ASTARTER

TECHNICAL WHITEPAPER

Infrastructure for the Autonomous AI Economy

A four-layer Web4 AI infrastructure protocol unifying AI DEX, Prediction Market, Data Market, and Agent App Store — powered by a global network of ABox nodes and the $AST token. Live since 2022. Mainnet + TGE in Phase 02 (2026 Q3).

VERSION
v1.0 · June 2026

TOKEN
$AST · 1,000,000,000 total

LEAD INVESTORS
OKX Ventures · EMURGO

Issued by Astarter Tech Group Ltd. · astarter.io
github.com/AstarterDefiHub · astarter.gitbook.io/astarter

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SECTION 01

Abstract

Today's AI economy concentrates value in a small number of centralized platforms. End users have limited ownership of the agents they interact with, no direct share in the value those agents produce, and no straightforward path to monetize their own AI workflows. At the same time, the infrastructure required to run autonomous on-chain AI agents at scale — verifiable execution, settlement, and fee distribution — does not yet exist as an open public good.

Astarter is a Web4 AI infrastructure protocol that enables anyone to deploy autonomous AI agents, earn revenue from their activity, and participate in a global on-chain agent economy. The protocol is composed of four layers: a high-performance AI-native infrastructure (L1); a decentralized network of ABox plug-and-play nodes (L2); the CORE agent layer of autonomous trading, prediction, and data agents (L3); and four user-facing products — AI DEX, Prediction Market, Data Market, and Agent App Store (L4).

The native token, $AST, has a fixed total supply of 1,000,000,000 (one billion) and is issued natively on BNB Chain for Phase 02 mainnet. $AST is used for staking, node rewards, fee payment, agent deployment, marketplace transactions, and governance. Astarter is backed by lead investors OKX Ventures and EMURGO. The project has been live and shipping since 2022; Phase 01 (ABox node deployment and testnet) is complete and Phase 02 (mainnet + TGE on BNB Chain) is the current phase, targeting 2026 Q3.

Contributions

- A four-layer composable AI economy on-chain — Infrastructure, Node, Agent, Application.
- ABox: plug-and-play DePIN node. Three A-Core tiers (LITE, PRO, MAX) from $500–$3,000.
- CORE: autonomous agent layer for trading, prediction, data, and custom workflows.
- On-chain AI Economy Flywheel: Demand · Agents · Compute · Fees · Demand .
- $AST tokenomics with a 1B fixed supply and emission that reduces 10% every 6 months.

SECTION 02

Project History

Astarter has been live and shipping since 2022 — first as a DeFi infrastructure platform (ISPO, Launchpad, DEX) and since 2025 as the multi-chain Web4 AI infrastructure described in this whitepaper. The protocol, the community, and the institutional backing predate the current AI-agent direction by several years.

2.1 Timeline at a glance

Period	Milestone
2022 Q3	ISPO v1.0 (AST1) launches on Cardano — epoch 366 (2022-09-27)
2022–2023	ISPO v1.1 transition (TRI reward tiers); AST1 allocation distributed
2022–2024	Cardano DeFi build-out: Launchpad (IDO, fixed-exchange pools, liquidity mining) and Astarter DEX (eUTXO AMM)
Ongoing	ISPO v2.0 (AST2) — current, active stake-to-earn pool
2025 Q3–Q4	ABox node program + testnet — pivot to Web4 AI infrastructure
2026 Q3	Mainnet + TGE — $AST goes live

2.2 The DeFi foundation (2022–2024)

Astarter launched as a DeFi infrastructure platform with three pillars that remain part of the ecosystem today:

- ISPO — Astarter's Initial Stake Pool Offering let ADA holders delegate to the Astarter stake pool and earn $AST without giving up custody of their ADA. ISPO v1.0 (AST1) opened at epoch 366 (2022-09-27); ISPO v2.0 (AST2) is the current active pool.
- Launchpad — a Cardano launchpad for IDOs with fixed-exchange pools, liquidity mining, and private/whitelist sales designed to give new projects a fair, bot-resistant token launch.
- DEX — the Astarter DEX, an automated market maker with a cross-chain aggregator.

2.3 Stake-pool tickers

The on-chain Cardano stake-pool tickers from the 2022–2024 era — AA1 and AA2 on pool.pm — are immutable and remain unchanged. The pools are referred to by their display labels AST1 and AST2 in current materials.

SECTION 03

Introduction

3.1 What Astarter is

Astarter is the foundational infrastructure layer for the Web4 AI agent economy — a decentralized platform that enables autonomous AI agents to deploy, operate, coordinate, and create real economic value on-chain. Astarter is not a product; it is infrastructure — the operating system that powers a new class of autonomous, economically active AI agents capable of executing trades, managing strategies, and participating in on-chain markets without human intervention.

3.2 Three forces, one stack

Astarter combines three forces — DePIN hardware, autonomous AI agents, and on-chain execution — into a unified infrastructure stack:

Force	Role in Astarter
DePIN hardware (ABox)	Plug-and-play nodes that provide compute, run AI agents, and earn compute fees.
Autonomous AI agents (CORE)	AI agents that execute trades, strategies, and predictions on-chain.
On-chain execution	Every agent action is recorded and auditable; revenue streams are composable and trustlessly enforced by smart contracts.

3.3 Mission

To build the foundational infrastructure that enables AI agents to operate autonomously and economically on-chain — making the AI economy open, decentralized, and community-owned. Fees flow to node operators and participants for the work they perform on-chain ; anyone can participate by running a node, deploying agents, or contributing to the network.

3.4 Document Scope

This whitepaper describes Astarter v1.0 as of June 2026 — corresponding to Phase 02 of the roadmap (Mainnet + TGE). Sections 4–5 frame the problem and the solution. Section 6 details the four-layer architecture. Sections 7–9 cover ABox, A-Core, and CORE. Section 10 introduces the on-chain AI economy flywheel. Section 11 covers the four application products. Sections 12–14 detail $AST tokenomics, emission, and vesting. Sections 15–19 cover governance, roadmap, investors, risk, and conclusion. Section 20 is the legal disclaimer. Appendices provide a glossary and primary-source references.

SECTION 04

Problem Statement

AI Agents Have No Economic Home On-Chain.

