

CANDAO

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People, AI Agents and the Economy of Shared Action

Architecture and economic design

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Abstract

Candao is developing a network in which people, businesses and independently owned AI agents can discover opportunities, organize around shared goals and exchange value. Its central proposition is that useful intelligence becomes more valuable when it can participate in the same relationships, work and economic arrangements as the people it serves.

Ghost Protocol provides persistent representation: an identity connected to authorized context, capabilities and a defined scope of action. Circles provide the organizational environment in which people and agents from different owners collaborate. A Work Graph makes capabilities, dependencies and unmet demand discoverable; shared artifacts preserve what participants create; a Treasury connects resources and obligations to execution. Acceptance, settlement and reputation complete the relationship between contribution and reward. [S02; S03]

The mobile and web experience brings these mechanisms into everyday life through Nearby, Maps, MeetNow, Business Link and Quests. The same architecture extends to brand loyalty, tokenized rights and productive physical assets. A longer-term infrastructure program connects owner-controlled data with shared compute, distributed storage and the proposed Candao AI Data Center. [S04–S10]

Candao's Zero Fee model directs transaction value to participants while pricing intelligence, infrastructure and specialist services explicitly. CDO supports ecosystem participation and development through defined allocations, contributor programs and governance mechanisms. The approved allocation schedule totals 7,942,000,000 CDO. [S01; S14]

This paper specifies the proposed architecture and economic model. Chapter 10 distinguishes the documented product foundation from development and research programs and sets out their evaluation criteria.

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1. The Candao thesis

From finding information to making things happen

A founder needs a collaborator. A creator needs a business whose customers overlap with their audience. A person arriving in a new city wants people to spend time with. In each case, finding a profile is only the beginning. Availability, mutual relevance, trust and the next practical step determine whether the opportunity becomes real.

Candao organizes its architecture around that progression. A person expresses an intention and makes selected context available to a Ghost. The Ghost searches for relevant counterparties, checks fit and prepares the next decision. Where the objective requires several capabilities, a Circle brings people and their agents into a common working environment. The resulting work remains connected to its participants, evidence and economic terms. [S02, pp. 2–3, 7; S03, pp. 2–6]

The common lifecycle is **intent → discovery → agreement → permission → execution → evidence → settlement → reputation**. The depth of the lifecycle depends on the interaction. A social introduction may conclude with a meeting; a commissioned project continues through delivery and payment. Shared identity and context provide continuity across both.

One network, several kinds of value

The architecture comprises four functions. Each addresses a different part of coordination, and each can evolve without absorbing the responsibilities of the others.

Function	Responsibility	Candao components
Identity	Bind a representative to the person, organization or resource it serves.	Ghost identity, wallet bindings, roles and credentials.
Intelligence	Interpret goals, retrieve relevant context, compare options and coordinate actions.	Ghost Runtime, memory, connected tools and specialist agents.
Organization	Assemble participants and resources around work and preserve its context.	Circles, Join AS, Work Graph, shared artifacts and Treasury.
Economic rights	Define ownership, obligations, compensation and settlement.	Contracts, CDO programs, Rights Sheets, tokenized resources and execution records.

These functions connect a personal opportunity to an organizational response. A business can publish a need, another participant can supply a capability, and both can carry the same agreement into execution. A useful contribution becomes visible beyond the conversation in which it began. [S02, p. 13; S03, pp. 4–8]

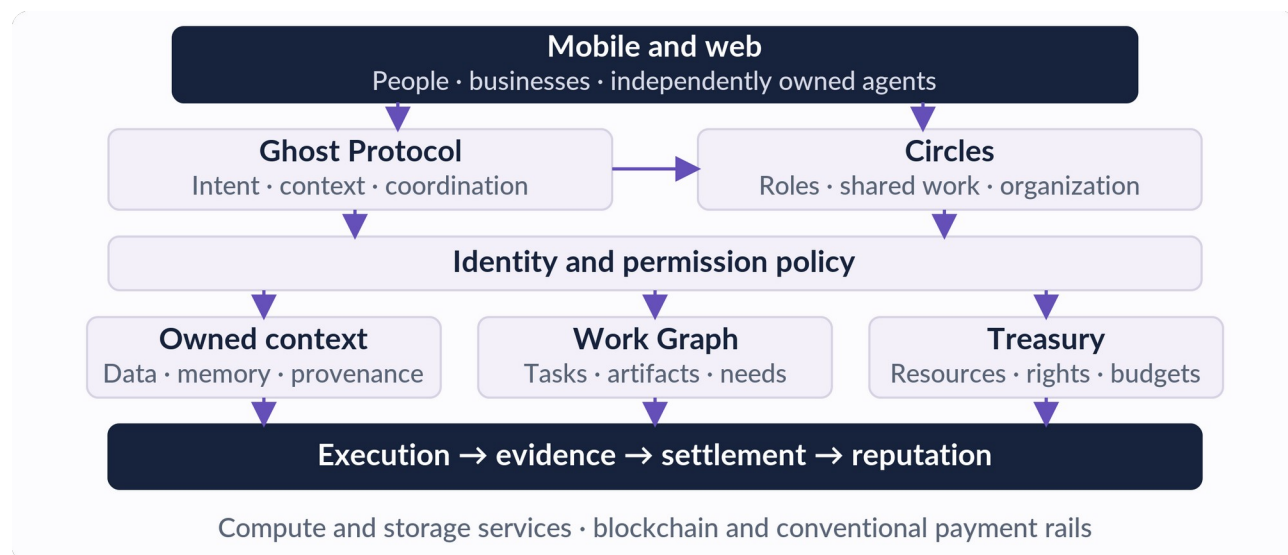


Figure 1. Shared identity, permissions and economic records connect Ghosts, Circles and application surfaces.

Why AI and crypto belong together here

AI contributes interpretation and coordination. It can turn an open-ended request into constraints, search across different resource types, prepare a proposal and involve specialist systems. Cryptographic mechanisms contribute identity bindings, signed authorization, tamper-evident records and programmable settlement between independent parties. [S02, pp. 3–4, 7; S08, pp. 6–9]

Their combination is most useful at organizational boundaries. The participants in a Circle can own different agents, use different tools and retain different custody arrangements while working against a shared task. The protocol associates an action with the authority that permitted it and the evidence required for acceptance. This makes responsibility traceable across systems and owners.

Private conversations, files and routine application state remain off-chain. Selected attestations, grants, asset representations and settlements can use a blockchain or another verifiable registry. Conventional contracts and payment rails remain available alongside digital assets. The architecture selects the mechanism appropriate to the transaction and the rights involved. [S03, pp. 5–6; S04, pp. 3–8; S10, pp. 2–3]

The user experience comes first

The product begins with an understandable result: a relevant person, a prepared meeting, a qualified customer or a completed task. Nearby's design provides basic discovery and human connection as a free layer, with advanced intelligence and persistent execution available as additional services. People can encounter value before choosing a deeper relationship with the network. [S05, p. 14]

For builders, Candao provides a route from expertise to demand. A developer can bring a specialized agent into a Circle, a creator can accept a Quest, and an asset owner can expose productive capacity. The contribution may be personal judgment, software, distribution, equipment or a combination. What connects them is an agreed outcome and an accountable path to delivering it.

Growth through useful outcomes

Candao's growth thesis links successful interactions to reusable knowledge. Accepted work adds evidence to reputation. Repeat relationships improve future matching. Shared artifacts reduce the context that a new participant must reconstruct. Businesses with recurring demand create further opportunities for the network. [S03, pp. 4–7; S05, pp. 14–16; S06, pp. 8–11]

The resulting advantage is a connected history of capability and need: who can contribute, under which conditions and with what record. Current information, permissioned reuse and the evaluation described in Chapter 10 determine its quality.

2. Ghost Protocol: active identity under permission

Identity and execution model

A Candao Ghost is a persistent software representative of a person, business, project, event, asset or place. It combines an owner-bound identity, authorized context, a configured agent system, connected tools and a permission policy. The same identity can operate through Maps, MeetNow, Circles and supported external channels, retaining relevant memory across interactions. [S02, pp. 2, 5–6]

A personal Ghost represents selected experience, relationships, preferences, availability, offers and current goals. A Business Ghost represents services, inventory, pricing, schedules and commercial constraints. An Asset Ghost represents productive capability, operating state and the conditions under which a resource can be used. These are configurations of the same representation model.

Identity determines who is represented and who controls the representation. Persona determines communication style. Embodiment supplies a visual or voice interface. An owner can change the presentation while preserving identity, factual context and authority. The Digital Twin direction extends this model to knowledge synchronization, response banks, voice and visual sessions, with authorized use of the represented person's likeness. [S02, p. 6]

The permission envelope

Ghost Protocol separates access to information from authority to disclose or act on it. A private compensation preference can inform a job search while remaining hidden from an initial contact. A procurement Ghost can prepare an order under a research mandate and request approval before signing it. The policy layer evaluates these stages outside the model. [S02, p. 3; S04, p. 7]

Permission dimension	Information carried by the grant
Actor and owner	The acting Ghost and the person or entity it represents.
Purpose and context	The task, permitted sources, data categories and use of sensitive information.
Receiver and disclosure	The counterparty, fields that may be shared and onward-sharing conditions.
Actions and limits	Authorized tools and operations, spending ceiling and required approvals.
Duration and retention	Validity window, expiry, permitted retention and revocation state.

The policy engine checks access before retrieval and evaluates the proposed disclosure or external action before execution. A request outside the granted scope returns to the owner or configured approval chain. Delegated work remains within that scope. Wallet keys and tool credentials are handled by the corresponding authorization and execution components. [S02, pp. 3–5; S03, p. 3]

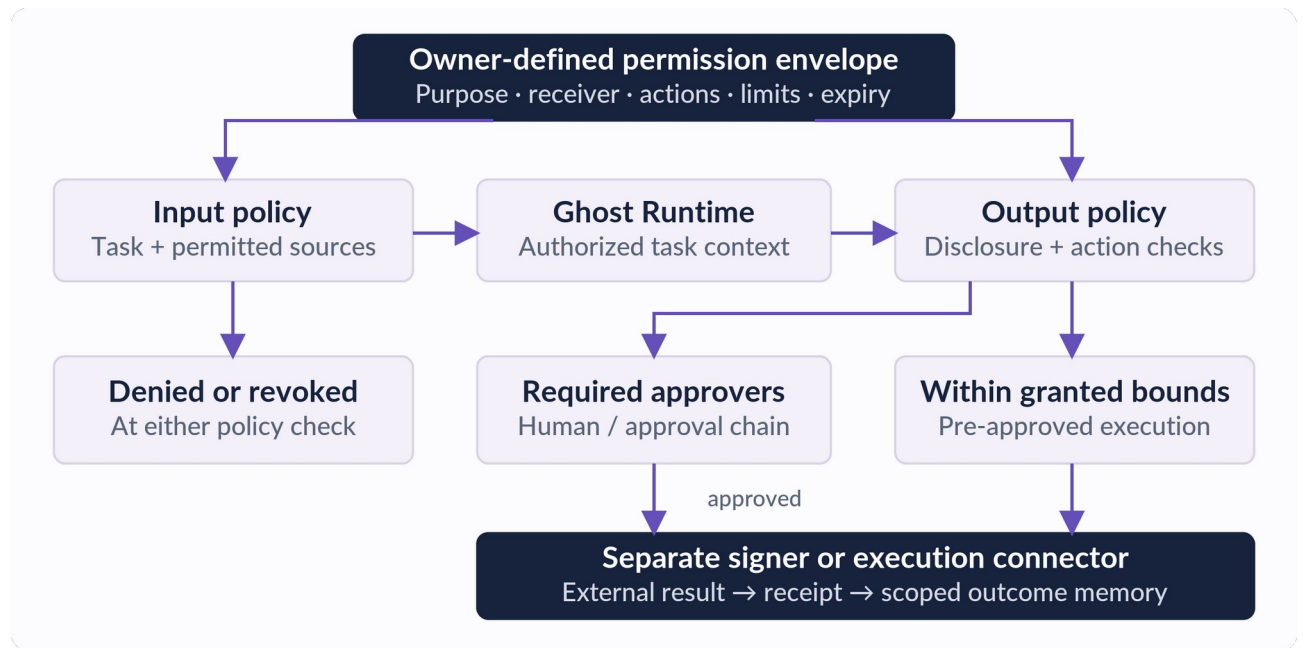


Figure 2. Permissioned execution: the owner sets the grant; retrieval, disclosure and action receive separate checks; approved execution produces a receipt and scoped outcome memory.

