

BitQube



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Abstract

BitQube is an advanced blockchain ecosystem designed to redefine decentralized finance, staking mechanisms, and validator governance. Built on the QubeScan Blockchain, it employs a hybrid Validator-Governed Proof of Authority (VG-PoA) consensus model that balances decentralization with security and scalability.

The BitQube network operates with a **total supply of 21 million BQC**, distributed strategically for sustainability and adoption. A total of **7.5 million BQC** has been allocated for **network rewards**, ensuring long-term incentives for both validators and passive stakers. Additionally, **7.5 million BQC** is designated for the **public sale**, while **1 million BQC** is reserved for the **development fund**.

Validators are at the core of BitQube's security and governance model. To become a validator, a node must stake a minimum of **3,600 BQC**, ensuring a commitment to network stability. Each validator earns **10 BQC per day** initially, applicable for up to **360 validators**, with a dynamic reduction in rewards as the network scales. Additionally, the ecosystem supports passive staking, allowing non-validators to stake a minimum of **1,000 BQC** and earn **7.2 BQC per day**, up to **500 stakers**, before transitioning to a variable distribution model.

To enhance accessibility, BitQube offers a **Validator-as-a-Service (VaaS)** model, enabling users to participate in staking without managing infrastructure. VaaS ensures that validator rewards and gas fees are automatically routed to the validator's public key, streamlining the staking experience. Meanwhile, self-hosted validators retain full control over their infrastructure while following the same staking requirements.

As the network matures, BitQube will transition from staking-based rewards to a **fee-based compensation model**, where validators and passive stakers will earn from transaction fees instead of fixed staking incentives. This ensures long-term economic sustainability while maintaining validator incentives.

All staking transactions, reward distributions, and governance decisions are recorded on the **QubeScan Explorer**, ensuring full transparency. BitQube aims to provide a **scalable, secure, and decentralized financial ecosystem**, making it an ideal platform for Web3 applications, decentralized finance (DeFi), NFT marketplaces, and enterprise blockchain solutions.

This paper outlines the architectural framework, validator staking mechanisms, governance models, and economic strategies that make BitQube a forward-looking, sustainable blockchain ecosystem.



1 Executive Summary

BitQube is an advanced blockchain ecosystem leveraging the **QubeScan Blockchain**, designed to enable secure, scalable, and transparent decentralized applications. It introduces a **Validator-Governed Proof of Authority (VG-PoA)** consensus mechanism, allowing both ****validators and passive stakers**** to participate in network operations while ensuring economic sustainability.

1.1 Coin Allocation and Staking Model

The BitQube network operates on a total supply of **21 million BQC**, allocated as follows:

- **7.5 million BQC** allocated for **staking rewards**, split between **validators and passive stakers**.
- **7.5 million BQC** allocated for **public sale** to facilitate wider adoption.
- **1 million BQC** allocated for the **development fund**.

The validator model requires a **minimum stake of 3,600 BQC** per node, with an initial reward structure of **10 BQC per day**, applicable up to **360 validators**. Passive staking enables users to stake a minimum of **1,000 BQC** and earn **7.2 BQC per day** for up to **500 stakers**, with dynamic adjustments based on network demand.

1.2 Sustainability and Transition to Gas Fee-Based Rewards

BitQube is designed for long-term sustainability, gradually transitioning from staking-based rewards to a **fee-based economy**. Validators will eventually be compensated primarily through **transaction fees**, ensuring that the network remains self-sufficient beyond the staking incentive phase.

1.3 Validator-as-a-Service (VaaS)

To enhance accessibility, BitQube offers **Validator-as-a-Service (VaaS)**, allowing users to participate in validation without managing infrastructure. VaaS nodes operate under the same staking and reward structure, with all transactions and rewards automatically routed to the validator's **public key**.

In addition to supporting validation on the BitQube network, VaaS is designed to be interoperable with other blockchain ecosystems. This allows validators to deploy and manage validation services for multiple blockchain networks.

1.3.1 Cross-Blockchain Validator Integration

- VaaS enables users to **stake QUBE** and operate validator nodes for multiple blockchain ecosystems.
- Validators can choose their preferred network and seamlessly manage staking across multiple chains.
- A unified ****VaaS dashboard**** provides real-time monitoring of validator performance, earnings, and network activity.
- Gas fee earnings and staking rewards from multiple ecosystems are routed to the validator's **public key**.



1.3.2 Multi-Chain Validator Operations

- BitQube's **VaaS infrastructure** will support multi-chain deployment, enabling users to validate transactions across different networks.
- Validators can switch between ecosystems and allocate resources based on staking returns and network demand.
- Smart contract interoperability ensures that validators receive automatic payouts in each supported blockchain's native currency or QUBE.

This cross-chain compatibility ensures that BitQube's validator ecosystem is adaptable, allowing validators to maximize earnings while contributing to the security and decentralization of multiple blockchain networks.

1.4 Governance and Transparency

Governance in BitQube is fully decentralized, with validators having **equal voting rights** over network upgrades, economic adjustments, and consensus modifications. **QubeScan Explorer** provides full transparency, allowing users to track **staking transactions, validator performance, and governance activities** in real time.

BitQube represents a paradigm shift in blockchain economics by integrating a robust validator system, sustainable staking incentives, and a structured transition to a transaction fee-based model. With a commitment to **scalability, decentralization, and transparency**, BitQube is positioned to be a next-generation blockchain ecosystem that adapts to evolving market demands while ensuring long-term value for its participants.

2 Vision

The vision for **BitQube** is to redefine blockchain ecosystems by prioritizing community-driven innovation, decentralized governance, and sustainable growth. BitQube establishes itself as a versatile platform catering to both enterprises and decentralized communities, enabling participants to shape the platform to their unique needs while offering unparalleled opportunities for collaboration and investment.