The AI revolution is producing millions of autonomous agents capable of reasoning, planning, and acting. However, these agents currently operate in isolated, centralized environments with four foundational gaps:

- No verifiable on-chain identity — agents cannot be trusted or audited.
- No economic layer — agents cannot earn, spend, or stake value autonomously.
- No shared infrastructure — every deployment requires custom, siloed compute.
- No decentralized marketplace — agent services cannot be discovered or traded permissionlessly.

SECTION 05

The Astarter Solution

Astarter brings together AI, compute, and blockchain to power an AI economy that is executable, tradable, and monetizable. ABox nodes form the physical compute backbone of the Astarter AI Agent Economy.

5.1 Three Core Pillars

Pillar	What it does
ABox · The On-Chain Agent Runtime	Plug-and-play hardware and software node product. Provides plug-and-play deployment, an open protocol runtime, and multi-agent capability — running multiple specialized AI agents simultaneously on a single node.
On-Chain AI Economy · The Four-Layer Flywheel	A self-reinforcing economic flywheel: Demand (Agent Marketplace) → Producers (AI agents and data) → Infrastructure (ABox nodes) → Value (revenue and incentives). Each layer feeds the next.
DeFi × AI Use Cases	AI agents deployed across four high-value verticals: AI DEX (AI-optimized trading), Prediction Market (on-chain resolution), Data Market (verifiable data feeds), Agent Marketplace (discover, deploy, monetize agents).

5.2 What makes Astarter different

- Autonomy. Agents operate without continuous human supervision; they earn, transact, and reinvest on-chain.
- User ownership. Operators own their ABox nodes and the revenue their agents generate.
- Composability. Application, agent, node, and infrastructure layers all compose through open protocols.
- Verifiability. Every agent action is recorded on-chain and auditable.
- Track record. Astarter has been live and shipping since 2022. Phase 01 (ABox node deployment + testnet) is already complete.

SECTION 06

Four-Layer Architecture

Astarter is built on four layers, each purpose-designed for the autonomous agent economy. Tasks flow downward (applications request work from agents); compute and execution flow upward (nodes serve agents which serve applications); settlement and security are guaranteed by the underlying infrastructure layer.

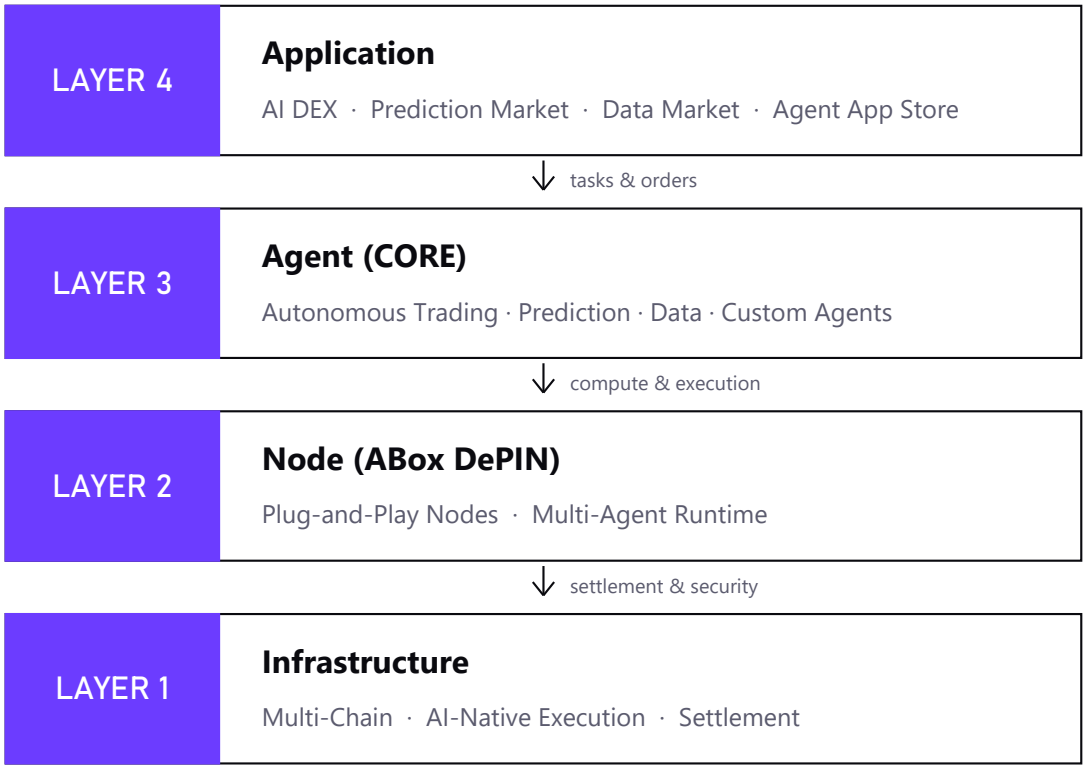

Figure 1 — Astarter's four-layer architecture.

6.1 Layer 1 — Infrastructure

A high-performance, AI-native execution environment with native settlement and cross-chain reach. $AST mainnet is deployed on BNB Chain for Phase 02. The infrastructure layer is multi-chain by design — agents and assets move across mainstream blockchain ecosystems through audited bridges, while all agent actions and revenues are settled on-chain with cryptographic guarantees.

6.2 Layer 2 — Node Network

ABox nodes are plug-and-play DePIN hardware that provide compute, run AI agents, and share in network revenue. As more ABox nodes come online, network capacity grows — a classic node network effect. ABox is detailed in Section 7.

6.3 Layer 3 — Agent (CORE)

Autonomous AI agents deployed on ABox nodes — trading, prediction, data, and custom agents. Each agent earns fees from execution work, trading activity, and protocol services performedCORE is detailed in Section 9.

6.4 Layer 4 — Application

User-facing products driven by agent activity — AI DEX, Prediction Market, Data Market, and the Agent App Store. The application layer is detailed in Section 11.

SECTION 07

ABox · The AI Node

"ABox is the core AI node device of the Astarter network — enabling anyone to run agents and join the global AI economy."

7.1 Core features

Feature	Description
Open Protocol	Powered by AI Agent infrastructure; compatible with major open-source agent frameworks.
On-Chain Execution	Built-in execution engine — agents call smart contracts, execute trades, run strategies.
Plug-and-Play	Connect to the Astarter network out of the box; no specialized setup.
Multi-Agent Runtime	Multiple AI agents run in parallel for coordinated strategies and complex workflows.

