapter 14 Typical System Participant Roles and End-to-End Process Overview

This chapter describes the typical operational paths of institutional users, research users and governance participants within the system, covering the complete process from token acquisition and system access to long-term usage and governance participation.

14.1 Institutional User Workflow

Token acquisition → wallet binding → staking → system access → permission elevation → long-term usage → optional governance participation → unstaking or continued participation.

14.2 Research User Workflow

Test participation → behavior recording → incentive acquisition → module unlocking → feedback submission → permission accumulation.

14.3 Governance Participant Workflow

Token staking → proposal submission → discussion → voting → execution supervision.

Chapter 15 Organizational Structure, Core Team and Long-Term Responsibility Arrangements

Michael Lloyd Lutz | Founder and Chief System Scientist
Responsible for system architecture, methodology and the long-term technical roadmap.

Talon Rives | Chief Trading and Operations Officer (Crypto Assets)
Responsible for system operations and digital asset coordination.

Daniel Chen | Head of Core System Architecture
Responsible for platform engineering implementation and system stability.

Alexander Thomas Weber | Head of Governance and Risk
Responsible for governance processes, security and the compliance framework.

All core team token allocations are subject to multi-year lock-up arrangements to bind long-term responsibility.

Chapter 16 Risk Boundaries, Exit Mechanisms and System Constraints

Participants may unstake, reduce their level of participation or exit the system in accordance with established rules. The system does not guarantee continuous availability or any specific outcomes.

16.1 Risk Boundaries

- The system does not guarantee returns or predictive results
- The token does not constitute an investment contract
- The system may undergo adjustments due to technical, regulatory or market changes

16.2 Exit and Unstaking Mechanisms

- Unstaking is permitted after the lock-up period has concluded
- Unstaking results in a gradual reduction of permissions and governance weighting
- The system does not impose any permanent binding mechanisms

16.3 Extreme Scenario Handling

- The system may temporarily suspend certain functions to protect overall stability
- All emergency measures are subject to post-event disclosure and audit

Chapter 17 Roadmap and Protocol Evolution Planning

This roadmap is intended to outline the evolutionary direction of the QCS system and QCS Token over the coming years. All timeline milestones represent planned objectives used to guide system development and resource allocation, rather than commitments regarding outcomes or progress.

2024 | Governance and Permission Framework Enhancement Phase

2024 marks a critical year in which QCS transitions from an operable system to a governable system. The core objective of this phase is not scale expansion, but the consolidation of institutional foundations.

Key initiatives include:

• Full deployment of token-based permission tiering and computing power scheduling mechanisms

• Validation of the stability of incentive, staking and permission-mapping mechanisms under real-world usage conditions

• Testing the feasibility of governance processes through internal and limited external user participation

• Establishing a complete closed loop for governance proposals, simulation evaluations and execution or rollback

This phase prioritizes institutional controllability and system predictability.

2025 | Cross-Regional Deployment and System Stabilization Phase

In 2025, QCS will enter an operational phase across multiple regions and user groups. The focus of this phase is not rapid expansion, but rather the validation of system stability and fault tolerance across different market environments and usage patterns.

Key initiatives include:

• Deployment of QCS system instances across multiple regions

• Optimization of model parameters and computing power allocation strategies for different market characteristics

• Observation of the coordination effectiveness of token-based governance under cross-regional conditions

• Accumulation of operational data and risk experience to support subsequent commercialization deployment

2026 | Global Official Launch and Commercialization Phase of QCS

In 2026, QCS plans to enter its global official launch and commercialization phase.

This stage marks QCS's transition from a research and validation system into a mature product designed for institutional clients.

Key initiatives include:

• Providing standardized system products and services to institutional clients

• Decoupling token-based governance mechanisms from commercial usage scenarios to ensure clear boundaries between commercial contracts and protocol governance

• Further validating the system's long-term sustainability through real-world commercial adoption

2027–2030 | Governance Autonomy Deepening and Multi-System Collaboration Phase

Between 2027 and 2030, the focus of QCS will shift from optimization of a single system to coordination among multiple systems.

Key directions include:

- Enhancing the degree of governance autonomy and reducing reliance on any single entity
- Exploring interfaces and collaboration between QCS and other decision-support or risk-management systems
- Gradually expanding applicable system scenarios while ensuring security and stability

Chapter 18 Long-Term Objectives and System Vision

Quantum Compass System (QCS) is not designed for short-term efficiency or isolated market opportunities. Its long-term objective is to become a decision-making infrastructure capable of sustained operation in environments characterized by a high degree of uncertainty.

The core vision of QCS does not lie in providing a single optimal answer, but in helping decision-makers understand directional structures, risk boundaries and possible pathways within complex systems, thereby reducing the probability of structural errors in major decisions.

Within this framework, the role of QCS Token is not a vehicle for value expression, but a constituent element of system order. Its existence allows the system, when operating at scale, to no longer rely entirely on the continuous management of a single organization, but instead to achieve long-term stability through rules, constraints and coordination mechanisms.

The ultimate objective of QCS is to build an interpretable, collaborative and evolvable decision-system ecosystem on the premise of respecting uncertainty, enabling different roles to participate together under a unified set of rules while maintaining rationality and a sense of direction within a complex world.

The mechanisms and roadmap described in this whitepaper represent a long-term system-building approach, the value of which will gradually emerge through time and real-world operation.