2.1 Comparing BitQube with Existing Platforms

BitQube introduces QubeScan transformative features that address the limitations of existing blockchain platforms:

- **Decentralized Governance:** Unlike many traditional platforms that centralize decision-making, BitQube empowers its community through Validator-Governed Proof of Authority (VG-PoA). Validators drive network decisions, fostering accountability and inclusivity.
- **Customizability:** Existing platforms often offer rigid frameworks, limiting adaptability. BitQube provides customizable validation environments, enabling communities and enterprises to tailor the platform to specific needs, such as private transaction networks or tokenized economies.
- **Community-Driven Contributions:** While many platforms restrict community involvement to token trading or staking, BitQube actively welcomes code contributions, feature suggestions, and knowledge-sharing, fostering an open-source culture.
- **Hybrid Applications:** BitQube combines the transparency of public blockchains with the privacy and scalability of private systems, addressing diverse operational requirements for both individual users and enterprises.
- **Investment Opportunities:** Through its validator communities, BitQube offers unique platform investment opportunities, encouraging smaller participants to pool resources and benefit from shared rewards.

2.2 Decentralized Governance: Empowering Communities

BitQube's governance framework is designed to ensure that all participants have a voice:

- **Validator Authority:** Decision-making power lies with validators, ensuring decentralized and democratic governance. Critical actions, such as node approvals and fraud prevention, require a 51% consensus.
- **On-Chain Transparency:** All governance activities are recorded on-chain, promoting accountability and trust.
- **Adaptability:** Communities can propose changes to network operations, allowing the ecosystem to evolve based on user needs.

This decentralized model not only enhances trust but also ensures the network's adaptability to emerging challenges and opportunities.



2.3 Platform Investment Opportunities

BitQube opens the doors for community-driven investments through:

- **Validator Communities:** Participants can stake BitQube Coins (BQC) to become validators, contributing to network security and earning rewards proportionate to their contributions. With the integration of **Validator-as-a-Service (VaaS)**, validators can operate without requiring extensive infrastructure, making participation accessible to a broader range of users.
- **Cross-Blockchain VaaS Support:** BitQube's VaaS model enables validators to provide validation services for multiple blockchain ecosystems, including **Ethereum (ETH), Binance Smart Chain (BSC), Polygon (MATIC), Avalanche (AVAX), and Solana (SOL)**. This allows validators to maximize their earnings while contributing to the decentralization and security of various networks.
- **Passive Staking Model:** Users who do not wish to run a validator node can participate in **passive staking** by staking their BQC. Passive stakers receive a share of the network's staking rewards and transaction fees based on their contribution to the staking pool, providing a sustainable way to earn rewards without actively managing infrastructure.
- **Shared Staking Pools:** Smaller investors can join passive staking pools, democratizing access to rewards and governance rights. This feature ensures that even users who do not have the minimum staking requirement for passive staking can still participate in the network and earn proportional rewards.
- **Automated Reward Distribution:** All validator and passive staking rewards are automatically routed to the participant's **public key**, ensuring seamless distribution of earnings across BitQube and other supported blockchain ecosystems.

These mechanisms ensure that investment opportunities are accessible to a broad spectrum of participants, fostering economic inclusivity and network growth.

2.4 Welcoming Community Contributions

BitQube recognizes the power of collective intelligence and encourages active participation from its community:

- **Open-Source Collaboration:** Developers are invited to contribute code, suggest new features, and enhance the platform's functionality.
- **Knowledge Sharing:** Community members can share insights, use cases, and best practices, creating a collaborative ecosystem.
- **Transparent Processes:** All contributions are vetted through decentralized governance, ensuring that only the most impactful innovations are adopted.

This inclusive approach not only accelerates innovation but also ensures that the platform remains aligned with the needs of its users.

2.5 A Vision for the Future

BitQube's long-term vision is to create a blockchain ecosystem where technology adapts to people, not the other way around. By combining decentralized governance, platform investment opportunities, and community-driven innovation, BitQube aims to:



- Empower communities and enterprises to achieve economic self-sustainability.
- Foster a culture of inclusivity and collaboration.
- Advance blockchain technology to address real-world challenges.

With its commitment to adaptability, transparency, and community empowerment, BitQube is poised to redefine the blockchain landscape for generations to come.

3 Blockchain Overview

The QubeScan Blockchain represents a next-generation hybrid architecture designed to combine the strengths of public and private blockchains. Optimized for speed, scalability, and transparency, the platform focuses on validator-driven incentives, sustainable network growth, and real-world utility powered by BitQube Coin (BQC).

3.1 Core Architectural Features

BitQube's hybrid architecture includes:

- **Rapid Transaction Processing:** Blocks are processed every 5 seconds, ensuring fast finality for financial transactions and dApp operations.
- **Validator Participation:** BQC staking aligns rewards with network contributions, eliminating reliance on referrals.
- **Hybrid Blockchain Design:** Combines the transparency of public blockchains with the scalability and privacy of private systems to meet diverse user needs.
- **Adaptive Participation:** Multiple staking tiers and shared validator pools democratize access to rewards and network governance.

3.2 Consensus Mechanism: Validator-Governed Proof of Authority (VG-PoA)

The VG-PoA consensus ensures:

- **Decentralized Decision-Making:** Validators hold authority over governance, requiring 51% consensus for critical actions like node approvals or fraud prevention.
- **Energy Efficiency:** VG-PoA minimizes resource usage compared to traditional proof-of-work systems.
- **Aligned Incentives:** Validator rewards are structured to promote long-term participation and ecosystem stability.

3.3 Node Infrastructure and Scalability

Validator nodes form the foundation of the QubeScan Blockchain's scalability, with Validator-as-a-Service (VaaS) and passive staking models ensuring widespread participation.