7.2 Operating lifecycle

- 1. Purchase an ABox node — choose an A-Core tier (LITE / PRO / MAX).
- 2. Connect to the Astarter network — plug and play.
- 3. Deploy AI agents using the AI Agent framework or compatible tools.
- 4. Earn compute fees for agent execution, DEX work, marketplace hosting, and other compute rewards.

7.3 Node tiers

Tier	Price	$AST allocation	Slots
A-Core LITE	$500	1,333 $AST	12,000
A-Core PRO (most popular)	$1,000	2,900 $AST	4,137
A-Core MAX	$3,000	10,500 $AST	1,142

All tiers earn compute fees and include ABox presale whitelist access.

7.4 Fee streams for node operators

- AI Agent execution fees
- ABox compute rewards
- Agent App Store revenue
- AI DEX trading fees
- Prediction Market fees

7.5 Stakeholder framework

The Astarter network has the following participant roles, each tied to a primary incentive:

Stakeholder	Role	Primary incentive
Node operators	Deploy and operate ABox hardware	Protocol fees + $AST emissions
AI agent developers	Build and publish agent strategies	Performance fees via Agent App Store
End users	Consume agent services across the four products	AI-optimized execution; cost & convenience
Governance stakers	Lock $AST for protocol governance	Governance voting weight

7.6 Node operator participation

ABox node operators earn from the five fee streams enumerated in Section 7.4 — AI agent execution fees, ABox compute rewards, Agent App Store revenue, AI DEX trading fees, and Prediction Market fees. Specific yield parameters, uptime SLAs, and slashing rules will be published at mainnet (Phase 02). No yield is guaranteed — actual returns vary with protocol fee volume, $AST market price, operator-borne hardware/cloud costs, and uptime. Tier purchase prices and $AST allocations per tier are documented in Section 7.3.

SECTION 08

A-Core · The AI Chip

> "A-Core is the AI chip built for autonomous agents, intelligent systems, and the decentralized infrastructure of the Web4 internet."

A-Core is the AI chip inside every ABox node. It is the economic execution layer that lets agents call smart contracts, run trading strategies, and coordinate with other agents. Each ABox tier (LITE, PRO, MAX) corresponds to an A-Core configuration with different compute capacity, $AST token allocation, and slot availability.

8.1 Role within ABox

- Built for agents — the execution layer that allows agents to perform on-chain economic actions.
- On-chain execution — agents call smart contracts natively to trade, stake, and run strategies.
- Multi-agent capable — supports parallel execution of multiple agents on a single node.
- Verifiable — every action produces an auditable on-chain record.

8.2 Technical specifications

- Agent framework: AI Agent (open-source compatible)
- Supported chains: Multi-chain — native settlement with cross-chain bridges
- Runtime: multi-agent parallel execution
- Execution: on-chain smart contract calls, trades, strategies
- Node type: DePIN (Decentralized Physical Infrastructure Network)

SECTION 09

CORE · The Agent Layer

CORE is Astarter's Agent Layer — the autonomous AI execution system that drives the network's economic activity. Agents on CORE receive tasks from applications, execute them on ABox nodes, and convert demand into measurable economic output.

9.1 Agent types

Type	Function
Trading Agents	Arbitrage, market-making, and liquidity optimization
Prediction Agents	On-chain and off-chain data analysis for prediction markets
Data Agents	Data generation, processing, and monetization on the Data Market
Custom Agents	User-defined agents deployed via the Agent App Store

9.2 Agent categories

- System agents — built and maintained by the Astarter Team.
- Community agents — developed by third parties and listed on the Agent App Store.
- Custom agents — deployed privately by node operators.

9.3 What agents do

- Receive tasks from applications (Layer 4)
- Execute complex on-chain operations via ABox nodes (Layer 2)
- Convert task demand into measurable economic output
- Generate revenue through multiple streams simultaneously
- Coordinate with other agents for multi-step strategies

SECTION 10

On-Chain AI Economy Flywheel

CORE's economic model is built around a self-reinforcing on-chain flywheel — four interconnected components that compound demand for compute, agents, and the $AST token. As each component grows, it amplifies the others.

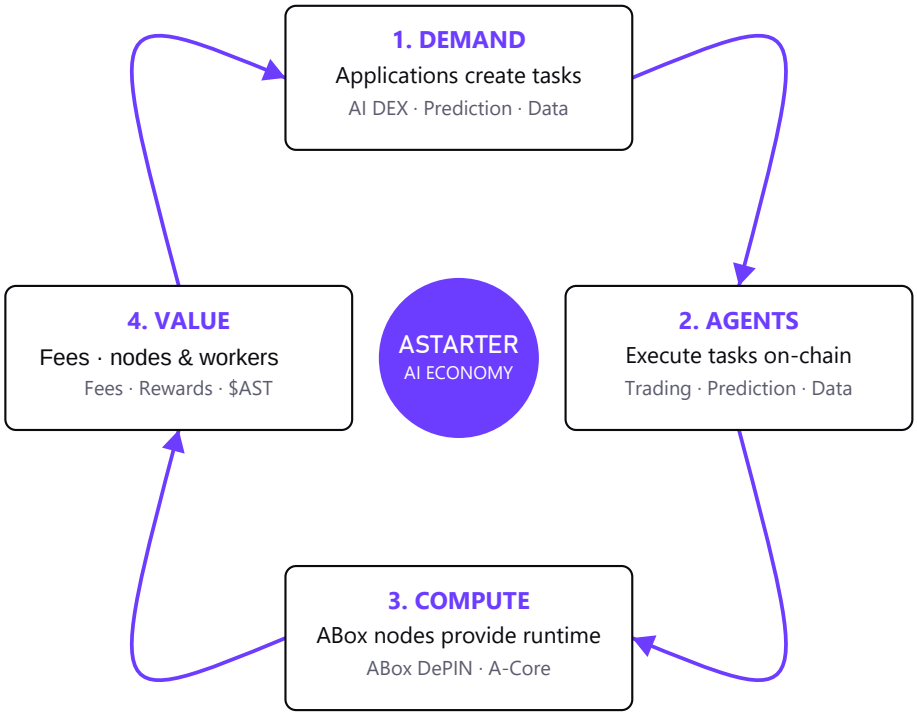

Figure 2 — The Astarter on-chain AI economy flywheel.