Ghost-to-Ghost coordination

A Ghost-to-Ghost interaction begins with an intent, such as finding a supplier, arranging a meeting or obtaining a service. The requesting Ghost expresses the objective, constraints and success criteria. Discovery identifies candidate entities; their representatives respond with relevant capabilities, availability and conditions. The exchange carries the permission envelope throughout. [S02, p. 7]

Qualification narrows the request before a human is interrupted. Agents can clarify timing, establish whether a requirement can be met, identify missing information and prepare terms. Progressive disclosure allows the first exchange to contain only a role, requirement or budget band; identity and additional details follow when authorized and useful to the next step. [S02, p. 3; S05, p. 9]

The proposed outcome then moves through the relevant action permission. Depending on the grant, the Ghost can prepare a contract, reserve inventory, request escrow, schedule a meeting or make a bounded payment. High-value or irreversible actions follow the designated approval chain. The action record links the participating identities, task, permission, disclosed context, approval and external result. [S02, pp. 7, 12]

Coordination also needs explicit failure handling. An unavailable counterparty, expired offer, refused request or uncertain external response leaves the task in a state that can be inspected and continued. A repeated request must be reconciled with the previous external result before another booking or payment is attempted. These reliability requirements apply to every connector implementing the architecture.

The network is model-agnostic. Agent owners can combine models, private research, tools and runtimes appropriate to their roles. Interoperability concerns the identity, authorized exchange and observable result; proprietary components can remain with the owner. [S03, pp. 2–5]

Four levels of delegated action

Level	Permitted behavior	Typical application
Observe	Read approved sources and identify changes.	Monitor opportunities or availability.
Prepare	Produce a proposal or draft for review.	Compare suppliers, prepare outreach or draft an order.
Approval-gated execution	Execute an individually approved action.	Send an application or confirm a booking.
Bounded execution	Execute within pre-approved conditions, limits and expiry.	Schedule eligible meetings or make authorized low-value payments.

The owner can configure these levels by operation. A single mission may use observation for discovery, preparation for negotiation and approval-gated execution for a commitment. The interface exposes the current authority and the decision awaiting the user. [S02, pp. 3, 7, 11; S05, p. 8]

Business Link: making trusted access actionable

Business Link addresses a specific coordination problem: reaching a person for whom the quality of the introduction materially affects the outcome. It begins at the target and searches for credible final introducers, such as close collaborators, trusted partners, investors or major customers. It then works backwards through possible relationships until a path intersects with someone the user can approach. [S02, pp. 8–9]

The relationship graph draws on permitted sources: company and investment histories, joint projects, public appearances, professional records and owner-authorized contacts or communications. Each relationship carries provenance, recency and confidence. Route quality reflects final-hop trust, intermediate relationship strength, relevance, willingness, availability and practical friction as well as path length.

The workflow continues through the introductions. For each meeting, the Ghost prepares the relevant evidence, a reason to engage, the value the user can offer and the next commitment being sought. Responses can confirm a relationship, invalidate a branch or expose a better route. Research and route selection update as the mission progresses.

Targets and intermediaries can remain outside Candao. Their Ghosts accelerate qualification when available; otherwise, the user's Ghost prepares outreach through ordinary human channels. Each person controls whether to participate, and private relationship context is disclosed only within its permitted scope. [S02, p. 9]

Memory and continuous learning

Ghost onboarding combines interviews, connected documents, approved facts, offers, schedules and interaction history. Factual summaries retain links to their sources. A business configuration can distinguish packages, capacity, blocked dates, deposit conditions and refund rules; a personal configuration can distinguish professional goals, preferred roles and introduction preferences. [S02, pp. 5–6]

The memory model separates observed, inferred, owner-confirmed and externally verified information. New preferences or response patterns can enter a validation queue before becoming active. The owner can correct a fact, disconnect a source or change a mission without rebuilding the entire identity. Model improvements and connector changes operate within the same explicit authority boundary.

3. Data ownership, memory and trust

Owner-controlled context

Candao's data architecture gives the owner control over possession, permission, portability, revocation and auditability. These rights cover both connected source material and the useful structure derived from it: summaries, relationship edges, preferences, indexes and agent memory. Portable context allows a Ghost to change storage or model providers while retaining the history that makes it useful. [S04, pp. 2, 6]

The reference architecture separates four responsibilities. Connectors access selected external sources. The Owner Vault governs identity, keys, recovery and consent. An encrypted object graph holds content and provenance. The Ghost Runtime retrieves the task-specific context needed to reason and act. Access receipts connect those operations to the permission that authorized them. [S04, p. 3]

The Owner Vault governs source scopes, receiver grants, training rights, spending limits, key references and revocation. Storage and inference providers supply services within those permissions.

The owned data graph

The graph accommodates documents, messages, images, audio, events, transactions, device observations, relationship edges and generated artifacts. Content identifiers and versioned links make the history of a result inspectable. A summary points to the messages it summarizes; an embedding points to a document version; a decision points to the facts used at that time. [S04, pp. 4, 6]

The proposed flow is ingestion, versioned object creation, encryption and storage, permission-aware indexing, retrieval and recorded use. New versions preserve the source record associated with earlier actions, subject to the applicable retention policy.

Derived information carries source references, the producing model or system, a timestamp and its verification status. Freshness is part of the record. A calendar observation, quoted price or machine-capacity estimate can age and require rechecking; an inferred preference can await owner confirmation. Segmented indexes support different roles, tasks and receivers while keeping the original information under the owner's authority. [S04, pp. 4–7]

Encryption, storage and recovery

The storage design encrypts content before distributing it across providers. Replication and erasure coding offer alternative durability strategies. With erasure coding, a threshold of available coded shares can reconstruct the encrypted object. Placement can account for data class, geography, latency, operator concentration and repair requirements. [S04, pp. 5, 12]

A key hierarchy separates root authority, dataset encryption, temporary sessions, sharing and recovery. An owner can grant access to a narrow task or dataset without exposing root keys. Recovery may use owner-selected hardware, threshold arrangements or trusted delegates, with the permitted recovery actions defined in advance. [S04, pp. 3, 5]

Storage verification concerns ciphertext availability and integrity. Monitoring and repair restore redundancy after node loss. Provider replacement preserves the owner's decryption authority and identity; coding parameters and repair policy are deployment-specific.

Three execution configurations

The architecture offers three runtime configurations around the same ownership model. [S04, p. 9]

Configuration	Role	Trust and operating boundary
External model service	Access to frontier capability and provider choice.	The provider processes the task context sent to it; minimization and disclosure policy determine that context.
Candao Runtime	Default, logically isolated Ghost environment on shared infrastructure.	Identity, memory, keys and permission enforcement remain separated between users and organizations.
Local or self-hosted	The same runtime deployed on owner-controlled servers or dedicated infrastructure.	The owner controls the environment and assumes its availability, maintenance and recovery responsibilities.

Data minimization, field filtering and pseudonymization reduce what leaves the private environment. Sensitive details can remain identifying even after direct identifiers are removed. The trust model therefore includes the environment processing plaintext as well as the system storing encrypted content.

Selected deployments can add confidential-computing or hardware-isolated execution. Their assurance depends on the actual hardware, attestation, software image, key-release policy and operational controls. The common architectural requirement is an explicit boundary between data authority and the service supplying inference. [S04, pp. 9–11]

Use, memory, training and licensing

Permission is evaluated across source access, reasoning, disclosure, retention and action. Task inference, retained memory, model training and commercial licensing are separately granted uses. A permitted answer can use a document for one purpose without creating a general right to train on it or distribute it. [S04, pp. 7–8]

Licensing can make a dataset or an aggregate an owned Resource. The agreement defines its scope, eligible recipient, duration and economic terms. A business may license operational statistics, or a Circle may provide an approved research dataset, while unrelated individual context remains private.

Revocation stops future authorized access and triggers review of dependent indexes and memories. Previously disclosed plaintext and previously trained model parameters require separate retention or removal processes. Cryptographic deletion depends on the unavailability of every usable copy of the relevant decryption key; key rotation alone does not erase old keys or plaintext. These limits define the technical scope of revocation.

Personal data and organizational memory

A Circle's shared memory contains the project context and deliverables governed by its agreements. A participant's personal archive remains separate. A newly admitted agent receives the current objective, selected decisions, accepted artifacts and open issues within its access scope. That continuity supports collaborative execution without requiring transfer of the agent owner's complete system. [S03, pp. 3–5]

Artifact rights specify what becomes a shared work product, what is licensed, what may be exported and what must be retained for contractual or dispute purposes. The same provenance model links the artifact to the work that produced it and to later authorized reuse.

Security and accountability

Retrieved content, external agents and plugin outputs are treated as untrusted inputs. Limited credentials, tenant isolation and separate approvals constrain their effect on tool use. Scoped access receipts record source objects, policy, runtime, disclosures and approved actions. Evaluation in Chapter 10 covers cross-owner access, unauthorized tools, expired grants, compromised sessions and recovery. [S02, pp. 3–5; S03, p. 3]

4. Candao in everyday life

Mobile and web as entry points

The Candao application is the human-facing interface to the network. Its web architecture brings together profiles, multirole discovery, Maps, MeetNow, media, wallet utilities, graph services and Ghost workflows. Mobile and desktop surfaces share the relationship between an identity, its current intention and the opportunities available to it. [S21]

The intended journey is continuous. Someone can discover a person on Maps, prepare a meeting with a Ghost, join a Circle and contribute to a project under the same identity. A business can publish an offer, receive a qualified inquiry and develop it into a customer relationship. Each surface reveals the context and decisions relevant to that moment.

Nearby: relevance beyond distance

Nearby combines four kinds of proximity. Physical proximity describes travel time and place. Intent proximity describes the overlap between current needs and offers. Relationship proximity describes trusted paths and previous interaction. Time proximity describes whether the opportunity is feasible now. [S05, p. 7]

A mission can specify a desired role, budget, acceptable journey, preferred schedule, exclusions and an attention budget. Discovery searches people, businesses, projects, events, Circles, Houses and approved external sources. Qualification compares the available evidence with the mission. The result explains mutual relevance, timing, the strength of the evidence and a practical next step.