- **Node Staking Requirement:** Validators must stake a minimum of **3,600 BQC** to operate nodes and earn rewards. Initial validator rewards are set at **10 BQC per day**, applicable for up to **360 validators**. As the network expands, rewards will gradually decrease to ensure economic sustainability.
- **Scalable Reward Mechanism:** The reward structure is designed to decrease proportionally with node participation milestones. For example, validator rewards will adjust from **10 BQC per day** at **360 validators** to progressively lower amounts as more validators join the network, maintaining a balanced economic model.

- **Validator-as-a-Service (VaaS):** VaaS allows participants to become validators without requiring dedicated infrastructure. Users can stake QUBE and operate validators through a managed service, ensuring seamless network participation. Additionally, BitQube's VaaS extends to multiple blockchain ecosystems, including **Ethereum, Binance Smart Chain, Polygon, Avalanche, and Solana**, allowing validators to earn across multiple networks.
- **Passive Staking Model:** Users who do not wish to run a validator node can participate in **passive staking** by staking a minimum of **1,000 BQC**. Passive stakers receive a share of staking rewards and transaction fees based on their contribution to the staking pool, ensuring sustainable earnings without requiring node operation.

3.4 Transaction Security and Governance

- **Shared Staking Pools:** Smaller investors can pool their resources to participate in **passive staking rewards**, promoting community-driven staking participation and ensuring accessibility.
- **Sustainability Focus:** The combination of **gradual reward reductions** and the **transition to gas fee-based incentives** ensures long-term network viability, scalability, and economic stability.

3.5 Hybrid Applications and Utility

QubeScan Blockchain supports diverse applications:

- **DeFi Solutions:** Secure financial products like lending platforms, decentralized exchanges, and staking programs.
- **Enterprise Use Cases:** Scalable infrastructure for supply chain management, payment systems, and data validation.
- **Tokenized Economies:** Enable communities and businesses to create tokens for real-world applications.

This strategic framework positions BitQube as a leading blockchain for decentralized financial ecosystems and enterprise adoption.

3.6 BitQube Coin Allocation

The QubeScan Blockchain economic framework, termed **Blocknomics**, is meticulously designed to ensure long-term sustainability, scalability, and inclusivity. It governs the allocation of BitQube Coins (BQC), validator rewards, and investment pooling mechanisms. Blocknomics ensures the long-term stability and adaptability of the BitQube ecosystem while empowering communities and enterprises to grow and thrive.

The total supply of **21 million BQC** is strategically allocated to ensure sustainable network operations, validator incentives, and long-term ecosystem growth. The updated allocation is as follows:

- **7.5 million BQC** is allocated for **staking rewards**, ensuring fair compensation for validators and passive stakers.
- **7.5 million BQC** is reserved for the **public sale**, promoting accessibility and liquidity.
- **1 million BQC** is designated for the **development fund**, ensuring ongoing network enhancements.
- The remaining BQC supply is reserved for **network operations, ecosystem development, and governance-driven adjustments**.

3.6.1 Staking Rewards Allocation

Validators and stakers are compensated through a structured reward system:

- **Validators:** Each validator must stake a minimum of **3,600 BQC** from their public key to the **validator contract address**. Validators receive **10 BQC per day** for up to **360 validators**. Beyond this threshold, rewards gradually decrease based on total validator participation.
- **Passive Stakers:** Users who do not wish to run a node can stake a minimum of **1,000 BQC** and earn **7.2 BQC per day** for up to **500 stakers**, with dynamic scaling beyond this limit.

3.6.2 Public Sale Development Fund

The sale of BitQube Coin is structured to ensure broad participation and liquidity for the ecosystem:

- The dedicated **development fund 1 million BQC** is allocated for to ecosystem growth.
- The **public sale** will distribute **7.5 million BQC**, ensuring accessibility to retail participants and long-term supporters.

3.7 Economic Sustainability

The BitQube network is designed for long-term economic sustainability by implementing a structured staking model, governance-driven incentives, and a gradual transition toward a fee-based compensation structure.

3.7.1 Sustainable Staking Rewards

The network ensures a balanced reward mechanism by allocating **7.5 million BQC** for validator and passive staking incentives:

- **Validator Rewards:** Validators staking **3,600 BQC** receive **10 BQC per day**, applicable to the first **360 validators**. Beyond this limit, rewards gradually decrease to ensure sustainability.
- **Passive Staking:** Users staking **1,000 BQC** earn **7.2 BQC per day** for up to **500 stakers**. After reaching this threshold, rewards are dynamically adjusted based on network demand.

3.7.2 Coin Allocation

The public sale and development fund will provide liquidity to sustain the ecosystem:

- **1 million BQC** allocated for **development fund**.
- **7.5 million BQC** allocated for **public sale** to promote broad adoption and retail investor participation.

3.7.3 Transition to Gas Fee-Based Rewards

BitQube will progressively transition from staking-based incentives to a **transaction fee-driven economic model**:

- Validators will begin earning a higher percentage of **transaction fees** instead of relying solely on staking rewards.
- Passive stakers will continue to receive rewards based on available network fees, ensuring long-term viability.
- The governance mechanism will oversee adjustments to staking policies and fee distributions.

3.7.4 Transparency and Governance

All economic activities, including staking transactions and validator rewards, are publicly recorded on the **QubeScan Explorer**. Validator participation, governance proposals, and staking adjustments will be fully decentralized and transparent, ensuring a self-sustaining network economy.