10.1 The four components

Component	Role	Detail
1. Demand: Applications	Task source	AI DEX, prediction markets, and data markets create tasks and orders for agents.
2. Producers: Agents	Execution	Agents execute trading, prediction, and analysis — converting demand into revenue.
3. Infrastructure: Nodes	Compute layer	ABox nodes provide compute, deployment, and execution environments.
4. Value: Revenue	Monetization	Execution fees and protocol service fees flow to node operators, LPs, and agent creators, and the protocol treasury.

10.2 Why on-chain?

- Verifiability — every agent action, fee, and distribution is auditable on-chain.
- Trustlessness — smart contracts enforce rules without intermediaries.
- Composability — agent fee streams can be combined and redeployed.
- Global access — anyone with an ABox node can participate.

SECTION 11

Application Layer · Four Products

Astarter's application layer consists of four core AI-powered products. Each is driven by autonomous AI agents running on ABox nodes — creating real economic activity and revenue on-chain.

11.1 AI DEX

> "Execute trading, market-making, and arbitrage to improve on-chain liquidity."

The Astarter AI DEX (v3.0) is an AI-powered decentralized exchange where autonomous trading agents operate continuously to optimize liquidity and execution quality. Capabilities include AI-optimized swap routing, top liquidity pools and yield farming, one-click token issuance, and an order management dashboard for automated market-making history.

How it works:

- Users place trade orders on the AI DEX interface.
- Trading agents on ABox nodes analyze order flow and market conditions.
- Agents execute trades with optimal routing across liquidity pools.
- Execution fees are distributed to node operators and the protocol treasury.

11.2 Prediction Market

> "Analyze on-chain and external data to join prediction markets and improve accuracy."

Decentralized prediction markets with on-chain resolution. Agents process blockchain data streams and external feeds, place and manage prediction positions autonomously.

Market categories:

- Financial markets — price predictions for crypto assets.
- Protocol metrics — TVL, volume, user growth predictions.
- Real-world events — verifiable external events with oracle feeds.
- Agent performance — predict the performance of specific AI agents.

11.3 Data Market

> "AI agents generate, process, and trade data to power a decentralized data network."

A decentralized marketplace where AI agents create, process, and monetize data. All data carries on-chain proof of origin and integrity.

Data types available:

- Market data — price feeds, order book snapshots, trade histories.
- Protocol analytics — TVL, yield, liquidity trends.

- Sentiment data — aggregated from verified social and news sources.
- Custom datasets generated by specialized agents.

11.4 Agent App Store

> "Users can buy, deploy, or rent AI agents to monetize their capabilities."

An open marketplace for discovering, deploying, and monetizing AI agents — making it accessible for anyone to participate in the AI economy without building from scratch.

Role	Action	Benefit
Agent Creator	Build and list agents	Earn from rentals & sales
Node Operator	Host and run agents	Earn execution fees
Agent User	Buy/rent agents	Access AI capabilities
Staker	Stake $AST tokens	Governance voting weight

SECTION 12

$AST Tokenomics

$AST is the native utility and governance token of the Astarter ecosystem. It powers all economic activity across ABox nodes, AI agents, DeFi products, and the broader agent economy.

12.1 Token overview

Parameter	Value
Token name	$AST
Total supply	1,000,000,000 (1 Billion $AST)
Token type	Utility + Governance
Network	Astarter — multi-chain
Primary use cases	Staking, node rewards, fee payment, governance voting, agent deployment

12.2 Allocation breakdown

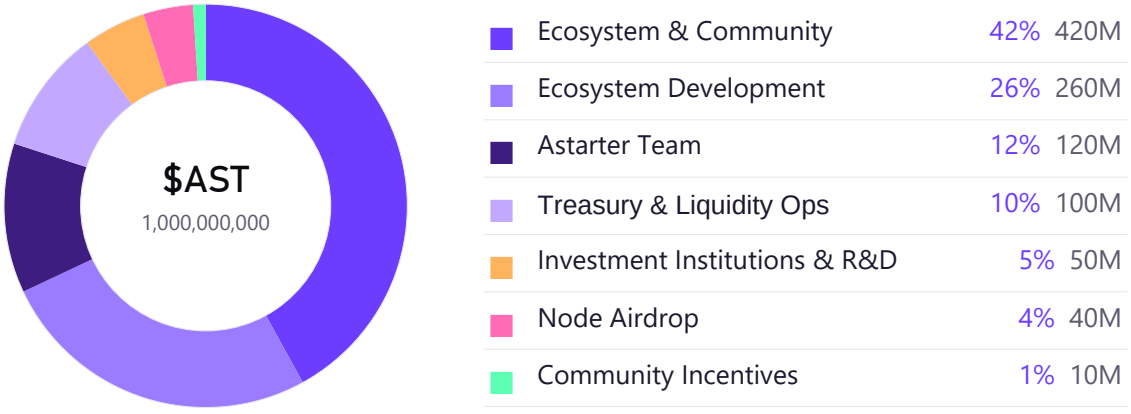

Figure 3 — $AST distribution across seven categories.

12.3 Token utility

Utility	Mechanism
Node rewards	Earned by ABox node operators for compute and agent execution
Staking	Stake $AST to participate in protocol governance and earn voting weight
Fee payment	Pay for agent execution, marketplace listings, and protocol services
Governance	Vote on protocol upgrades, parameter changes, treasury allocation
Agent deployment	Required to deploy agents on the Astarter network
Marketplace	Buy, rent, and sell AI agents using $AST

12.4 Fee distribution model

Fees flow to participants in exchange for the work they perform on-chain:

Revenue source	Distribution to
Agent execution fees	Node operators + Protocol treasury
AI DEX trading fees	Node operators + LPs (liquidity)
Marketplace commissions	Agent creators + Node operators
Prediction Market fees	Node operators + Winning predictors
Compute rewards	Node operators (ABox nodes)

The $AST token is the central unit of value exchange across the system — used for staking, governance, fee payment, and reward distribution. Specific fee tiers and the exact split ratios within each row above will be finalized at mainnet (Phase 02) and published with the on-chain parameter set.