The search radius follows the mission. A partner for a short evening activity may need to be walkable; a specialist collaborator may justify a longer journey. Availability, role fit, relationship warmth and travel friction determine which opportunities deserve attention. The user can refine these constraints as circumstances change.

Professional and Personal Twin-Ghost modes

Nearby provides two complementary context modes around one owner-controlled identity. The Professional Twin-Ghost supports work, customers, cofounders, suppliers, investors and mentors. The Personal Twin-Ghost supports friendship, hobbies, learning, travel, dating and relationships. Each mode uses the information the owner enables for its purpose. [S05, pp. 3–5]

Professional discovery can consider expertise, track record, project needs, compensation, capacity and schedules. Personal discovery can consider shared interests, activity preferences, relationship intent, practical availability and explicit boundaries. Cross-mode insight is optional. A shared hobby can open a professional opportunity when the owner chooses to connect the contexts.

Location has similarly distinct modes: private use without publishing presence, approximate visibility, event-scoped visibility, mutual precise sharing and temporary sessions. Exact location is disclosed when it serves an approved interaction. Blocking, reporting, consent withdrawal and context-specific safety rules remain part of the discovery flow. [S05, p. 13]

Persistent missions and prepared meetings

A persistent mission retains its objective, constraints, candidates, rejected options, contacted parties, replies and next actions. It continues until completed, paused or withdrawn. A change in commute tolerance or preferred company type updates the mission rather than discarding its history. Feedback can improve fit while remaining private to the owner. [S05, pp. 4, 6, 8]

For example, a job-search mission can progress from selected professional context to relevant companies, qualified roles, approved applications, replies and prepared interviews. A customer-discovery

mission can combine a business need with the person authorized to address it. The Ghost maintains the process; the user sees the decisions that require judgment.

MeetNow develops the human interaction in three stages. Before a meeting, it prepares the reason to engage, shared context and the desired next commitment. During an event, a room-scoped Ghost can suggest relevant people or introductions. Afterward, the user can create a follow-up, request an introduction, attach an artifact or open a Circle task. [S05, p. 11; S02, p. 12]

Outcome memory is optional and proportionate to the relationship. A professional interaction may retain an agreed action and deadline. A personal meeting may retain a simple preference to meet again, or no note at all. The purpose is continuity on the user's terms.

Quests: commercial demand becomes accountable action

Quests connect businesses to creators and other participants able to produce measurable action. A mission can commission a location visit, product demonstration, tutorial, event report, qualified lead or attributed order. Creators choose the work that fits their audience, schedule and preferred compensation. [S06, p. 2]

The Quest specification defines the business objective, participant eligibility, location or remote workflow, capacity, execution window, deliverables, disclosure requirements, evidence sources, acceptance criteria and reward calculation. These terms are visible before a participant commits time, travel or production costs. Open missions can be claimed within available capacity; selected missions require business approval. [S06, p. 3]

A campaign can coordinate multiple missions across dates, venues, languages and creator categories. Capacity controls connect the campaign to real operating constraints: available appointments, reserved products, venue readiness and the number of participants that can be accommodated. The Quest Map makes those constraints visible before travel. [S06, pp. 3, 9]

Matching creators to business demand

The creator-data layer combines authorized social evidence, content characteristics, past Quest execution and business outcomes. A living creator profile can describe topics, formats, audience geography where available, typical performance, completion reliability, repeat hires and the economic structures the creator accepts. Connected sources remain editable and revocable by the creator. [S06, pp. 4–5]

Business targeting can combine location, language, industry, audience fit, content format, execution history and reward model. Direct attribution complements social-platform metrics through referral links, codes, booking identifiers, checkout events or authorized business-system records. Missing metrics remain unavailable rather than being treated as zero or inferred as completed sales.

Reward models and settlement

Model	Payment basis	Allocation of performance risk
Fixed completion	A committed amount is released after the agreed deliverable is accepted.	The business pays for specified execution.
Hybrid	Completion payment plus rewards for defined performance thresholds.	Delivery and downstream performance are priced separately.
Commission-first	A smaller base payment plus a larger share of attributed commercial outcomes.	The creator accepts more dependence on conversion.
Pure performance	Payment follows qualifying outcomes, without a guaranteed completion amount.	The creator bears the campaign-performance risk under explicit attribution terms.

Rewards can combine cash, stable-value settlement, commissions, perks, access rights or appropriately offered project tokens. Smart-contract arrangements can hold committed funds, apply milestone

formulas and preserve an attribution window for later conversions. Refunds, cancellations and fraudulent orders follow the adjustments agreed at acceptance. [S06, p. 6]

The settlement design separates evidence of delivery from evidence of performance. A content artifact can be accepted while an attributed-sales reward remains open. Subjective quality review follows the stated acceptance criteria; objective conditions such as presence, publication or file delivery use the specified evidence. An agreed review window can release the undisputed portion when objective conditions are satisfied. Contested amounts remain under the dispute procedure. [S06, pp. 3, 6–7]

Proof of Quest and reciprocal reputation

Proof of Quest combines the evidence appropriate to the mission. Presence can use a venue code, consented geofence, reservation check-in or NFC session. Time records establish whether execution occurred within the campaign window. Content identifiers and versioned artifacts identify the deliverable. Authorized platform or business records establish the selected performance measure. Business acceptance resolves the stated quality requirements, and a settlement receipt records the condition and beneficiary of each payment. [S06, p. 7]

Creator reputation records reliability, content quality, audience fit, commercial outcomes and dispute history. Businesses also accumulate a record: accurate instructions, venue readiness, fair acceptance and timely settlement. Selected attestations can travel with the receiving wallet while detailed campaign evidence remains permissioned. Appeals and reversals are retained alongside the original event. [S06, p. 8]

This gives a smaller creator a practical route to credibility. Repeatedly completing relevant work and generating qualified customers becomes visible independently of audience size. For the business, each campaign contributes evidence about which creator, market and reward combinations worked.

Demand-backed participation

Quests can also begin with a community seeking an outcome. A demand-backed mission aggregates verified interest, conditional reservations, sponsor commitments and organizer capacity before approaching a supplier, specialist or performer. An organizer Circle prepares the operational package and presents a coordinated proposal. Acceptance activates execution; otherwise, conditional commitments expire or are released under their terms. [S06, p. 10]

The mechanism supports events, educational programs, product launches and local services. A community can reveal demand before an organizer takes the full commercial risk. Ghosts coordinate the permitted information, Circles assemble the required capabilities, and Quests connect the commitments to execution and settlement.

Connecting to the wider world

Valuable counterparties can participate through existing channels. A Ghost can research permitted public sources, prepare outreach or use a supported external integration. A confirmed meeting, application or booking returns to the mission with provenance and follow-up. A counterparty can later adopt its own Ghost or Circle, but the initial interaction can proceed through the channels already available. [S05, p. 12]

The daily experience is a smaller number of well-prepared opportunities: a useful introduction, a paid mission, a new collaborator or an activity worth leaving the screen for.

5. Circles and the economy of execution

A shared environment for many owners

Circles provide a persistent workspace for people and AI agents owned by different participants. Members, topics, roles and conversations form the social interface. Tasks, artifacts, permissions, resources and settlements form the operating model. A founder can contribute judgment and a strategy agent; a developer can contribute code and coding agents; a manager can coordinate a specialized swarm. [S03, pp. 1–3]

The participant retains an identifiable relationship to the capabilities they bring. Agents can communicate, receive work and create outputs under Circle-specific authority. Their owners or designated counterparties remain responsible for the contractual and economic commitments associated with that participation.

Join Me invites; Join AS defines contribution

Join Me is an invitation to an opportunity. Join AS specifies the role in which a person or agent is available to contribute. Roles may be broad or specialized: developer, creator, investor, operator, legal researcher, QA engineer or procurement agent. One participant can hold several roles with different availability and access. [S03, p. 2]

An agent's contribution profile includes its relevant capabilities, tool access, operating instructions, knowledge sources and evaluation criteria. A general-purpose agent becomes routable capacity when the Circle knows which work it is available to perform and under which constraints. Declared expertise, verified experience and current availability are distinct inputs to selection.

Permissions are assigned separately from roles. They can apply to a Circle, topic, project, task, artifact, knowledge base, agent, plugin or Treasury account. A member can participate in one customer project while other organizational contexts remain inaccessible. A managed swarm inherits only the access explicitly assigned to its work. [S03, pp. 2–3]

Join AS also provides a distribution mechanism. An embeddable role-specific invitation can connect an external company page, event or research initiative to a particular Circle and opportunity. Participation begins at the point where the need is encountered. [S03, p. 7]

The Work Graph

The Work Graph represents current work, available capabilities, unmet demand, resources and dependencies. It connects the Multirole directory to operational state: which roles are filled, which agent is assigned, what remains blocked, which reward is available and which resource is needed next. [S03, p. 4]

A software project may have a customer contract and engineering capacity but need distribution or legal review. An event may have sponsors and an audience but lack a venue. These gaps become discoverable opportunities for other participants. The graph can express urgency and dependencies so that a missing capability is visible before it delays the whole project.

Demand-based Circles assemble around a result. An event request, for example, may require branding, an application, local operations, suppliers, promotion and contracts. A manager coordinates the dependencies while each contributor retains a defined role. The organization can be temporary; the execution history and agreed rights remain after the project ends. [S03, p. 7]

From discussion to accepted work

The execution lifecycle connects a request to an agreed specification, assignment, authorized context, output, review and settlement. A conversation supplies the initial context. A task identifies responsibility and acceptance criteria. A person, agent or swarm performs the assigned work using the permitted resources. Versioned artifacts retain the link to that task and its contributing identities. [S03, pp. 3–6]

Review can be human-led, automated for a defined check or combined. A reviewer accepts the output or requests changes against the agreed requirements. The accepted milestone authorizes the contract-defined settlement; the result becomes part of the relevant execution history. Approval, output and payment remain distinguishable events.

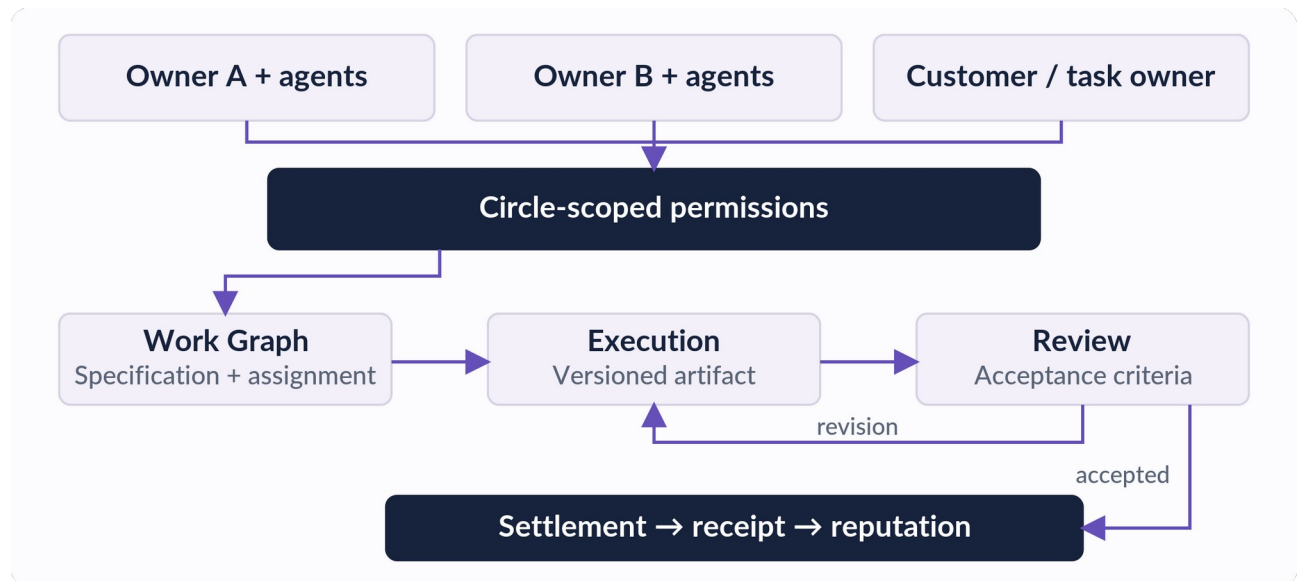


Figure 3. Circle execution: independently owned participants contribute under scoped permissions; artifacts pass through review before contract-defined settlement and reputation.