3.7.5 Validator Reward Mechanism

Validators are the backbone of the QubeScan Blockchain, and their rewards are structured to promote network growth and sustainability:

- **Minimum Stake Requirement:** A validator must stake a minimum of **3,600 BQC** from their node's public key to be assigned as a validator.
- **Validator Rewards:** Each validator node earns **10 BQC per day**, up to **360 active validators**. After reaching this threshold, rewards gradually decrease based on the total number of participating nodes.
- **Validator Assignment Process:**
 - The node operator must stake from their **public key** to the **validator contract address**.
 - Upon confirmation, the node is automatically assigned as a validator.
 - Validator-as-a-Service (VaaS) ensures that all rewards and gas fees are routed to the validator's chosen public key.

- **Self-Hosted Validator Model:**

- Self-hosted nodes follow the same staking rules as VaaS but must maintain their own infrastructure.
- Unmanaged nodes are responsible for their own security, uptime, and upgrades.

- **Validator Performance Dashboard:** Each node has a dedicated dashboard displaying:

- Total **earned rewards and gas fees** accumulated over time.
- Node uptime, transaction validation history, and network contribution statistics.

Economic Sustainability The QubeScan Blockchain economic model ensures long-term stability, scalability, and sustainability through controlled staking mechanisms and validator incentives.

- **Controlled Reward Reduction:**

- Validator rewards begin at **10 BQC per day**, capped at **360 validators**.
- As the number of validators increases beyond this threshold, rewards will gradually decrease to maintain economic stability.
- Passive staking rewards of **7.2 BQC per day** are provided for up to **500 stakers**, after which they will decrease dynamically.

- **Validator-as-a-Service (VaaS) Integration:**

- Only **QUBE** is accepted as payment for VaaS.
- The VaaS framework ensures that all validator rewards and gas fees are automatically directed to the validator's **public key address**.
- Staking must be performed directly from the validator's **public key** to the **validator contract address**.

- **Self-Sustaining Model:**

- Transitioning from staking-based rewards, the network will gradually shift to a **gas fee-based reward structure**, ensuring long-term economic viability.
- Validator rewards will be supplemented by transaction fees, staking incentives, and governance participation incentives.

- **Transparency and Trust:**

- Validator rewards, staking transactions, and economic flows will be fully **traceable on the QubeScan Explorer**.
- A **validator performance dashboard** will provide real-time tracking of **earned rewards, gas fees, and staking contributions**.

BitQube Coin is not an investment product. Its value is tied directly to its utility in rendering real-world services and products, network activity, and community-driven adoption, prioritizing usability over speculation.

4 Reward System

The QubeScan Blockchain introduces a revolutionary Reward System designed to balance inclusivity, sustainability, and scalability. By replacing referral-based rewards with validator-driven incentives, the platform ensures that rewards are distributed transparently and equitably, aligning with the core principles of decentralization and utility-driven value creation.

4.1 Core Principles of the Reward System

The BitQube reward system ensures fair compensation for validators and passive stakers while maintaining long-term economic sustainability. A total of **7.5 million BQC** is allocated to support staking rewards, distributed through a structured incentive model.

4.1.1 Validator Staking and Rewards

Validators play a crucial role in securing the network and processing transactions. The validator reward structure follows these principles:

- A validator must stake a minimum of **3,600 BQC** from their **public key** to the **validator contract address**.
- Validators receive **10 BQC per day**, up to a maximum of **360 active validators**.
- Beyond **360 validators**, rewards gradually decrease to ensure economic stability.
- Validator rewards and gas fees are automatically routed to the validator's **public key**, ensuring transparency in fund allocation.

4.1.2 Passive Staking Rewards

Users who do not wish to operate a validator node can still participate in staking through the passive staking model:

- A minimum stake of **1,000 BQC** is required to participate.
- Passive stakers earn **7.2 BQC per day**, applicable to the first **500 stakers**.
- If the number of passive stakers exceeds **500**, rewards gradually decrease to maintain sustainability.
- Staking transactions must be initiated from the user's **public key** to the **staking contract address**.
- Rewards are automatically distributed to the same **public key** from which the stake was made.

4.1.3 Transition to Fee-Based Incentives

To maintain long-term sustainability, the staking model will gradually transition to a **gas fee-based reward system**. Validators will eventually earn compensation based on:

- Transaction validation fees from network operations.
- Network participation, block confirmations, and governance contributions.
- The governance mechanism will oversee reward structure modifications to optimize economic balance.



4.1.4 Transparency and Validator Performance Tracking

All reward distributions and staking transactions will be verifiable on the **QubeScan Explorer**. Each validator will have access to a **performance dashboard** displaying:

- Total earned **staking rewards and gas fees**.
- Validator **uptime and network activity**.
- Real-time economic projections and stake performance.

4.2 Reward Allocation and Scalability

The BitQube reward system is structured to provide fair incentives to both validators and passive stakers while maintaining economic balance.

4.2.1 Total Reward Pool Allocation

A total of **7.5 million BQC** is allocated for **staking rewards**, ensuring long-term sustainability:

- **Validators:** Receive staking rewards based on their role in transaction validation and governance.
- **Passive Stakers:** Earn rewards without running a node, ensuring wider participation in the network economy.

4.2.2 Validator Reward Scaling

- Each validator receives **10 BQC per day**, applicable for up to **360 active validators**.
- If the number of validators exceeds **360**, the per-validator reward decreases proportionally.
- This dynamic scaling prevents reward dilution while maintaining network security and decentralization.

4.2.3 Passive Staking Reward Scaling

- Users who stake a minimum of **1,000 BQC** receive **7.2 BQC per day**.
- This reward is applicable for up to **500 passive stakers**.
- Beyond **500 stakers**, the reward gradually decreases to ensure long-term sustainability.

