



**Project Blink**

*Decentralized World Bank*

## Blinkchain - Proof of Concept

<https://blinkchain.org>

[WORKING-DRAFT]

# Contents

<b>1 Objectives</b>	<b>1</b>
<b>2 Time Architecture (Chain [2.1])</b>	<b>1</b>
<b>3 Epoch Election</b>	<b>4</b>
3.1 Bandwidth Proofs . . . . .	4
3.1.1 Creating Proof (Node) . . . . .	4
3.1.2 Attesting Proof (Script) . . . . .	4
3.1.3 Selection of Proof (Node) . . . . .	4
3.2 Vote of Confidence (Removal of Nodes) . . . . .	4
3.2.1 Selection of Un-fit Nodes (Node) . . . . .	4
3.2.2 Participation by Voting (Script) . . . . .	4
3.2.3 Elimination & Result (Chain) . . . . .	4
3.3 Producer Arrival . . . . .	4
3.3.1 Repeated (Bandwidth Proof) . . . . .	4
3.3.2 Selection of Proofs (Node) . . . . .	4
3.3.3 Contestant Results (Chain) . . . . .	4
3.4 Allocation of Leaders . . . . .	4
3.5 Stake UTXO Creation . . . . .	4
3.6 Block Size & Time . . . . .	4
3.6.1 Proof Selection (Node) . . . . .	4
3.6.2 Block Size per sec Fixing (Chain) . . . . .	4
3.6.3 Block Time Fixing (Chain) . . . . .	4
3.6.4 Per Block Size Fixing (Node) . . . . .	4
<b>4 Legates</b>	<b>4</b>
<b>5 Blink Clocks</b>	<b>4</b>
<b>6 Hash-Reward Table</b>	<b>4</b>
<b>7 Parent-Child Script</b>	<b>4</b>
<b>8 Price Oracles</b>	<b>4</b>
<b>9 Transaction Fees</b>	<b>4</b>
<b>10 Un-Confirmed Tx Propagation</b>	<b>4</b>
<b>11 Block Minting</b>	<b>4</b>
11.1 Validation . . . . .	4
11.1.1 Vanity Addresses . . . . .	4
11.1.2 Taxes . . . . .	4
11.2 Snips . . . . .	4
11.3 Propagation . . . . .	4
<b>12 Validation</b>	<b>4</b>
<b>13 Pruning UTXOs</b>	<b>4</b>

# 1 Objectives

1. Whitepaper Section & Level
  - Chain - Ledger, Consensus and Core Implementations
  - Script - UTXO scripts/proofs construction and attesting
  - OffChain - Client Side construction/propagation
  - Node - Validation, Ledger Outlook & Parameter construction
2. Process, Algorithm and Mathematical Data
3. Existing Implementations and Documentation References
4. Viability and Feasibility of Development Notes
5. Technical Challenges and Issues
6. Non-Technical Challenges and Issues
7. Alternatives Offered and Outcome

## 2 Time Architecture (Chain [2.1])

- The Time Architecture in Blinkchain is segregated into Epoch = 10,000 blocks; Slot = 400 blocks ; Packet = 1 block.
- These time frames are not correlated to the ledger, as it only knows block heights. It is only taken in the following area
  - Election conducted every epoch (10,000 blocks)
  - Announcing Leaders for every Epochs, Slots and Packets
  - Taking Variable Data to form constraints in the consensus e.g., Total Volume in an Epoch, Each individual block time in an epoch/slot, etc
- Cardano, a UTXO based blockchain uses these timeframes, thus it is implemented and running <https://developers.cardano.org/docs/stake-pool-course/introduction-to-cardano/#slots-and-epochs>
- Its feasibility is proved with previous implementations and it does not affect or change consensus protocols. As block heights are only taken for constraints, these time frames - Epoch, Slots and Packets are quasi and can be much more human readable. There are no alternatives, and the outcome can be achieved seamlessly.



## 3 Epoch Election

### 3.1 Bandwidth Proofs

#### 3.1.1 Creating Proof (Node)

#### 3.1.2 Attesting Proof (Script)

#### 3.1.3 Selection of Proof (Node)

### 3.2 Vote of Confidence (Removal of Nodes)

#### 3.2.1 Selection of Un-fit Nodes (Node)

#### 3.2.2 Participation by Voting (Script)

#### 3.2.3 Elimination & Result (Chain)

### 3.3 Producer Arrival

#### 3.3.1 Repeated (Bandwidth Proof)

#### 3.3.2 Selection of Proofs (Node)

#### 3.3.3 Contestant Results (Chain)

### 3.4 Allocation of Leaders

### 3.5 Stake UTXO Creation

### 3.6 Block Size & Time

#### 3.6.1 Proof Selection (Node)

#### 3.6.2 Block Size per sec Fixing (Chain)

#### 3.6.3 Block Time Fixing (Chain)

#### 3.6.4 Per Block Size Fixing (Node)

## 4 Legates

## 5 Blink Clocks

## 6 Hash-Reward Table

## 7 Parent-Child Script

## 8 Price Oracles

## 9 Transaction Fees

## 10 Un-Confirmed Tx Propagation

## 11 Block Minting

### 11.1 Validation

#### 11.1.1 Vanity Addresses

#### 11.1.2 Taxes

### 11.2 Snips

### 11.3 Propagation

## 12 Validation