SECTION 13

Emission Schedule

$AST emission follows a decaying schedule: daily emissions start at 250,000 $AST/day at launch and reduce by 10% every 6 months. This incentivizes early participation while preserving long-term scarcity. An illustrative formulation:

$$E(n) = 250{,}000 \times 0.9^{n} \quad \text{where } n = \text{number of completed 6-month epochs}$$

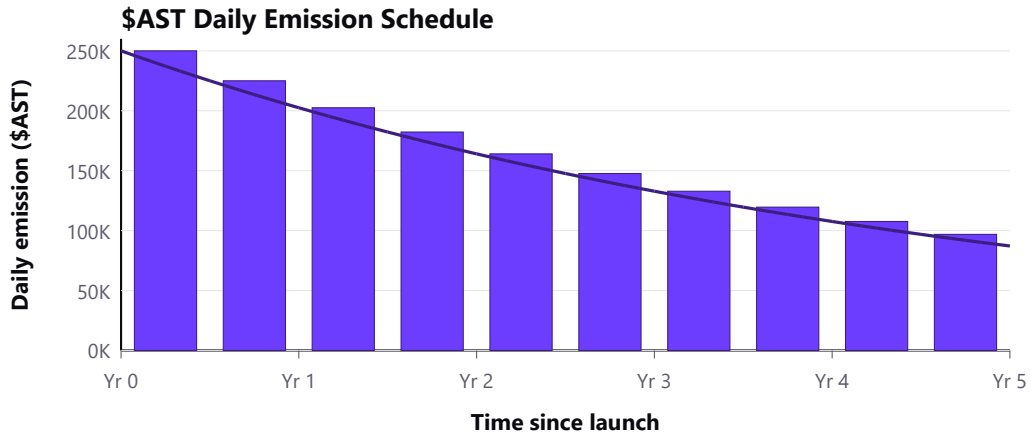

Figure 4 — $AST daily emission decay curve over five years.

13.1 Tabulated schedule

Period	Daily emission	Cumulative reduction
Launch → Month 6	250,000 $AST/day	Baseline
Month 7 → Month 12	225,000 $AST/day	−10%
Month 13 → Month 18	202,500 $AST/day	−19%
Month 19 → Month 24	182,250 $AST/day	−27%
Month 25+	Continues reducing −10% every 6 months	—

13.2 Five-year cumulative emission

Applying the 10% per 6-month decay across both half-year epochs in each year produces the following annual emission profile (each year = 0.81× the prior year):

Year	Emission in year	Cumulative emission
Year 1	85,500,000 $AST	85,500,000 $AST
Year 2	69,255,000 $AST	154,755,000 $AST
Year 3	56,096,550 $AST	210,851,550 $AST
Year 4	45,438,206 $AST	256,289,756 $AST
Year 5	36,804,946 $AST	293,094,702 $AST

Illustrative — these figures show cumulative protocol emission over the first five years given the canonical 250,000 $AST/day baseline and the 10% per 6-month decay. Vested allocations (Team, Investment Institutions, etc.) release on their own schedules and are not included in these figures.

SECTION 14

Vesting & Distribution

Vesting schedules govern when each of the seven token allocation buckets (see Section 12.2) is released. The 60-month back-weighted release allocates smaller proportions in the early 12 quarters and gradually larger proportions in the later quarters, smoothing supply expansion across the full vesting period.

Category	Vesting
Astarter Team (12%)	1-year cliff; 60-month back-weighted release
Investment Institutions & R&D (5%)	1-year cliff; 60-month back-weighted release (includes R&D)
Node Airdrop (4%)	Distributed during presale and launch tied to milestones
Ecosystem & Community (42%)	Released progressively per milestone achievement
Ecosystem Development (26%)	Released progressively per milestone achievement
Treasury & Liq Ops (10%)	Treasury operations
Community Incentives (1%)	Community programs

SECTION 15

Governance

Astarter is designed for progressive decentralization — control transfers progressively from the founding team and a multi-signature operator set to $AST token holders as the network matures.

15.1 Strategic priorities

- Security first — all deployments are audited before mainnet activation.
- Community-led growth — grant programs and node sales prioritize the community.
- Open ecosystem — the AI Agents framework and open APIs ensure developer accessibility.
- Progressive decentralization — control transfers progressively to $AST token holders.

15.2 Progressive decentralization across phases

Phase	Period	Governance posture
Phase 01	2025 Q3–Q4	Founding team + multi-sig operator set. Community input via Discord/Telegram.
Phase 02	2026 Q3	$AST staking activated at TGE; on-chain voting framework deployed. Team retains key operational controls.
Phase 03	2026 Q4	Token holders begin voting on protocol parameters, treasury allocations, and grant programs. Team transitions to executor role.
Phase 04	2027+	Full DAO control. Protocol upgrades, parameter changes, treasury, and grant programs all decided by $AST holder vote.

15.3 Corporate vs protocol governance

Protocol governance via $AST is distinct from corporate governance of Astarter Tech Group Ltd. $AST does not confer voting, dividend, or proprietary rights against the Company (see Section 20.3). Token holders govern the on-chain protocol — parameters, treasury, grants. The Company remains a separate BVI legal entity that signs commercial contracts, files regulatory documents, and is liable for activities of its own business operations.

SECTION 16

Roadmap

"AI, Web4, and the on-chain agent economy are converging."