4.2.4 Stake and Reward Distribution

- Validators must stake directly from their **public key** to the **validator contract address**.
- Passive stakers must send their stake amount to the **staking contract address**.
- Validator rewards and gas fees are automatically routed to the validator's **public key**.
- Passive staking rewards are automatically sent to the public key that initiated the stake.



4.2.5 Transition to Gas Fee-Based Rewards

- Over time, staking rewards will phase out in favor of **gas fee-based compensation**.
- Validators will increasingly earn from transaction fees instead of fixed daily staking rewards.
- Passive stakers will receive a share of the network's transaction fees based on their staked amount.

4.2.6 Transparency and Validator Performance Tracking

- Validator and staking transactions are publicly recorded on the **QubeScan Explorer**.
- The **validator performance dashboard** provides real-time statistics on earned rewards, gas fees, and stake performance.

4.3 Transition to Fee-Based Rewards

To ensure long-term sustainability, the BitQube network will gradually transition from staking-based incentives to a **gas fee-based reward system**. This shift ensures validators and passive stakers receive compensation based on actual network activity rather than fixed staking rewards.

4.3.1 Initial Staking-Based Reward Phase

- Validators initially earn **10 BQC per day**, applicable for up to **360 validators**.
- Passive stakers receive **7.2 BQC per day**, applicable up to **500 stakers**.
- The total staking rewards pool is set at **7.5 million BQC**, ensuring sustainable incentives for validators and passive stakers while transitioning toward a gas fee-based model.
- **7.5 million BQC** has been allocated for public sale, providing liquidity and market participation.
- The **1 million BQC development fund** will support protocol upgrades and future ecosystem growth.

4.3.2 Gradual Transition to Gas Fee-Based Rewards

- As validator participation increases, staking rewards will gradually decrease, shifting compensation toward transaction fees.
- Validators will earn a share of **gas fees** based on the number of transactions validated and blocks processed.

4.3.3 Validator-as-a-Service (VaaS) Revenue Model

- Validators providing services through **VaaS** will receive gas fee payments in addition to staking rewards.
- Users requesting VaaS services must pay in **QUBE**, ensuring that all validator earnings remain within the network.
- Rewards and gas fees are automatically routed to the validator's **public key**.



4.3.4 Governance-Managed Reward Adjustments

- The transition schedule will be subject to **validator voting and governance oversight**.
- Governance will determine the rate at which staking rewards decrease and gas fee-based rewards increase.
- All reward distributions and policy changes will be publicly recorded on the **QubeScan Explorer**.

4.3.5 Ensuring Long-Term Economic Stability

- The move to a fee-based system ensures that validator and staker rewards are directly linked to real-world transaction activity.
- The staking model will remain dynamic, allowing adjustments based on network demand and transaction volume.
- As transaction volume increases, staking rewards will be completely replaced by gas fee-based earnings, ensuring self-sufficiency for the BitQube ecosystem.

4.4 Key Benefits of the Reward System

BitQube's mining strategy offers:

- **Inclusivity: Shared passive staking pools** lower barriers to entry, allowing users to stake without operating a validator node, while **Validator-as-a-Service (VaaS)** enables broader participation by providing managed validator infrastructure.
- **Scalability:** Gradual reward reduction ensures long-term stability while incentivizing **validator and passive staking growth**, adapting to increasing network participation.
- **Sustainability:** The transition to a **fee-based model** ensures continued validator engagement without reliance on staking-based incentives, allowing validators to earn from transaction fees.
- **Transparency:** All validator rewards, passive staking contributions, and gas fee distributions are recorded **on-chain**, ensuring full accountability and trust in the system.

This inclusive and dynamic Reward System positions QubeScan Blockchain as a sustainable and scalable platform, fostering long-term adoption and growth.

5 Business Vision

QubeScan Blockchain envisions creating a transformative platform that seamlessly integrates decentralized and centralized systems to foster innovation, economic growth, and community engagement. By transitioning to BitQube, the platform emphasizes utility, scalability, and sustainability, making blockchain technology accessible and practical for diverse global stakeholders.

5.1 Core Objectives

The QubeScan Blockchain vision is underpinned by the following objectives:

- **Utility-Centric Ecosystem:** Leverage BitQube Coin (BQC) as a medium to drive real-world applications, ensuring its value is tied directly to usability rather than speculative investments.
- **Scalability and Adaptability:** Build a blockchain infrastructure capable of handling enterprise-level operations and community-driven projects simultaneously.
- **Inclusivity and Accessibility:** Empower smaller investors and developers by introducing shared passive staking pools and lowering the barriers to entry for staking rewards.
- **Sustainability Through Innovation:** Transition from coin-based rewards to a fee-based reward structure, ensuring long-term economic viability and energy-efficient operations.
- **Global Impact and Integration:** Create a platform that supports tokenized ecosystems, cross-border transactions, and hybrid blockchain solutions for enterprises and decentralized communities.

5.2 Driving Blockchain Innovation

BitQube's vision extends beyond technology, aiming to redefine how blockchain ecosystems interact with real-world applications:

- **Tokenized Economies:** Enable communities and enterprises to create **tokenized assets**, facilitating transparent and efficient trading and economic participation across multiple blockchain networks.
- **Decentralized Financial Solutions:** Provide tools and platforms for **secure, scalable, and interoperable financial systems** powered by BQC, ensuring seamless integration with both decentralized and traditional financial services.
- **Sustainable Validator and Passive Staking Network:** Support a validator-driven and passive staking reward structure with **7.5 million BQC** distributed over **2.7 years**, ensuring long-term network stability. Validators can participate through **Validator-as-a-Service (VaaS)** or **self-hosted validator nodes**, while passive stakers can earn rewards by staking a minimum of **1,000 BQC** in shared passive staking pools.
- **Hybrid Blockchain Models:** Offer a **public-private hybrid blockchain architecture**, combining **public blockchain transparency** with **private blockchain efficiency and security**, meeting the diverse needs of enterprises, DeFi applications, and institutional-grade solutions.