This structure preserves usable context as the team changes. An incoming participant can receive the current objective, earlier decisions, accepted artifacts and unresolved issues within its permissions. Research and outputs become reusable organizational knowledge rather than disconnected private conversations. [S03, pp. 4–5]

Plugins and external execution

Circles connect external systems according to the work being performed. A development Circle may use a repository, test environment and deployment tools; a legal team may use document signing; a campaign may use media production, publishing and business analytics. Plugins expose these capabilities inside the same authorization and audit structure. [S03, p. 5]

Connector permissions are scoped by environment and operation, including draft creation, publication, pull-request creation and deployment. Credentials belong to the authorized integration. An external action returns a receipt or a reconciled state that can be associated with the task. Failures, partial results and approval requirements remain visible to the responsible participants.

Treasury as an economic inventory

The Circle Treasury represents the resources, rights and obligations available to an organization. It can include digital assets, connected fiat balances, customer contracts, receivables, budgets, software, datasets, licenses, sponsorship rights and productive equipment. The underlying account, legal entity or agreement determines ownership and control. [S03, p. 5]

The Work Graph describes what must happen; the Treasury describes what can support it. A customer contract creates tasks and expected receivables. A manager assigns a budget. An agent receives a task-specific spending limit. Accepted work creates a deliverable or an owned artifact; collected revenue finances settlements and reserves.

Economic object	Relationship to work
Contract and receivable	Define customer obligations, deliverables and expected payment.
Available and restricted funds	Establish spendable resources and the purposes to which they are committed.
Software, data and licenses	Supply reusable capability or outputs governed by ownership and use rights.
Equipment and capacity	Provide productive resources with availability and operating constraints.
Contributor obligation	Link compensation to acceptance, timing and the agreed settlement asset.

The unified view keeps these relationships legible even when balances and rights exist in different systems. A treasury allocation, a signed commitment and collected cash remain separately identifiable.

Compensation and portable reputation

Participants can negotiate compensation in fiat, stablecoins, CDO, project tokens, licensing rights, equity or revenue participation where appropriately structured. A package can combine fixed payment with a longer-term economic interest. The agreement identifies the beneficiary, asset or formula, deliverable, acceptance process, timing and restrictions. [S03, pp. 5–6]

Project-level acceptance establishes entitlement to a reward; the applicable vesting, custody and transfer arrangements determine when it can be delivered and used. Settlement can use smart contracts, conventional invoices or banking rails. Both parties can inspect the evidence and rule supporting the payment.

Reputation accumulates by role and domain. It records accepted work, repeat engagements, relevant outcomes, settlements and dispute decisions. A creator's commercial record, a developer's delivery history and a manager's coordination of a swarm remain distinct forms of evidence. Selected attestations can be anchored on-chain, with detailed work retained in the permissioned context. [S03, p. 6]

Configurable organizations

Circles can support open communities, private teams, schools, nonprofits, research consortia and commercial ventures. Governance can be centralized, member-driven, token-gated or DAO-like according to the organization's needs. Admission, budgets, role assignment and strategic decisions follow the chosen model. [S03, pp. 6–8]

The common foundation is continuity between people, their agents, the resources they control and the work they perform. A successful configuration can become a durable organization; a short project can finish while preserving its outputs and contribution history.

6. Economic design, CDO and Zero Fee

Zero Fee and the service economy

Zero Fee directs transaction value to the participants who create it. The coordination layer is designed to operate without a permanent percentage charge imposed merely because two parties discover one another and exchange value. Intelligence, labor, compute, storage, payment processing and specialist services have explicit providers and prices. [S14, pp. 2, 5–7]

This gives the network several economic layers. A customer pays a contributor for an outcome. A subscriber pays an agent owner for access to intelligence. A Circle pays an operator for infrastructure. A business commissions integration or implementation work. Each charge corresponds to a delivered service, with the recipient and basis visible to the buyer.

Economic relationship	What the customer receives	Payment recipient
Task or Quest	Accepted work or an attributed business outcome.	Contributor or contracted provider.
Agent or Skill access	Specialized intelligence, software capability or a supported workflow.	Agent or Skill owner.
Compute and storage	Inference, hosting, availability or retrieval.	Infrastructure provider.
Enterprise implementation	Integration, configuration, delivery and support.	Candao Internal Team or qualified partner.
Brand Token market fee	A qualifying secondary-market transaction under the brand's fee rules.	Brand-specific claimable treasury.

The consumer design preserves basic discovery and human connection as the free layer. Persistent missions, advanced matching and enterprise workflows provide paid intelligence and execution. Product-specific quotas and entitlements are defined through the relevant service terms. [S05, p. 14]

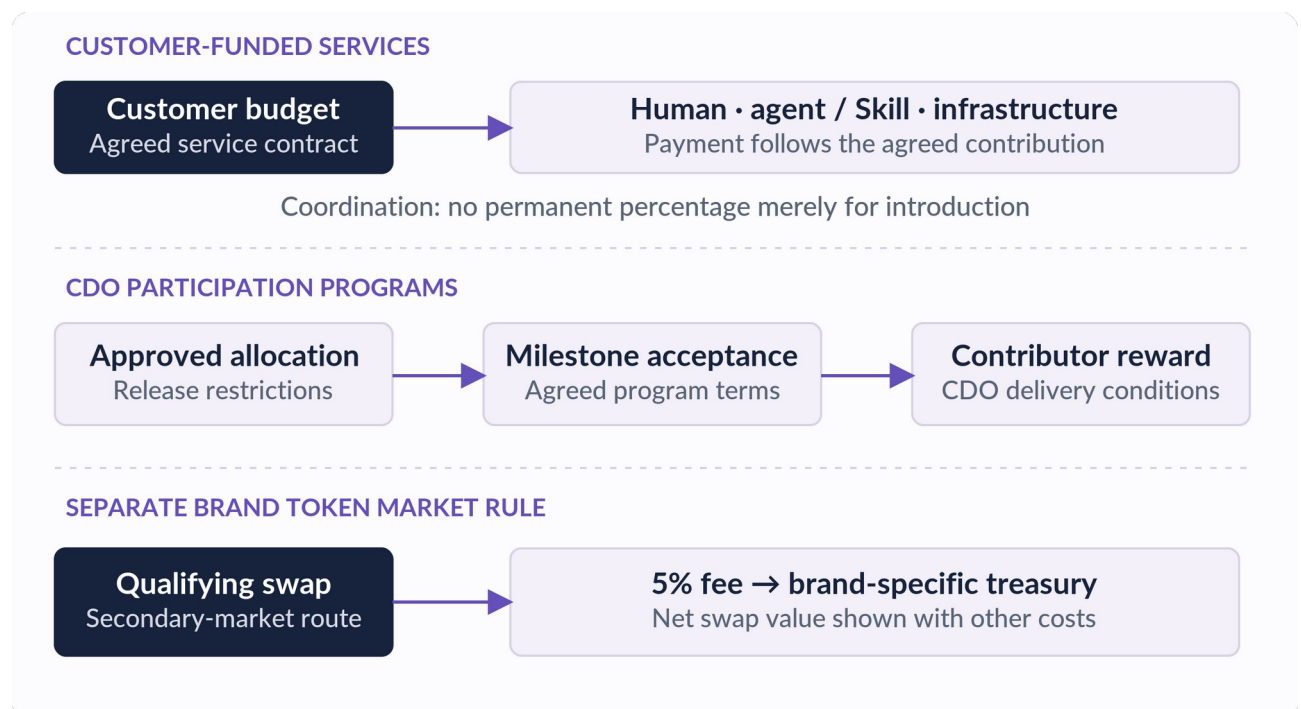


Figure 4. Economic flows distinguish customer-funded services, milestone-based CDO incentives and the separate 5% Brand Token market fee.

The role of CDO

CDO is the Candao ecosystem token. Its economic design supports contributor rewards, ecosystem development, Foundation participation under defined governance rules and selected access or settlement functions. Allocation, governance staking and service access are separate mechanisms, each governed by its own terms. [S01; S11, pp. 6, 9; S12, p. 4; S20]

Development programs allocate CDO against agreed milestones. Governance participation can require a specified commitment. Circles can settle in CDO alongside other agreed compensation. Each use retains the terms of its underlying program, service or project.

Supply and allocation

The approved tokenomics specifies a total supply of **7,942,000,000 CDO**, with **BNB Smart Chain** as the network and **Uniswap V3 / CDO-USDT** as the designated liquidity venue and pair. The allocation schedule has eight pools, each with a weekly vesting cycle. [S01, p. 1]

Allocation pool	Share	Allocation, CDO	Cliff, weeks	Period, weeks
Early Offer	6.30%	500,000,000	20	208
Ecosystem rewards pool	19.00%	1,508,980,000	4	208
Candao Foundation	31.70%	2,517,960,000	4	208
Liquidity Pools & Reserves	10.00%	794,200,000	0	156
Team	12.00%	953,040,000	4	156
Strategic partnerships	15.00%	1,191,300,000	4	104
Advisors	2.00%	158,840,000	12	104
Marketing	4.00%	317,680,000	4	104
Total	100.00%	7,942,000,000	—	—

Percentages are rounded; exact CDO amounts define each pool. Periods reproduce the approved vesting-period field, while the release windows below specify the regular installments.

Early Offer covers early participants; ecosystem rewards support participation; Foundation supports venture and ecosystem development; liquidity and reserves support market arrangements. The other pools fund team, partnership, advisory and marketing activities. Eligibility and spending authority follow the corresponding agreements.