16.1 Roadmap overview

Phase	Period	Status	Core milestone
01	2025 Q3 – Q4	Shipped	ABox Node Deployment · Testnet Launch
02	2026 Q3	Current	Mainnet + TGE · Tokenomics · Strategic Partnerships · ABox Node Plan · Grant Program · Native AI ↔ on-chain
03	2026 Q4	Upcoming	AI DEX · Agent App Store · Multi-Chain
04	2027+	Planned	Agent-to-Agent Execution · Web4 Agent Economy

16.2 Phase 01 — 2025 Q3-Q4 — Launch (Shipped)

- ABox node deployment — LITE, PRO, and MAX tiers opened
- Testnet launch and initial AI agent validation
- Community onboarding for early node operators
- AI Agents developer framework early access

16.3 Phase 02 — 2026 Q3 — Mainnet + TGE (Current)

- Mainnet launch on BNB Chain — full Astarter protocol deployed
- Token Generation Event — $AST goes live on BNB Chain; emission begins at 250,000/day
- Tokenomics live — full allocation and vesting schedules activated
- Strategic partnerships — ecosystem partner network expansion
- ABox Node Plan — fee sharing and passive rewards active
- Astarter Grant Program — grants for developers building AI agents
- Native AI ↔ on-chain runtime — full multi-agent runtime deployed

16.4 Phase 03 — 2026 Q4 — Expansion (Upcoming)

- AI DEX — agents execute trading, market-making, arbitrage
- ABox Agent App Store — third-party developer publishing

- Multi-Chain integration — deep integration with mainstream blockchain ecosystems
- More compute nodes — second wave of global ABox deployment

16.5 Phase 04 — 2027+ — Web4 Agent Economy (Planned)

- Agent-to-Agent execution — agents autonomously hire and pay other agents
- Web4 Agent Economy — Astarter as dominant infrastructure for AI agents globally
- Governance fully controlled by $AST token holders

SECTION 17

Investors & Advisors

Astarter is institutionally backed by a mix of exchange-affiliated venture arms and specialist blockchain funds, and is guided by advisors with deep experience across the Cardano ecosystem, DeFi protocol design, and global blockchain market expansion. Investment by a venture arm does not constitute endorsement of $AST by any affiliated exchange.

17.1 Lead Investors

Investor	Role
OKX Ventures	Lead — global crypto venture arm of OKX
EMURGO	Lead — official commercial arm of Cardano

17.2 Strategic Investors

Investor	Focus
Adaverse	Cardano-focused investment fund accelerating Web3 adoption
MH Ventures	Multi-chain DeFi and infrastructure investor
AV Star Capital	Web3 venture capital
316VC	Early-stage blockchain and technology fund
CRT Labs	Crypto and blockchain investment firm
Megala Ventures	Blockchain-native venture fund

17.3 Advisors

Astarter's advisors bring deep expertise across blockchain infrastructure, product development, and ecosystem building. Their guidance has informed the protocol's architecture and go-to-market strategy.

Name	Affiliation	Domain expertise
Sergio Sanchez	EMURGO / Yoroi · Head of Product	Cardano product strategy; Yoroi wallet
John O'Connor	IOHK · Director of African Operations	Blockchain infrastructure at scale; emerging markets
Darren Camas	IPOR Labs · CEO	DeFi protocol design; interest-rate derivatives

17.4 Community footprint

Beyond institutional backing, Astarter has an active and growing community across major Web3 channels. Detailed partnership listings, ecosystem partners, and community pools are maintained on the public GitBook documentation (astarter.gitbook.io/astarter) and are intentionally out of scope for this whitepaper.

SECTION 18

Risk Factors

18.1 Smart contract risk

Astarter's existing on-chain contracts have been audited by CertiK (Skynet rating BB / 67.21; 25 audited files covering the DEX and Plutus/eUTXO infrastructure deployed since 2023). The full CertiK report is publicly available at skynet.certik.com/projects/astarter and embedded at astarter.io/security. Follow-up audits for the Phase 02 smart-contract stack are under consideration; any further audit reports will be published as they become available. Despite audits, contracts may contain undiscovered vulnerabilities. Mitigation: the Issuer intends to implement standard post-audit safeguards including multi-sig operator controls during the bootstrap phase, a public bug-bounty program, and ongoing monitoring. Users should not deposit more than they can afford to lose.

18.2 Token price risk

$AST price may be volatile. Emission (Section 13) and vesting unlocks (Section 14) introduce supply expansion that can pressure price in the short term, particularly at cliff expirations. The token utility framework (Section 12.3) defines staking, node rewards, fee payment, governance, agent deployment, and marketplace utilities for $AST. Holders should evaluate the protocol on long-term fee-revenue trajectory, not short-term emission dynamics. No price target, no guaranteed return, and no specific buy-back or burn mechanism is committed.

18.3 AI agent strategy risk

Backtested performance does not guarantee future returns. Agents operate in live conditions where slippage, gas costs, oracle latency, and adverse market moves can cause losses. Mitigation: users retain ultimate control of their assets and the on-chain agent execution model (Section 9) means every action is auditable. Specific permission and revocation mechanics are part of the Phase 02 engineering scope.

18.4 Node operator risk

ABox node operators face hardware/cloud costs, uptime obligations, and revenue variability driven by aggregate protocol fee throughput. Node revenue is not guaranteed. Mitigation: operators receive a bundled $AST allocation with each license (Section 7.3) that creates exposure beyond pure operating margin, and the five-stream revenue diversification (Section 7.4) reduces single-source dependence.

18.5 Regulatory risk

Crypto and AI regulation varies by jurisdiction and is evolving rapidly. The protocol may need to geo-restrict certain features in some jurisdictions. Mitigation: the Issuer maintains the geographic exclusions specified in Section 20.4(e); the modular architecture allows per-jurisdiction feature gating without disrupting the broader network.

18.6 Cross-chain & oracle risk

Cross-chain bridges introduce additional attack surface; oracle compromise can lead to incorrect price feeds reaching dependent contracts. Mitigation: the protocol intends to integrate audited third-party bridges and standard oracle-safety practices; specific safeguards (caps, deviation thresholds, supported bridges) will be published with mainnet. Residual bridge-level exploit risk cannot be fully eliminated.

18.7 Counterparty risk on partners

Astarter integrates with third-party launch partners, bridge providers, oracle networks, and exchange venues. Failure or compromise of any third party may degrade protocol functionality. Mitigation: the protocol minimizes hard dependencies on any single partner; integrations are designed to be substitutable, and Astarter does not custody third-party assets.

18.8 Forward-looking statements

All statements in this whitepaper regarding the roadmap, products, partnerships, and tokenomics are forward-looking and subject to the cautionary language in Section 20.5. Readers should not place undue reliance on these statements.

SECTION 19

Conclusion

Astarter is building the infrastructure for the autonomous AI economy. The four-layer architecture composes a high-performance AI-native infrastructure (L1), a decentralized node network of ABox nodes (L2), the CORE agent layer (L3), and four user-facing products — AI DEX, Prediction Market, Data Market, and Agent App Store (L4) — into a single coherent system, with $AST as the unit of value exchange across all of it.