5.3 Vision for Future Growth

BitQube aims to:



- Foster global adoption by simplifying blockchain technology for businesses and individuals.
- Expand decentralized communities by enabling tokenized governance and economic models.
- Provide robust enterprise solutions for supply chain management, payment systems, and data integrity.

This visionary approach positions QubeScan Blockchain as a leader in next-generation blockchain ecosystems, combining the strengths of public and private systems with a focus on utility and sustainability.

6 Payment Model

QubeScan Blockchain introduces a robust and scalable payment model designed to cater to the evolving needs of decentralized communities, centralized enterprises, and hybrid ecosystems. By leveraging gas fees and dynamic validator rewards, the model ensures inclusivity, scalability, and long-term sustainability.

6.1 Gas Fee-Based Rewards

The BitQube network is transitioning towards a sustainable fee-based model where validators and passive stakers are compensated through transaction fees rather than fixed staking rewards.

6.1.1 Validator Compensation Through Gas Fees

- Validators will earn a share of **gas fees** for processing transactions and securing the network.
- The earnings depend on:
 - The number of transactions validated.
 - The number of blocks successfully processed.
 - The total network activity and transaction volume.
- Validators operating under the **Validator-as-a-Service (VaaS)** model will have gas fees automatically routed to their **public key address**.

6.1.2 Payment Model for Validator-as-a-Service (VaaS)

- Users requesting VaaS nodes must pay exclusively in **QUBE**.
- Payment is processed directly through the validator contract, ensuring seamless reward distribution.
- Validator rewards and gas fees are automatically directed to the validator's **public key**.
- The VaaS model provides:
 - Automated validator maintenance and updates.
 - Security patches and optimized network performance.

6.1.3 On-Chain Transparency and Fee Monitoring

- All validator transactions, staking activities, and gas fee distributions will be recorded on the **QubeScan Explorer**.
- The **validator performance dashboard** will provide:
 - Detailed analytics on earned rewards.
 - Processed transactions per validator.
 - Node efficiency metrics for monitoring validator performance.



6.2 Dynamic Validator Node Pricing

BitQube's validator system follows a structured pricing model to ensure sustainable network operations, fair validator compensation, and efficient staking incentives.

6.2.1 Validator Staking Requirement

- Each validator must stake a minimum of **3,600 BQC** to qualify for network validation.
- Staking must be initiated from the **validator's public key** to the **validator contract address**.
- Upon confirmation of the stake, the node is officially assigned as a validator and begins receiving rewards.

6.2.2 Validator Reward Structure

- Each validator earns **10 BQC per day**, applicable for up to **360 active validators**.
- If the number of validators exceeds **360**, the per-validator reward decreases dynamically.
- Rewards are automatically distributed to the **public key** associated with the staked amount.

6.2.3 Validator-as-a-Service (VaaS) Payment Structure

- Users requesting VaaS must pay in **QUBE** only.
- Payment is processed through the validator contract, ensuring all transactions remain within the ecosystem.
- The VaaS model provides:
 - Seamless validator onboarding without requiring technical expertise.
 - Automatic maintenance, security updates, and optimized node performance.

6.2.4 Self-Hosted Validator Pricing

- Self-hosted validators follow the same staking requirements but manage their own infrastructure.
- Unlike VaaS, self-hosted validators are responsible for their own node security, uptime, and operational costs.
- All staking rewards and gas fees are routed to the validator's **public key**.

6.2.5 Governance Over Pricing Adjustments

- Any changes to validator staking requirements and reward structures will be determined through **on-chain governance voting**.
- Validators will collectively decide on adjustments to staking incentives and fee-based rewards.
- All governance decisions will be publicly recorded on the **QubeScan Explorer** for transparency.



6.3 Mining Incentives and Validator Compensation

The BitQube network ensures fair and sustainable compensation for validators and passive stakers through a structured reward model. The network is shifting from staking-based incentives to a long-term **gas fee-based economy**.

6.3.1 Validator Staking and Rewards

- Validators must stake a minimum of **3,600 BQC** from their **public key** to the **validator contract address** to be assigned as a validator.
- Assigned validators receive **10 BQC per day**, applicable for up to **360 validators**.
- Beyond **360 validators**, rewards decrease dynamically based on total network participation.
- Validators are compensated with **gas fees** in addition to staking rewards.

6.3.2 Passive Staking Compensation

- Users who stake without running a node can participate in **passive staking**.
- The minimum stake for this model is **1,000 BQC**.
- Passive stakers receive **7.2 BQC per day**, up to the first **500 stakers**.
- If the number of stakers exceeds **500**, rewards decrease dynamically to maintain sustainability.

6.3.3 Validator-as-a-Service (VaaS) Compensation

- Users leveraging VaaS must pay for the service exclusively in **QUBE**.
- Staking must be performed from the validator's **public key** to the validator contract.
- Rewards and gas fees are automatically directed to the validator's **public key**.

6.3.4 Transition to Fee-Based Incentives

- As the network matures, validator rewards will shift from staking-based incentives to **gas fee-based compensation**.
- Validators will earn fees based on validated transactions and network contribution.

6.3.5 On-Chain Transparency and Validator Performance Tracking

- All validator earnings and staking rewards are publicly recorded on the **QubeScan Explorer**.
- Each validator node will have a **performance dashboard** displaying:
 - Total earned **staking rewards and gas fees**.
 - Validator **uptime, transaction history, and stake performance**.
 - Real-time **economic projections and validator contributions**.