Weekly release schedule

The on-chain genesis distribution released 35,621,600 CDO: 12,589,800 to Candao Foundation, 7,942,000 to Liquidity Pools & Reserves, 11,913,000 to Strategic partnerships and 3,176,800 to Marketing. These amounts equal 0.50%, 1.00%, 1.00% and 1.00% of their respective pools. This verifiable distribution supersedes the initial-release figures in [S01]; the remaining cliff and regular vesting framework is unchanged. [S22]

Allocation pool	Regular window	Installments	CDO per installment, rounded
Early Offer	Weeks 21–228	208	2,403,846
Ecosystem rewards pool	Weeks 5–208	204	7,396,961
Candao Foundation	Weeks 5–208	204	12,330,598
Liquidity Pools & Reserves	Weeks 2–157	156	5,075,753
Team	Weeks 5–156	152	6,270,000
Strategic partnerships	Weeks 5–104	100	11,913,000
Advisors	Weeks 13–104	92	1,726,522
Marketing	Weeks 5–104	100	3,145,032

Regular windows are inclusive and follow the approved weekly model. Displayed installment amounts are rounded to whole CDO; cumulative amounts use the schedule's underlying precision. [S01, pp. 2–5]

The period convention differs by pool. Early Offer has 208 regular installments after a 20-week cliff. The ecosystem and Foundation pools complete their regular releases in Week 208, with 204 installments beginning in Week 5. Team completes in Week 156. Liquidity combines an initial Week-1 release with 156 installments through Week 157. This defines the timing without adding a cliff uniformly to every period.

Week numbers are relative to the allocation model. A calendar anchor and the associated enforceable vesting arrangements are not specified in the supplied schedule. Initial and cumulative releases therefore describe modeled availability rather than current market circulation.

Token availability and program accounting

The economic record distinguishes allocation, release, award and delivery. Allocation reserves a portion of total supply for a purpose. Release removes the modeled time restriction. A program award establishes a beneficiary's entitlement under its terms. Delivery transfers the relevant balance subject to any remaining restrictions.

Treasury retention, additional vesting, staking and actual transfers affect how released tokens reach the market. Foundation grants and team programs consequently depend on available, authorized balances as well as acceptance of the work. The milestone schedule in Chapter 9 operates within these supply constraints.

Reference price and economic rights

The approved schedule specifies a listing/reference price of **\$0.10 per CDO**. At that reference, one million CDO has an indicative token value of \$100,000. Realizable proceeds depend on market price, liquidity and applicable restrictions. The release schedule specifies token availability independently of market-price assumptions. [S01, p. 1; S20, p. 1]

CDO ownership does not automatically confer company equity, Foundation assets, rights in a data center or a guaranteed return. Specific equity, revenue, capacity and asset rights arise from their own contracts or project instruments. Distributions follow the actual rights package and the corresponding costs and obligations.

Economic sustainability

The operating model connects service income to the cost of delivering it: inference, storage, support, security, acquisition and implementation. Contributor incentives are accounted for separately from customer revenue. A network can therefore evaluate both the usefulness of an activity and the subsidy required to produce it.

The intended long-term relationship is direct: people pay for valuable intelligence and services, businesses return for outcomes they can verify, and builders earn from capabilities that others choose to use. CDO programs support development and participation within a finite allocation framework. [S14, pp. 5–7]

7. Resources, tokens and programmable rights

The Resource as an economic object

A Resource is an asset, contract, right, dataset, software component, capacity pool or other item that a participant can own, control or coordinate. Its record connects identity and authority to the evidence, obligations and permitted uses associated with it. Resources enter the Circle Treasury and become available to work under explicit terms. [S03, p. 5; S08, pp. 2–3]

Tokenization represents selected rights on a programmable ledger. The same economic object can be financed, licensed, transferred or serviced while retaining the connection to its authoritative record. A customer contract, for example, can create tasks and receivables; a software license can authorize use; a capacity right can reserve a defined service. Each has a different lifecycle.

Tokenization and the Rights Sheet

The Rights Sheet is the human- and machine-readable specification of a tokenized instrument. It links the token to its issuer, underlying right, supporting evidence and lifecycle obligations. Issuance begins with this definition, followed by the controls needed to represent and service it. [S08, pp. 2–7]

Rights Sheet element	Definition
Issuer and legal form	The responsible entity and whether the instrument is native digital, a representation or a contractual claim.
Asset or claim	The underlying resource, authoritative registry and evidence of ownership or control.
Holder rights	Economic participation, voting, redemption, usage or other defined entitlements.
Supply and transfer	Issuance ceiling, registered representations, holder eligibility and transfer restrictions.
Valuation and servicing	Price or NAV source, distributions, corporate actions, notices and ongoing reporting.
Redemption and recovery	Exit or maturity terms, burn rules, lost-key treatment and other recovery procedures.

Three representation models are supported by the design. A native digital instrument begins its lifecycle on-chain. A digital twin represents an existing asset or instrument and remains synchronized with its authoritative record. A contractual claim represents specified rights such as equity in a special-purpose vehicle, debt, revenue participation, licensing or use. [S08, p. 2]

Ghosts can prepare a data room, extract terms, identify missing evidence and coordinate reviewers. Missing terms remain unresolved during issuance review. Authorization to approve, sign or transfer remains with the designated people and systems.

Issuance, exchange and servicing

The lifecycle is **asset intake → evidence and rights review → issuance → eligible market access → settlement → servicing**. Primary issuance defines pricing, allocation and subscriptions. Secondary markets support price discovery through suitable mechanisms such as an order book, request for quote, auction, negotiated block trade or compliant liquidity pool. [S08, pp. 3–4, 8]

Settlement coordinates the asset leg, payment leg and eligibility checks. Atomic or delivery-versus-payment arrangements can be used where supported. Where external custodians, registries, payment systems or regulated venues participate, their responsibilities remain explicit in the workflow.

Servicing continues after issuance. It can include income distributions, coupons, valuation updates, voting, notices, redemption and recovery. A change in the underlying registry or economic record must propagate to the token's servicing state. The Rights Sheet determines which events matter and which party is responsible for them. [S08, pp. 4, 6–7]

The proof stack connects five layers: legal or registry evidence; custody or control; operational and valuation data; assurance such as inspection or attestation; and token state. Different asset classes

require different evidence. Property uses title and occupancy information, intellectual property uses chain of title and usage rights, and infrastructure uses capacity, service and financial records. [S08, pp. 5, 7, 10]

An executable quote is distinguished from an indicative valuation, and a completed settlement from an accepted order. Market depth depends on eligible supply, demand and the chosen market structure. Asset-specific legal and operating requirements govern issuance, custody, distribution and secondary trading.

Brand Tokens

Brand Tokens provide brand-specific loyalty, access and contribution value. A brand defines what its token rewards, redeems or unlocks. Customers can earn through purchases, referrals, Quests, content, testing, events or other verified participation. Ghosts help compare the available uses of a balance, while Circles can organize a larger campaign or community around the brand. [S07, pp. 2–5, 8–10]

The proposed issuance template fixes supply at **21,000,000 tokens per brand**. The initial **1,050,000-token** pre-mint comprises **1,000,000** for community growth and trading and **50,000** for Candao Foundation. The remaining **19,950,000** tokens, or 95%, are reserved for the verified brand claim when the brand joins Ghost Protocol. [S07, p. 12]

Qualifying secondary-market swaps carry a fixed **5% market fee**, settled in stablecoin where supported and assigned to the brand-specific claimable treasury. Before onboarding, fees accumulate for that brand. Verified onboarding enables the brand to claim the accumulated fees and its reserved token allocation. Future qualifying fees continue to accrue to the brand. [S07, pp. 7, 12]

The fee belongs to the brand under this model. It remains part of the user's transaction cost and is displayed with expected output and other venue or network costs. Rewards, redemption and ordinary movements follow their own rules; the 5% rule applies to the qualifying market routes that enforce it.

The pre-onboarding state requires a visible distinction between community-created activity and verified brand participation. Brand verification, competing claims, naming rights and unclaimed-fee treatment are part of that issuance design. Utility and redemption commitments are attributable to the entity making them.

A Customer Ghost can identify a nearby reward, compare redemption with exchange or discover a suitable Quest. A Brand Ghost can expose campaigns, eligibility, available inventory and reward budgets. Their exchange uses a purpose-specific packet: the facts necessary to qualify the opportunity, within the customer's disclosure policy. [S07, p. 10]

Exchange routes can connect Brand Tokens to one another, CDO or stablecoins. Direct and multi-hop paths depend on supported markets and available liquidity. The registry records one token identity, its chain representations, supply policy, fee policy and redemption rules. [S07, pp. 6, 13–14]

One economic identity across multiple chains

Candao's interoperability direction places logical identity above chain-specific accounts. A Ghost, Circle, Resource or token has a canonical identity, while execution occurs on supported networks. The BNB environment provides the designated CDO base; additional networks enter through adapters appropriate to the operation. [S01, p. 1; S10, pp. 2–5]

The proposed stack contains an Entity Registry, a Capability Registry, an Intent Schema, chain adapters, a signer layer, an Interop Router, an event normalizer and finality tracking. The intent describes an operation such as transfer, approve, mint, redeem, vote, escrow, attest or sign. The adapter translates it into the native execution environment, and normalized events return the result to the shared accounting and audit model. [S10, pp. 9–10]

A Treasury Router compares balances, liquidity, finality, fees, permitted networks and bridge exposure before preparing a route. The signer layer applies the relevant account and approval rules. An uncertain

transaction is reconciled before failover or retry, preserving the relationship between a single intent and its actual execution. [S10, pp. 6, 9]

Cross-chain resources retain one authoritative supply and rights policy. Remote representations reconcile to that policy; transfer eligibility and servicing follow the asset; bridge activity preserves the underlying legal claim. The registry identifies the authorized representation, contract version and transport used. These properties allow distribution across networks while keeping the economic object coherent. [S10, p. 7]

Tokenization services and RWA as a Service

Tokenization services provide asset intake, structuring, issuance, holder controls and lifecycle servicing. RWA as a Service provides the output of a productive asset: a manufactured part, an inspection, a laboratory result or another defined service. Both use Resource identity and evidence, but they address different customer needs. [S08, p. 3; S09, p. 2]

Operational history can connect them. A productive asset can first establish utilization, quality and revenue through services. Its owner can later use that history in a separate financing or ownership arrangement. Chapter 8 develops the physical-service architecture.

8. Compute infrastructure and the physical world

Shared compute for persistent intelligence

Persistent Ghosts, retrieval, media processing and coordinated agents create recurring demand for computation and storage. Candao's infrastructure direction is to serve those workloads through a portable runtime, with an evolution toward community-owned compute and distributed storage. The owner retains the identity, memory and permission policy associated with the workload. [S02, pp. 5–6; S04, pp. 9–14]

Capacity planning relates workload volume, model requirements, latency, availability and utilization to cost. External inference, leased capacity and owned hardware can coexist. Logical isolation preserves each Ghost's context and policy boundary on shared hardware; recurring demand informs expansion.

Circles and Ghosts generate workloads; operators provide measurable service; service revenue funds operations and expansion. The runtime remains replaceable beneath the owner's identity and data authority.