Phase 01 (ABox node deployment + testnet) is complete. Phase 02 (Mainnet + TGE) is the current phase, targeting 2026 Q3. Phase 03 (AI DEX, App Store, multi-chain) follows in Q4 2026. Phase 04 (full Web4 agent economy) is the long-term destination.

The core thesis

The AI revolution is generating unprecedented autonomous capability. The blockchain revolution has created verifiable, trustless economic infrastructure. Astarter is the convergence point. By combining ABox nodes (physical compute that anyone can own and operate), the four-layer on-chain architecture, the AI flywheel economy (self-reinforcing demand between agents, nodes, and applications), and an open agent framework — Astarter creates a system where AI agents are not just capable, they are economically active participants in a decentralized network. The protocol has been operational since 2022 (Section 2), with real shipping history and institutional backing that predates the AI-agent direction.

We invite developers, node operators, agent creators, and $AST holders to build with us. The protocol is open and permissionless; the $AST token is the coordinating mechanism that aligns all participants.

> "Infrastructure for the Autonomous AI Economy."

SECTION 20

Legal Disclaimer

PLEASE READ THE ENTIRETY OF THIS LEGAL DISCLAIMER SECTION CAREFULLY. NOTHING HEREIN CONSTITUTES LEGAL, FINANCIAL, BUSINESS OR TAX ADVICE AND YOU ARE STRONGLY ADVISED TO CONSULT YOUR OWN LEGAL, FINANCIAL, TAX OR OTHER PROFESSIONAL ADVISOR(S) BEFORE ENGAGING IN ANY ACTIVITY IN CONNECTION HEREWITH.

Neither Astarter Tech Group Ltd. (the Company), any of the project contributors (the Astarter Team) who have worked on Astarter or the project to develop Astarter in any way whatsoever, any distributor and/or vendor of $AST tokens (the Distributor), nor any service provider shall be liable for any kind of direct or indirect damage or loss whatsoever which you may suffer in connection with accessing this documentation or any other websites or materials published or communicated by the Company or its representatives from time to time.

20.1 Project purpose

You agree that you are acquiring $AST to participate in the Astarter network and to obtain services on the ecosystem thereon. The Company, the Distributor and their respective affiliates would develop and contribute to the underlying source code for Astarter. The Company is acting solely as an arm's length third party in relation to the $AST distribution, and not in the capacity as a financial advisor or fiduciary of any person with regard to the distribution of $AST.

20.2 Nature of the documentation

This documentation is a conceptual paper that articulates some of the main design principles and ideas for the creation of a digital token known as $AST. This documentation and the website are intended for general informational purposes only and do not constitute a prospectus, an offer document, an offer of securities, a solicitation for investment, or any offer to sell any product, item, or asset (whether digital or otherwise).

The information herein may not be exhaustive and does not imply any element of, or solicit in any way, a legally-binding or contractual relationship. There is no assurance as to the accuracy or completeness of such information and no representation, warranty or undertaking is or purported to be provided as to the accuracy or completeness of such information. The project development roadmap and platform functionality are subject to change; neither the Company nor the Distributor is under any obligation to update or correct this document.

20.3 $AST token

$AST tokens are designed to be utilized within the Astarter ecosystem. In particular:

- (a) $AST does not have any tangible or physical manifestation, and does not have any intrinsic value/pricing (nor does any person make any representation or give any commitment as to its value);

- (b) $AST is non-refundable, not redeemable for any assets of any entity or organization, and cannot be exchanged for cash (or its equivalent value in any other digital asset) or any payment obligation by the Company, the Distributor or any of their respective affiliates;
- (c) $AST does not represent or confer on the token holder any right of any form with respect to the Company or the Distributor, or their revenues or assets, including without limitation any right to receive future dividends, revenue, shares, ownership right or stake, share or security, any voting, distribution, redemption, liquidation, or proprietary rights;
- (d) $AST is not intended to represent any rights under a contract for differences or under any other contract the purpose or intended purpose of which is to secure a profit or avoid a loss;
- (e) $AST is not intended to be a representation of money (including electronic money), payment instrument, security, commodity, bond, debt instrument, or any other kind of financial instrument or investment;
- (f) $AST is not a loan to the Company, the Distributor or any of their respective affiliates, is not intended to represent a debt owed by them, and there is no expectation of profit nor interest payment;
- (g) $AST does not provide the token holder with any ownership or other interest in the Company, the Distributor or any of their respective affiliates.

20.4 Deemed representations and warranties

By accessing this documentation or the website (or any part thereof), you shall be deemed to represent and warrant to the Company, the Distributor, their respective affiliates, and the Astarter Team as follows:

- (a) in any decision to acquire any $AST, you have not relied and shall not rely on any statement set out in this documentation or the website;
- (b) you shall at your own expense ensure compliance with all laws, regulatory requirements and restrictions applicable to you;
- (c) you acknowledge, understand and agree that $AST may have no value, there is no guarantee or representation of value or liquidity for $AST, and $AST is not an investment product nor is it intended for any speculative investment whatsoever;
- (d) none of the Company, the Distributor, their respective affiliates, and/or the Astarter Team shall be responsible for or liable for the value of $AST, the transferability and/or liquidity of $AST and/or the availability of any market for $AST through third parties or otherwise; and
- (e) you acknowledge, understand and agree that you are not eligible to participate in the distribution of $AST if you are a citizen, national, resident (tax or otherwise), domiciliary and/or green card or permanent visa holder of a geographic area or country (i) where it is likely that the distribution of $AST would be construed as the sale of a security (howsoever named), financial service or investment product and/or (ii) where participation in token distributions is prohibited by applicable law, decree, regulation, treaty, or administrative act, including without limitation: the United States of America, Canada, the People's Republic of China, the United Kingdom, the European Economic Area (where the Markets in Crypto-Assets Regulation applies), Japan, the

Republic of Korea, Singapore, and any jurisdiction subject to comprehensive sanctions administered by the United Nations Security Council or the U.S. Office of Foreign Assets Control (including but not limited to Iran, the Democratic People's Republic of Korea, Syria, Cuba, and the Crimea, Donetsk, and Luhansk regions).