6.4 Community-Centric Adaptability

The payment model adapts to the needs of diverse users, providing flexibility and inclusivity:

- **Custom Validation Environments:** Communities can configure their validator environments to suit operational needs, such as private transactions or tokenized ecosystems.
- **Self-Sustaining Models:** Gas fees and validator rewards enable communities to establish self-sustaining ecosystems within the BitQube framework.
- **Inclusivity for Small Validators:** Lower stake thresholds and shared pools ensure broad participation without exclusivity barriers.

6.5 Integration with Centralized Services

BitQube supports seamless integration with centralized operations, enhancing hybrid blockchain capabilities:

- **Efficient Payment Processing:** Enterprises can utilize BitQube for low-cost, high-speed transaction processing.
- **Tokenized Economies:** Businesses can issue and manage tokens for internal and external use within the BitQube ecosystem.
- **Transparent Operations:** Gas fees provide transparent and accountable transaction processing for all users.

This flexible payment model positions QubeScan Blockchain as a transformative platform for decentralized and centralized financial operations.



7 FAQs: Frequently Asked Questions

This section provides answers to frequently asked questions about QubeScan Blockchain, its operations, governance, and economic framework. Whether you are a community member, developer, or enterprise, these FAQs clarify the platform's capabilities and policies.

7.1 General Questions

Q1: What is QubeScan Blockchain? QubeScan Blockchain is a hybrid platform that integrates public and private blockchain functionalities. It utilizes the Validator-Governed Proof of Authority (VG-PoA) consensus mechanism to deliver scalability, security, and adaptability.

Q2: What is the purpose of BitQube Coin (BQC)? BQC is the native cryptocurrency of QubeScan Blockchain, facilitating transaction processing, validator rewards, and decentralized governance.

Q3: How does QubeScan Blockchain differ from other platforms? Unique features include:

- A hybrid architecture combining public transparency with private control.
- Tiered validator rewards ensuring inclusivity and sustainable growth.
- Scalable, customizable ecosystems for communities and enterprises.
- Energy-efficient VG-PoA consensus mechanism.

7.2 Governance and Accountability

Q4: Who governs QubeScan Blockchain? Governance is managed by node validators. Decisions such as removing fraudulent validators require a 51% consensus among validators, ensuring decentralized accountability.

Q5: What happens if a validator is found to be fraudulent? Fraudulent validators are permanently disqualified. They are removed through a 51% voting consensus and barred from rejoining the network.

Q6: Is BitQube responsible for validator actions? No, BitQube is not responsible for validator actions. The decentralized governance model empowers validators to oversee and manage network operations independently.

7.3 Economic Model and Rewards

Q: What is the total staking rewards allocation?

A: The BitQube network has allocated **7.5 million BQC** for staking rewards, compensating both validators and passive stakers.

Q: How is the total supply of 21M BQC allocated?

A: The network distribution includes **7.5 million BQC for network rewards**, **7.5 million BQC for public sale**, and **1 million BQC for the development fund**.

Q: What is the minimum staking requirement for validators?

A: Validators must stake a minimum of **3,600 BQC** from their node's **public key** to the **validator contract address** to be assigned as a validator.

**Q: How are validator rewards distributed?**

A: Each validator earns **10 BQC per day**, applicable to the first **360 validators**. Beyond this threshold, rewards decrease dynamically based on total network participation. Validators also earn **gas fees** from processed transactions.

Q: Can I stake QUBE without running a validator node?

A: Yes. The passive staking model allows users to stake a minimum of **1,000 BQC** and earn **7.2 BQC per day**, applicable up to **500 passive stakers**. Beyond this limit, rewards gradually decrease based on network participation.

Q: How does the Validator-as-a-Service (VaaS) model work?

A: VaaS allows users to participate in validation without managing infrastructure. Users pay for the service exclusively in **QUBE**, and all rewards and gas fees are automatically routed to the validator's **public key**.

Q: How will staking rewards transition to a fee-based model?

A: As validator participation increases, the system will shift towards **gas fee-based compensation**, where validators and stakers earn rewards based on **transaction processing and network activity** instead of fixed daily staking incentives.

Q: Where can I track my validator or staking performance?

A: Every validator has a **performance dashboard** displaying:

- Total **earned staking rewards and gas fees**.
- Validator **uptime and transaction processing statistics**.
- Staking **performance metrics and historical earnings**.

All data is also publicly verifiable on the **QubeScan Explorer**.

Q: How are validator contracts and staking transactions secured?

A: All validator assignments and staking transactions occur through **on-chain smart contracts**, ensuring security and transparency. Validators must stake using their **public key**, and rewards are sent directly to the initiating address.

Q: Will governance affect validator rewards and staking policies?

A: Yes. The BitQube network is governed by validators who vote on **reward scaling, staking requirements, and network policies**. Changes to the staking model will be decided through **on-chain governance voting**.

7.4 Technical and Operational Questions

Q: How is a validator assigned to the network?

A: To become a validator, a node must stake **3,600 BQC** from its **public key** to the **validator contract address**. Once the contract verifies the stake, the node is automatically assigned as a validator.

Q: Can validators choose where rewards and gas fees are sent?

A: Yes. All validator rewards and gas fees are automatically sent to the **public key** that was used for staking. This ensures transparency and eliminates manual reward distribution.

Q: How do Validator-as-a-Service (VaaS) nodes function differently from self-hosted validators?

A:

- VaaS nodes are hosted by BitQube and require users to pay in **QUBE** for managed services, including automatic updates, security patches, and optimized performance.
- Self-hosted validators must maintain their own infrastructure while adhering to network rules.



- Both VaaS and self-hosted validators receive rewards and gas fees through their assigned **public key**.

Q: How is validator performance monitored?

A: Each validator has a **node performance dashboard** that displays:

- Total **earned rewards, gas fees, and processed transactions**.
- Validator **uptime and network activity status**.
- Performance comparison against other validators.