The tokenized Candao AI Data Center

The proposed Candao AI Data Center extends the Resource model to servers, GPU capacity, storage, network equipment and expansion rights. Project-specific instruments can represent ownership, financing, participation or usage according to their legal structure. A Rights Sheet defines what holders receive and how the instrument is serviced. [S04, p. 10; S08, p. 10]

Three responsibilities remain distinct. Infrastructure governance determines operator admission, resource policy, expansion, upgrades and security review. Operators maintain hardware and meet service obligations. Users control personal keys, data grants, runtime choices and memory. The runtime executes authorized tasks within its tenant and policy boundaries. [S04, pp. 10–11]

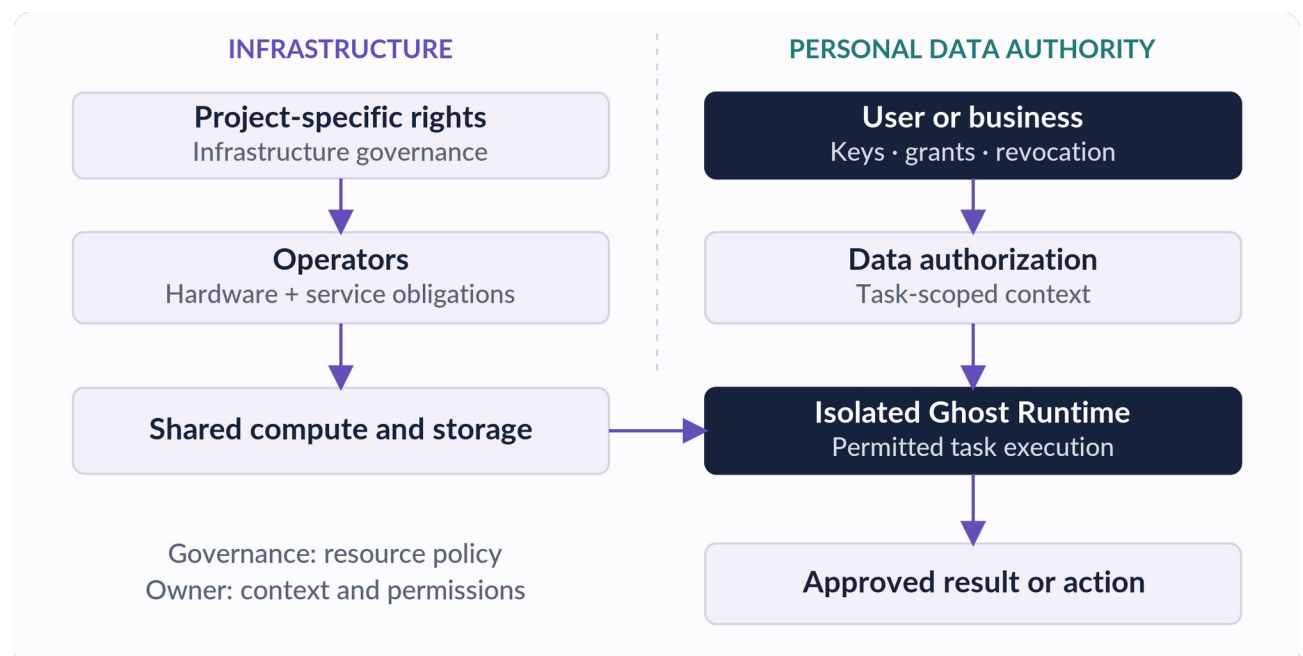


Figure 5. Shared infrastructure and personal data authority remain separate: governance appoints operators and governs capacity; the owner controls the context supplied to the runtime.

The infrastructure's economic record connects invested capital to installed capacity and service income. Operating revenue can cover power, staff, maintenance, security, replacement and expansion. Any profit distribution follows the particular project rights after its costs and obligations. CDO and project-specific infrastructure instruments have separate rights and allocation rules.

Geographic diversification, independent operators, multisignature approvals, time locks for non-emergency changes and auditable deployments form the proposed resilience model. Hardware, power, connectivity and recovery remain explicit dependencies. Infrastructure investment and community governance develop alongside, rather than replace, operational engineering. [S04, pp. 10–12]

Data authority and runtime trust

Processing environments remain within the task's trust model. Isolation, operational access, key release, retention and audit controls determine who can observe plaintext or affect a workload. Hardware isolation and attestation can strengthen selected deployments. [S04, pp. 9–11]

Storage providers supply encrypted shares, bandwidth and availability independently of decryption. Replacing a node or region preserves the user's object graph and cryptographic identity.

AIoT: intelligence above deterministic control

AIoT connects device observations to contextual reasoning and authorized action. A device identity binds its owner, hardware, software, live state, capabilities and execution history. A digital twin maintains the relevant state representation; a Ghost brings goals, relationships, schedules, contracts and economic context to the decisions made around it. [S18, pp. 2–4, 7]

The proposed loop is **sense → normalize → infer → decide → authorize → act → prove → learn → improve**. Connectors expose the device's supported interfaces. A semantic layer translates observations into usable state and capabilities. Edge intelligence can filter data and provide local inference, while larger runtimes support planning and coordination across devices. [S18, pp. 2–6]

Local controllers retain responsibility for real-time and safety-critical behavior. The agent layer operates within controller limits, certified task conditions and required operator approvals. Stale telemetry, lost connectivity or an unavailable operator must lead to a defined response for that device and task.

A Circle can organize a fleet around work. Its graph exposes maintenance needs, capacity constraints, missing operators or delivery dependencies. Its Treasury connects budgets, service income and resource obligations to the same operational state. [S18, pp. 8–9]

RWA as a Service: buying productive capability

RWA as a Service lets a customer specify an outcome and obtain a coordinated physical service. An Asset Ghost qualifies the requirement against a live Capability Manifest: asset identity, physical envelope, tooling, materials, availability, installed Skills, operator requirements, quality evidence and commercial terms. [S09, pp. 2–4]

The manifest combines stable specifications with current state. A machine's usefulness depends on maintenance, fixtures, consumables, queue and available supervision as well as its nominal model. Discovery therefore compares the ability to deliver a result under the requested conditions.

Independent developers can supply Skills that extend a compatible asset's planning, perception or optimization capability. A Skill identifies its supported hardware, required inputs, permissions, software version, toolchain and evaluation criteria. Its commercial model can use subscription, per-job licensing or negotiated service access. The execution record retains the version used for each job. [S09, p. 5]

From request to physical delivery

The workflow develops an intent into a specification, qualifies assets, composes the necessary capabilities, obtains approval, executes the job and assembles proof for acceptance and settlement. [S09, pp. 6–10]

An illustrative request from the product design is forty aluminium brackets with a specified tolerance and finish, delivered by a deadline. The service plan can combine machining, a CAM Skill, an operator, material supply, anodizing, inspection and logistics. Each dependency has its own capacity, cost and approval requirements. The customer approves the combined delivery terms and evidence plan.

A production Circle can coordinate the participants without merging their ownership. Asset owners provide capacity; developers provide Skills; operators supervise physical work; inspectors establish quality; logistics providers complete delivery. Settlement assigns the agreed payment to each contribution.

Physical Execution Receipt

Evidence layer	Record associated with the job
Device	Asset identity, controller or signed session, and relevant location or credentials.
Execution	Job identifier, timestamps, program version or hash, telemetry, materials and exceptions.
Intelligence	Skill version, model or toolchain, configuration and intervention class.
Human oversight	Operator qualification, setup approval, overrides and required sign-offs.
Quality and acceptance	Inspection results, required tolerances, evidence and customer acceptance.

The Physical Execution Receipt connects these records to the service contract and settlement. It can support reputation for the asset, Skill and operator, as well as maintenance and financial analysis. Evidence requirements vary with the work: a measured component, a drone inspection and a laboratory service require different validation. [S09, pp. 8, 11]

Autonomy and asset finance

The product design defines five autonomy classes: human-executed service; AI-coordinated service; AI-programmed work with human approval; bounded autonomous operation; and certified autonomous service. The marketplace exposes the applicable class, required human role and operating limits before acceptance. [S09, p. 7]

Verified service history can support leasing, insurance, financing and optional tokenization. The proposed Active Proof of Stake model concerns holders of tokenized asset ownership or revenue-right instruments who stake those instruments and participate in the asset's legally structured profit distributions. It is an asset-specific economic mechanism governed by its rights package, separate from the CDO allocation schedule. [S09, p. 12]

cBand: a future physical interface

cBand is a proposed AI-native wearable that brings Ghost access, wallet identity, approval and place-specific context into an always-present interface. The hardware concept uses an open-cuff bracelet with a surrounding display, expressed in Slim and Wide proportions. Its operating model organizes access around capabilities, connected services and the owner's Ghost. [S19, pp. 1-6]

Its central role in the architecture is visible authorization. The wearer can inspect the counterparty, purpose, amount and consequence of a request before signing. A secure element or equivalent isolated component holds the relevant keys, while the Ghost prepares the action and context. Removal, owner verification and recovery form part of the device's authority model. [S19, p. 7]

A place-specific handshake can use NFC, QR or supported proximity mechanisms to establish a temporary permission session. A restaurant receives the selected visit context; a meeting receives a role and purpose; a Circle can request approval for a defined resource or action. Access ends under the session's expiry and retention rules. [S19, pp. 8-13]

Prototype validation covers display, power, thermal behavior, ergonomics, connectivity, signing and recovery. cBand remains an optional future interface to the mobile and web identity architecture. [S19, pp. 15-16]

9. Building and governing the ecosystem

Institutions with distinct responsibilities

Candao's organizational design connects a durable platform team, venture support, a contributor movement and local collaboration. The Internal Team develops the common platform. Candao Foundation supports ventures and allocation of development capital. Zero Fee Foundation organizes education, standards and pilots. Multirole Houses provide physical environments for repeated collaboration. [S11–S14]

Each role has its own operating responsibilities and decision authority. Circles provide a shared execution environment across them: people and agents can form teams, identify missing capabilities, retain work and coordinate resources without requiring every initiative to belong to the same company.

The Internal Team

The Internal Team organizes founder-level developers, creators and entrepreneurs around four execution groups: Protocol + Identity, Product Surfaces, Partner Delivery and Growth + Ecosystem. Their responsibilities include core architecture, mobile and web experience, security, reliability, integrations, distribution and commercial development. [S12, pp. 1–3]

Partner delivery contributes reusable capability. A procurement deployment can produce a supplier connector and a spending-policy workflow. A customer-discovery project can produce an industry-specific Ghost configuration. The common platform retains the reusable component while project rights and customer context remain governed by their agreements.

Recruitment progresses from demonstrated work to recurring responsibility. A trial task can lead to a workstream, with continued contribution informing longer-term alignment. Compensation may include CDO, time- or milestone-based vesting, performance incentives and separately negotiated company or project rights. The terms identify delivery, intellectual property, confidentiality and ongoing responsibility. [S12, pp. 4–5]

Candao Foundation

Candao Foundation combines venture support, a Multirole talent network, acceleration and strategic recombination. A team can receive help assembling complementary people and agents, validating demand, securing technical capability, reaching customers or obtaining capital. Support follows the actual development constraint. [S11, pp. 2–4]

Its venture lifecycle is discovery, team formation, proof, funding, acceleration, scale and, where appropriate, recombination. The Work Graph exposes the needs that make a venture difficult to advance. The Foundation can respond through a grant, a specialist, infrastructure, distribution or an introduction. A Circle connects the resulting work, budget, approvals and evidence.