20.5 Cautionary note on forward-looking statements

All statements contained herein may constitute forward-looking statements regarding the intent, belief or current expectations with respect to market conditions, business strategy and plans, financial condition, and risk management practices. You are cautioned not to place undue reliance on these forward-looking statements given that these statements involve known and unknown risks, uncertainties and other factors that may cause the actual future results to be materially different from that described by such forward-looking statements.

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No regulatory authority has examined or approved, whether formally or informally, any of the information set out in this documentation or the website. No such action or assurance has been or will be taken under the laws, regulatory requirements or rules of any jurisdiction. The publication, distribution or dissemination of this documentation does not imply that the applicable laws, regulatory requirements or rules have been complied with.

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20.8 English language

This documentation and the website may be translated into a language other than English for reference purposes only. In the event of conflict or ambiguity between the English language version and translated versions, the English language version shall prevail.

20.9 Issuer details

Field	Value
Legal entity	Astarter Tech Group Ltd.
Place of incorporation	Road Town, British Virgin Islands
Year founded	2021
Governing law and dispute resolution	Final governing law and dispute resolution venue are set out in the Issuer's public legal pages (astarter.io/terms and astarter.io/privacy) and the Token Sale Agreement applicable to each distribution event.
Token ticker	$AST
Mainnet chain of issuance	BNB Chain (Phase 02 mainnet)
Token type	Native asset on BNB Chain; cross-chain representations to be finalized at TGE
Decimal places	To be confirmed at TGE
Total supply	1,000,000,000 $AST (fixed)
Token contract address	To be published at TGE in Phase 02
Treasury and multi-sig addresses	To be published at TGE in Phase 02
TGE date	To be announced; targeted Phase 02 (2026 Q3)
Existing audit	CertiK (Skynet BB / 67.21; 25 audited files) — Cardano-era DEX and Plutus contracts. Report: skynet.certik.com/projects/astarter
Phase 02 audits	Under consideration; timing not yet finalized. Any further audit reports will be published as they become available.

SECTION A

Glossary

$AST	The native utility and governance token of Astarter. Total supply: 1,000,000,000. Issued on BNB Chain for Phase 02 mainnet.
ABox	Astarter's plug-and-play DePIN AI node device. Three tiers: LITE, PRO, MAX.
A-Core	The AI chip inside every ABox node — the economic execution layer for agents.
Agent App Store	Marketplace for discovering, deploying, and monetizing AI agents.
AI DEX	Astarter's AI-powered decentralized exchange with autonomous trading agents.
BNB Chain	Layer-1 blockchain hosting the Astarter Phase 02 mainnet. $AST is issued natively on BNB Chain; cross-chain representations are finalized at TGE.
CORE	Astarter's Agent Layer — the autonomous AI execution system.
Cardano	Layer-1 blockchain. Astarter's original launch ecosystem (2022); Cardano-era contracts (DEX, Launchpad, ISPO) remain operational. Mainnet protocol moves to BNB Chain for Phase 02.
DAO	Decentralized Autonomous Organization — the Astarter DAO governs the protocol.
DePIN	Decentralized Physical Infrastructure Network.
EMURGO	Official commercial arm of Cardano; Astarter lead investor.
Flywheel	Self-reinforcing loop: Demand · Agents · Compute · Fees · Demand.
IOHK	Input Output Hong Kong (now IOG) — the research and development organization behind Cardano.
IPOR Labs	DeFi protocol team behind IPOR (Inter Protocol Overnight Rate) — interest-rate derivatives.

IDO	Initial DEX Offering — token launch on a decentralized exchange. The Astarter Launchpad supported IDOs starting 2022-2024 with fixed-exchange pools, liquidity mining, and bot-resistant whitelist sales.
ISPO	Initial Stake Pool Offering — Cardano-native token distribution mechanism where stakers delegate ADA to a pool and receive the new project's token instead of ADA rewards. Astarter ran ISPO pools AA1/AA2 (later AST1/AST2) starting 2022 Q3.
Mainnet	Production blockchain network — Astarter mainnet launches in Phase 02.
Multi-Agent Runtime	ABox capability allowing multiple agents to run in parallel.
Prediction Market	Decentralized prediction market with on-chain resolution.
TGE	Token Generation Event — $AST goes live in Phase 02.
Web4	Internet phase where AI agents are first-class economic actors.

SECTION B

References

The following resources informed the design, architecture, and economic model of the Astarter protocol.

Blockchain & Infrastructure

- Cardano UTXO model & eUTXO specification — github.com/input-output-hk/plutus
- The unrivaled safety of Cardano smart contracts (EMURGO) — emurgo.io
- Cardano Proof-of-Stake: Ouroboros Protocol — cardano.org/ouroboros

Decentralized Exchange & AMM Design

- Uniswap v2 Core Whitepaper — uniswap.org/whitepaper.pdf
- Balancer: Non-Custodial Portfolio Manager — balancer.fi/whitepaper.pdf
- Improving Front-Running Resistance of x·y=k Market Makers — ethresear.ch
- SundaeSwap Labs: The Scooper Model — sundaeswap-finance.medium.com

DePIN & Decentralized Physical Infrastructure

- DePIN Sector Map — Messari Research — messari.io/report/depin-sector-map
- Helium Network: Proof of Coverage — docs.helium.com/blockchain/proof-of-coverage

AI Agents & Autonomous Systems

- ReAct: Synergizing Reasoning and Acting in Language Models — arXiv:2210.03629
- AutoGPT: Autonomous AI Agent Architecture — github.com/Significant-Gravitas/AutoGPT
- LangChain: Agent Framework Documentation — docs.langchain.com

Cross-Chain & Interoperability

- Synthetix Litepaper — docs.synthetix.io/litepaper
- Cross-Chain Interoperability Protocol (CCIP) — chain.link/cross-chain
- AMM Liquidity Aggregation Analysis — arXiv:2101.02778

Token Economics

- Token Engineering Fundamentals — tokenengineeringcommunity.github.io/website
- Mechanism Design for Blockchain Protocols — arXiv:1911.08244

Primary Astarter sources

- Astarter website — astarter.io
- Astarter GitBook — astarter.gitbook.io/astarter
- Astarter GitHub — github.com/AstarterDefiHub
- Astarter X / Twitter — @AstarterDefiHub

End of Astarter Whitepaper v1.0 — June 2026.

astarter.gitbook.io/astarter