Q: What happens if a validator goes offline?

A: Validators are required to maintain high uptime. Prolonged inactivity or malicious behavior results in:

- A reduction in staking rewards.
- A penalty mechanism that may reassign validator status.
- Auto-slashing policies for repeated violations.

Q: Can a validator unstake QUBE and withdraw from validation?

A: Yes, but with conditions:

- A validator must submit an **unstaking request**, which enters a **cool-down period**.
- After the cool-down, the stake amount is returned to the validator's **public key**.
- Any pending rewards or gas fees are settled before final unstaking.

Q: How can I validate that my validator node is active?

A: You can verify your validator status and network activity using:

- The **QubeScan Explorer** for real-time blockchain data.
- The validator's **node performance dashboard**.

Q: What security measures are in place to protect validators?

A:

- All validator stakes are secured through **on-chain smart contracts**.
- The network employs **Cross-Validator Communication Protocol (CVCP)** to prevent malicious attacks.
- Validators using **VaaS** benefit from additional protection, including DDoS mitigation and automated security updates.

7.5 Community and Enterprise Use Cases

Q12: How can communities benefit from QubeScan Blockchain? Communities can:

- Create tokenized economies and decentralized applications (dApps).
- Participate in scalable validator and staking models.



- Build self-sustaining governance and economic systems.

Q13: How does BitQube support enterprises? Enterprises can:

- Utilize private blockchain features for secure transactions.
- Streamline operations through tokenized internal processes.
- Enhance transparency and efficiency in supply chain management.

7.6 Regulatory and Compliance Questions

Q14: Is QubeScan Blockchain compliant with global regulations? Yes, BitQube integrates Know Your Customer (KYC) and Anti-Money Laundering (AML) protocols to ensure compliance with international standards.

Q15: How does BitQube adapt to regulatory differences? The hybrid model offers flexibility, allowing businesses to operate under local regulations while maintaining global interoperability.

7.7 Future Vision

Q: How will the validator system evolve over time?

A: The BitQube validator network will transition from a universal validation model to a **clustered validator architecture**. This will allow specialized validator groups to handle distinct transaction types, including:

- **Metaverse Transactions Cluster**
- **DeFi Financial Instruments Cluster**
- **NFT Tokenization Cluster**
- **Commodity Metals Trading Cluster**
- **Enterprise Solutions Cluster**

Validators will still operate under a **global consensus** model but will be optimized for specific use cases as network demand increases.

Q: What is the long-term staking reward strategy?

A: The reward model will undergo a structured transition:

- Initially, staking rewards for validators (**10 QUBE/day**) and passive stakers (**7.2 QUBE/day**) will drive network participation.
- As validator and staking participation increases, the system will shift towards **gas fee-based rewards**.
- Over time, staking rewards will be phased out, and validators will primarily earn from **transaction fees**.

Q: Will Validator-as-a-Service (VaaS) continue to be offered in the future?

A: Yes. The VaaS model will expand to provide:

- **Auto-scaling validator clusters** for enterprise and high-volume transactions.
- **Smart governance features** that allow users to vote on validator rules.

- **Interoperability tools** for connecting validator nodes across multiple blockchains.

Q: What is the long-term plan for validator participation limits?

A: The initial cap of **360 validators** will expand over time as more transaction volume is processed. The scaling plan includes:

- Increasing validator slots based on network demand.
- Adjusting reward distribution dynamically to maintain economic stability.
- Ensuring that the staking model remains sustainable while keeping network security intact.

Q: Will there be additional governance roles for validators?

A: Yes. Validators will be assigned additional governance responsibilities as the network evolves, including:

- **Network upgrade approvals** for protocol enhancements.
- **Staking and reward adjustments** based on real-time transaction data.
- **Consensus mechanism improvements** to optimize transaction validation efficiency.

Q: How will the BitQube ecosystem integrate with other blockchains?

A: The network will adopt an **Interoperable Validator Model**, allowing:

- Validators to process cross-chain transactions with **Ethereum, BSC, and Polygon**.
- Seamless staking participation across multiple blockchains.
- Enterprise validators to integrate BitQube's staking mechanism into private blockchain infrastructures.

8 Conclusion

8.1 Key Takeaways

QubeScan Blockchain represents the next evolution of decentralized ecosystems by bridging the gap between transparency, scalability, and real-world utility. Its innovative Validator-Governed Proof of Authority (VG-PoA) consensus mechanism ensures secure and efficient validation while fostering inclusive community participation. By introducing dynamic staking models, scalable validator rewards, and utility-driven applications, BitQube is poised to revolutionize the blockchain landscape.

8.2 Vision for the Future

The vision of QubeScan Blockchain is to empower communities, businesses, and developers to create self-sustaining ecosystems that drive economic innovation. Key components of this vision include:

- Enabling tokenized economies for global trade and localized communities.
- Offering scalable and adaptable hybrid blockchain infrastructure.
- Promoting inclusivity by democratizing access to staking and validator rewards.
- Ensuring long-term sustainability through a balanced reward-to-fee model.

8.3 Call to Action

BitQube invites enterprises, developers, and communities to join this transformative journey. By participating in the BitQube ecosystem, stakeholders gain access to:

- Advanced blockchain tools and scalable infrastructure.
- Transparent and equitable economic models.
- A collaborative environment fostering innovation and growth.

8.4 A Future Built on Collaboration and Innovation

QubeScan Blockchain is more than a platform; it is a movement to redefine how technology integrates with real-world applications. With its focus on utility, inclusivity, and scalability, BitQube sets the foundation for a sustainable future where decentralized systems empower global innovation and economic prosperity.

Join BitQube today and become part of the next wave of blockchain transformation.