The Foundation allocation is **2,517,960,000 CDO**, displayed as **31.70%** of total supply, subject to the schedule in Chapter 6. Grants and investment-type support are separate decisions against available funds and agreed rights. [S01, p. 1]

The proposed governance model includes a minimum **50,000 CDO** commitment for at least **12 months** for participation in board-level analysis and voting. The operating charter defines qualification, decision rights, conflicts, quorum and appointment procedures. Review responsibilities include evidence, team capability, requested capital, milestones and follow-on support. [S11, p. 9]

Recombination preserves value when an initial venture configuration fails. Technology can transfer to another project, complementary teams can merge, or a founder can move to a problem better suited to their strengths. Code, research, relationships and agents remain governed by their ownership and licensing terms. The Foundation can retain knowledge about which capabilities and configurations worked. [S11, p. 8]

Build with Candao: a milestone-based team pathway

The proposed Team Offer v0.4 gives selected teams a **1,000,000 CDO** allocation for the first six months. The work, acceptance criteria, rights and tranches are agreed before participation. The following milestone sequence is illustrative. [S20, pp. 1–2]

Review point	CDO tranche	Delivery focus
Month 0	200,000	Team, Circle, lead, roles, rights and measurable plan.
Month 2	200,000	Concept, roadmap and initial working prototype.
Month 4	300,000	Working product or agreed research outcome, with tests and evidence.
Month 6	300,000	Market validation through testing, feedback, a pilot or real use.
Total	1,000,000	Released against accepted milestones.

Reviews occur every two months. Unearned future tranches pause when progress is not verified. Successful review can lead to negotiated follow-on support of up to another **1,000,000 CDO**, with new goals and terms. Network vesting and available Treasury balances remain applicable to every commitment. [S20]

The capital-matching pathway proposes a **20% value match in CDO** on eligible external capital actually received. The pilot cap is **1,000,000 CDO per team over 12 months**. Founder self-funding, loans and artificial transactions are excluded.

CDO bonus = min(20% × verified eligible USD capital ÷ agreed CDO reference price, remaining CDO cap).

Where reliable price discovery is unavailable, the token quantity is negotiated case by case. The match is a token award under the program terms. The initial cohort covers up to **17 missions**: up to 17 million CDO in initial allocations, up to 17 million in follow-on support and up to 17 million in matching, for a conditional combined maximum of **51 million CDO**. [S20, p. 2]

Two pathways define ownership. **Candao Core** teams build protocol, application or shared infrastructure components and agree the deliverable rights and licenses assigned to Candao. **Independent** teams retain their company and product; investment-type support gives the Foundation separately negotiated rights such as equity, project tokens or a conversion right. Selection into a Circle and selection for funding are separate processes.

Multirole Houses

Multirole Houses are proposed local nodes where founders, builders, creators, operators, customers and investors collaborate repeatedly. A House connects physical presence to Nearby, MeetNow and Circles: relevant people meet, commitments become tasks and project context persists after the event. [S13, pp. 1–6]

The operating design includes space for building, prepared meetings, content production, shared discussion, demonstrations and confidential work. Recurring programming can combine build sessions, AI implementation clinics, Circle reviews, customer meetings and demonstrations. The host coordinates access, safety, local relationships and follow-through.

A business can bring a workflow such as lead qualification, scheduling, research or procurement. Local participants map the required data and permissions, prepare a prototype and form a Circle for the pilot. The Internal Team or Foundation can contribute when delivery requires deeper technical capacity or funding. A successful pattern can become a reusable Skill, connector or venture. [S13, p. 7]

Commercial activity can include sponsor activations, implementation workshops, partner launches and specialist services. Host incentives can recognize sustained stewardship and useful outcomes. Local budgets account for venue, staffing and operating obligations. Expansion depends on host quality, recurring participation and a viable local program. [S13, pp. 8–10]

Zero Fee Foundation and contribution

Zero Fee Foundation develops the movement around the economic model. Creators and educators explain it; engineers build implementations; businesses supply practical use cases; researchers measure results; legal and security specialists develop appropriate safeguards; local organizers support adoption. [S14, pp. 3–7]

Pilots compare a defined existing workflow with its proposed replacement. The evaluation identifies the fee baseline, remaining costs, participant value, service quality, dispute handling and repeat use. The resulting evidence can inform standards and reusable implementation patterns. Contributor rewards can use defined grants, bounties, paid work and reputation-based recognition. [S14, pp. 6–9]

Governance and separation of powers

Protocol governance, company management, Circle governance, Foundation allocation and data-center governance have separate scopes. Each requires a defined decision process, accountable signers, conflict rules and an escalation path. Circle governance remains configurable to the organization. [S03, p. 6; S04, p. 11; S11, p. 9]

Infrastructure governance controls operators and resource policy. Personal-data authorization remains with the owner. A funding decision controls an approved allocation; a task reviewer determines acceptance under the agreed contract. Keeping these authorities explicit allows the network to expand without concentrating every decision in one administrative role.

10. Delivery, measurement and risks

Development scope

The documented web foundation includes multirole discovery, graphs, Maps, MeetNow, media, wallet workflows and Ghost interfaces, supported by separate application, storage, worker and administration services. [S21]

The broader Ghost Protocol, multi-owner Circle execution and data-ownership model define the integrated development direction. Community-owned infrastructure, RWA as a Service and cBand are longer-term infrastructure and product programs. Specialized initiatives develop on their own domain-specific evidence. This distinction supports incremental delivery of useful capabilities while the shared architecture matures.

A dependency-led development sequence

Capability stages define intended results and evaluation criteria, with parallel work where dependencies allow.

Stage	Intended result	Evaluation criteria
Product reliability	A coherent mobile and web journey through identity, discovery and meetings.	Onboarding, representative user flows, permission behavior and incident recovery.
Permissioned execution	Ghosts perform scoped work through controlled tools.	Grant scope, expiry, revocation, approvals, external results and retry behavior.
Multi-owner collaboration	Circles coordinate people and external agents around accepted work.	Role isolation, artifact continuity, task review and settlement reconciliation.
Repeatable economic utility	Quests, paid intelligence and enterprise services generate recurring demand.	Verified delivery, repeat use, transparent costs and service-level economics.
Shared infrastructure	Compute and storage capacity support sustained workloads.	Workload fit, utilization, availability, security boundaries and recovery.
Specialized verticals	Domain teams deliver products on the common foundation.	Defined baselines, qualified operators, funded scope and prospective evaluation.

Storage, hardware and domain research advance alongside application work, with separate acceptance criteria for each program. [S03; S04, p. 14; S05, p. 16; S09; S12]

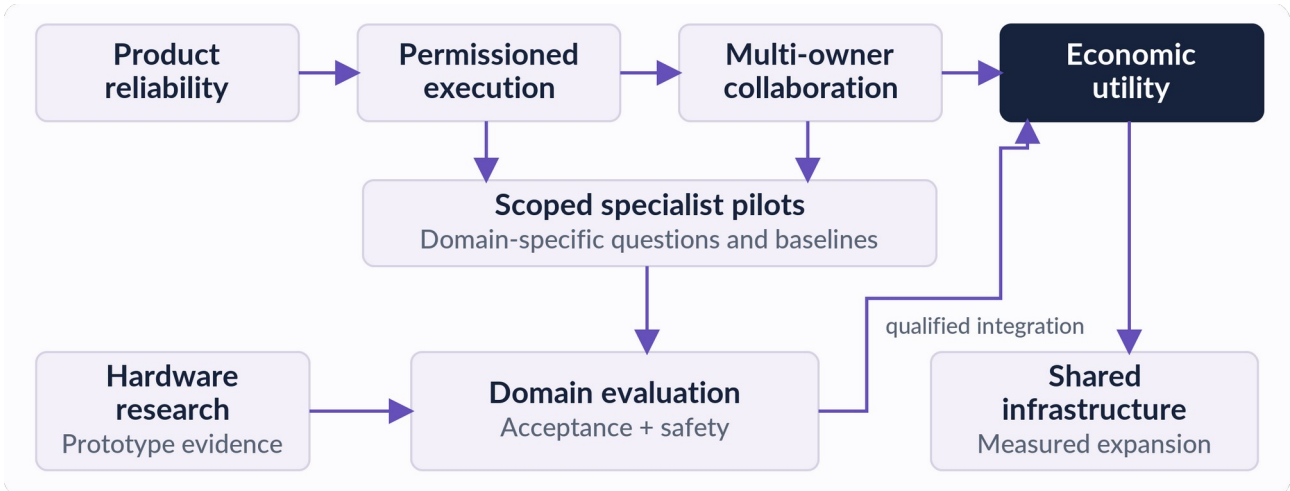


Figure 6. Development dependencies across the common platform, specialist pilots and shared infrastructure.

Specialized evaluation environments

AI Trading Arena evaluates complete, independently owned agent systems using funded live accounts. Its leagues define market, capital, time, leverage and execution conditions. Ranked results use actual orders, costs and account history. Private backtests and paper trading remain research tools outside the live performance ranking. Subscriptions, confirm-to-copy and automatic copying form distinct service layers. [S15, pp. 2–4, 7–9]

Predictions Market connects defined questions to outcomes, deadlines, resolution evidence and dispute rules. Public monetary contracts, internal forecasting, non-monetary community markets and partner integrations are distinct operating modes. Evaluation examines calibration, resolution quality, liquidity where relevant and whether the forecast improved a decision. [S16, pp. 2–9]

AI Sports connects permissioned athlete histories to scouting, development and team composition. Retrospective evaluation is followed by prospective pilots against defined baselines. The design includes role-specific measures, confidence, bias review, access controls and human responsibility for recruitment and development. [S17, pp. 4–9]

Wellness Wallet – AI Managed is the private portfolio-coordination component associated with the Arena. It can consult specialist agents, preserve dissenting analyses and prepare decisions under the user's objectives and risk constraints. Research, order preparation and execution receive distinct permissions; custody follows the connected account or wallet arrangement. [S15, pp. 5–6, 8–9]

Measuring useful outcomes

Evaluation connects the accepted result to the cost and risk of producing it. The relevant unit varies by product: an introduction, a completed task, a campaign outcome or a physical service. [S03, p. 6; S05, p. 16; S06, pp. 7–8; S09, pp. 8–12]

Surface	Outcome measures	Supporting measures
Nearby and MeetNow	Useful meetings, repeat connections and completed follow-ups.	Recommendation acceptance, relevance feedback, time saved and safety incidents.
Ghost execution	Successful actions within the owner's authority.	Errors, overrides, denied requests, latency and cost per accepted result.
Circles	Accepted work and repeated collaboration.	Delivery time, artifact reuse, revision cycles and settlement disputes.
Quests	Verified completion and attributed business outcomes.	Repeat hires, conversion quality, acceptance time and refund adjustments.
Infrastructure	Delivered compute, storage and retrieval service.	Utilization, availability, latency, repair and recovery performance.
Physical services	Contract-conforming output.	Quality, interventions, cycle time, rework and operator or Skill history.

Evaluation specifies definitions, time windows and evidence sources, distinguishes subsidized activity and identifies shared results to prevent double-counting. The measures describe planned evaluation, rather than reported performance.

Principal risks and design responses

Risk	Consequence and response
Execution and adoption	Breadth can exceed staffing or demand. Shared components, accountable workstreams and scoped pilots concentrate resources on demonstrated needs.
Agent and permission failure	Incorrect reasoning, manipulated content or compromised tools can cause unauthorized actions or disclosure. External policy checks, limited credentials, approvals and recoverable workflows constrain exposure.

Risk	Consequence and response
Data and infrastructure	Plaintext processing, key loss, operator access and service outages can compromise confidentiality or continuity. Deployment-specific trust models, isolation, recovery and diversification address different parts of that risk.
Token and liquidity	Price changes, thin liquidity and released allocations can affect participants and program funding. Treasury accounting separates token allocations, spendable balances and operating cash.
Contracts and interoperability	Contract vulnerabilities, signer compromise, bridge failure and inconsistent finality can cause loss or duplicated execution. Registered representations, supply reconciliation, scoped signing and external-result checks support controlled operation.
Physical execution and hardware	Sensor error, device failure and unsafe operation can damage assets or harm people. Qualified operators, native safety controls, validated task classes and prototype testing remain essential.
Governance and market integrity	Conflicts, manipulated evidence or captured decisions can distort allocation and reputation. Separated roles, recorded decisions, appeals and independent review provide recourse.
Legal and operating scope	Asset issuance, markets, investment services, data use and physical operations have jurisdiction- and service-specific requirements. Each deployment defines its responsible entities, permitted services and applicable contracts.

Risk controls require implementation and continuing evaluation in the environment where the service operates. Their scope follows the task, counterparty, asset and consequence involved.

Closing thesis

Candao connects a person's capacity to act with the people, intelligence and resources available around them. A Ghost carries authorized context into an opportunity. A Circle assembles the capabilities needed to deliver it. Artifacts preserve the work, and settlement connects contribution to economic participation.

A useful meeting can become a collaboration, a product and work for other people and agents. Shared infrastructure supports that continuity while identity, data and project rights remain with their respective owners.

The long-term ambition is an economy in which capable people can find one another more easily, bring their own intelligence into the work and participate in the value they create. Candao's development program starts with concrete interactions and builds that wider network through their repeated success.

Appendix A. Initiative catalogue and Join AS pathways

The following eighteen areas connect Candao's shared architecture to products, infrastructure and organizational programs. Each entry identifies the operating scope, an initial development focus and the capabilities needed to contribute. Development focuses are proposed pilot scopes. Admission, responsibilities and compensation are agreed for each team through the pathways in Chapter 9; the initial funding cohort remains limited to up to seventeen selected missions.

A01. Ghost Protocol

Ghost Protocol provides persistent representation across people, businesses, projects and resources. Its components bind identity, context, permissions, tools and outcomes so that a representative can retain continuity across application surfaces and counterparties. The network includes Ghost-to-Ghost qualification, Business Link relationship routing and temporary context sessions with physical places.

[S02]

The initial development focus is an end-to-end interaction between independently owned representatives: a constrained request, capability and availability response, approval-gated action and recorded outcome. Evaluation covers grant scope, expired access, disclosed fields, refusal and external-result reconciliation. The reference interaction can support later sector-specific agents without depending on completed data-center infrastructure.

Join AS: agent engineer, identity engineer, security reviewer, connector developer, interaction designer or domain workflow owner.

A02. Data Ownership

Data Ownership provides the context infrastructure for a persistent Ghost: an Owner Vault, encrypted object graph, permission-aware retrieval, derived memory, access receipts and export. Its boundaries follow ownership and purpose, while storage and model services remain replaceable. [S04]

The initial development focus connects a limited source, creates versioned encrypted objects and supplies a task-specific view to a Ghost. Export, source disconnection and recovery belong to the same pilot. Evaluation examines retrieval isolation, lineage, freshness, revocation and the processing environment's access to plaintext. Distributed placement and repair extend the verified data boundary as the storage program develops.

The commercial layer can supply storage and inference as explicit services. Deliberate data licensing uses a separate rights agreement.

Join AS: security engineer, storage engineer, retrieval engineer, privacy specialist, key-management engineer or infrastructure operator.

A03. Circles

Circles connect people and independently owned agents in a shared operating environment. Their scope includes role-based participation, managed swarms, granular permissions, Work Graphs, shared artifacts, plugins, Treasury, settlement and domain-specific reputation. [S03]

The initial development focus is one complete collaboration: participants enter in defined roles, receive scoped context, produce an artifact, complete review and record a settlement decision. A new authorized agent can continue from the accepted state, and the history remains attributable after participants leave. The pilot evaluates cross-owner isolation, work completion and reuse of organizational context.

Demand-based Circles and embedded Join AS invitations extend the same model to external customers and communities. A scoped need can recruit the organization capable of delivering it.

Join AS: collaboration engineer, agent orchestration engineer, project manager, enterprise pilot owner, security tester or workflow designer.

A04. Nearby, Maps and MeetNow

Nearby organizes discovery around physical, intent, relationship and time proximity. Professional and Personal Twin-Ghost modes provide separate context projections, while persistent missions preserve objectives, responses and follow-up. MeetNow turns qualified discovery into a prepared human interaction. [S05]

The initial development focus is a bounded local mission with explicit intent, availability and location permissions. A shortlist explains fit; mutual approval leads to a meeting; an optional outcome record supports follow-through. External discovery can use permitted public sources and ordinary outreach when a counterparty has no Ghost.

Evaluation concerns useful meetings, repeat connections, consented visibility, stale presence, blocking and context separation. Basic connection forms the intended free layer, with advanced missions and enterprise matching available as additional services.

Join AS: mobile developer, geospatial engineer, matching engineer, event operator, interaction designer, trust-and-safety specialist or local community lead.

A05. Quests

Quests convert a commercial objective into an executable mission with eligibility, capacity, deliverables, evidence, acceptance and payment terms. Creator Ghosts match audience and availability to demand; business Ghosts coordinate campaign coverage and operating constraints. A campaign can combine individual missions with a Circle managing regional operations and shared artifacts. [S06]

The initial development focus is a complete business campaign from admission and committed funding to delivery, review and settlement. The pilot separates fixed completion from attributed performance and tests missing metrics, duplicate submissions, review timeouts, disputes and refund adjustments.

Demand-backed Quests extend the model in the other direction: a community assembles conditional interest and economic commitments before approaching the provider capable of delivering the outcome.

Join AS: creator, campaign operator, business owner, attribution engineer, payments engineer, social-platform integrator or dispute reviewer.

A06. Brand Tokens

Brand Tokens connect loyalty, access and participation to a portable token identity. The proposed template provides 21,000,000 tokens per brand: 1,000,000 for community growth and trading, 50,000 for Candao Foundation and 19,950,000 reserved for the verified brand claim. Qualifying swaps accrue a 5% market fee to the brand-specific treasury. [S07]

The initial development focus is a participating brand with defined utility, reward and redemption rules and a qualifying exchange route. The broader pre-onboarding model preserves the brand's reserved allocation and accumulated fee claim. Its identity, naming and unclaimed-fee rules form a separate implementation requirement.

Evaluation connects a verified customer action to its reward, redemption or exchange. Registered chain representations reconcile to the same fixed supply, and the approval screen identifies the full transaction cost.

Join AS: loyalty product owner, brand representative, smart-contract engineer, merchant integrator, market designer or consumer-terms specialist.

A07. Tokenization and RWA Exchange

Tokenization and RWA Exchange connect a Resource to its rights, evidence, issuance, market access and ongoing servicing. A Rights Sheet specifies the issuer, instrument, holder entitlements, eligibility, authoritative record and lifecycle. Asset-specific templates support different economic claims within a common coordination model. [S08]

The initial development focus is one appropriately structured asset class with a complete issuance-to-servicing workflow. The pilot covers evidence review, holder eligibility, controlled transfer, settlement and a lifecycle event such as a notice, distribution or redemption. Reconciliation follows the underlying record and the registered token state.

Ghosts can prepare diligence, qualify counterparties, request quotes and monitor servicing. Relevant operators and partners provide custody, market access or regulated services according to the deployment's scope.

Join AS: asset owner, legal structuring specialist, smart-contract developer, custody or registry partner, market operator, accountant or evidence reviewer.

A08. RWA as a Service

RWA as a Service offers a physical result through coordinated assets, Skills and operators. Capability Manifests expose current capacity and constraints; Asset Ghosts qualify demand; the Physical Execution Receipt connects machine state, software version, required approvals and accepted quality. [S09]

The initial development focus is one asset class, one qualified operator pathway and one repeatable customer service. The full lifecycle covers quoting, resource reservation, execution, inspection, delivery and payment, with an agreed rework or failure path. Native control and safety systems remain authoritative for physical operation.

Customers pay the providers of capacity, software, labor, materials and logistics. Repeated execution creates history that can later support financing, insurance and optional asset-specific tokenization.

Join AS: asset owner, operator, industrial integrator, AI Skill developer, quality specialist, logistics provider or customer with a repeatable need.

A09. Blockchain Interoperability

Blockchain Interoperability preserves one logical identity, Resource record and economic view across supported execution networks. Entity and capability registries, intent schemas, adapters, signers, routing, event normalization and finality tracking connect application requests to native transactions. [S10]

The initial development focus is a narrow two-environment workflow with registered representations, explicit supply rules and a reconciled transfer or settlement. Read-only aggregation can precede cross-chain value movement. Compatibility is recorded per adapter, network and tested operation.

Evaluation includes replay, uncertain transaction outcomes, route failure, finality and supply reconciliation. Asset rights and eligibility remain attached to the canonical Resource while the chosen network supplies its own execution guarantees.

Join AS: chain adapter engineer, wallet developer, protocol security reviewer, accounting engineer or infrastructure operator.

A10. AI Trading Arena

AI Trading Arena is a competition and distribution environment for independently owned trading-agent systems. A participant can combine models, private research, quantitative logic, tools, execution and risk controls. The complete configuration receives a versioned identity and a performance history within a defined league. Circles can organize participants and agent teams while the Arena retains its own competition rules. [S15]

The initial development focus is one real-money league with verifiable funded accounts, declared configurations and reconstructable accounting. Every ranked result includes actual orders, fees, funding, slippage, cash flows and interventions. Retired configurations and losing periods remain in the history.

Subscribers can choose intelligence access, confirmed copying or bounded automatic replication where permitted. Agent profiles expose specialization, risk, history, capacity and service terms. Wellness Wallet – AI Managed can consult these agents as specialist intelligence providers under private portfolio permissions.

Join AS: AI trader builder, quantitative researcher, risk engineer, broker or exchange integrator, performance analyst or financial-services specialist.

A11. Predictions Market

Predictions Market organizes collective forecasts around questions with defined outcomes, deadlines and resolution evidence. Its scope includes familiar market, macroeconomic and sports categories as well as Candao-native questions about Quests, Circle delivery, asset utilization and venture milestones. Ghosts connect the forecast to evidence and a user's decision context. [S16]

The initial development focus is a bounded forecasting pilot with explicit resolution sources, conflict rules, pause or void conditions and an appeal path. Internal points-based forecasting can evaluate information quality before a public monetary mode. Market structure can use an order book, automated pricing or sponsored liquidity according to participation and purpose.

Evaluation includes calibration, sample size, source quality, resolution disputes and decision usefulness. Creator, trader and resolver responsibilities remain identifiable, with appropriate treatment of participants who can influence the outcome.

Join AS: market designer, forecaster, domain researcher, resolution specialist, data engineer, risk reviewer or community operator.

A12. AI Sports

AI Sports brings coaches, clubs, athletes, researchers and engineers into a specialized Circle. Permissioned Player Digital Twins combine longitudinal match, training and development evidence. Scouting broadens the candidate pool; development analysis tracks progression; team composition examines tactical fit and combinations. [S17]

The initial development focus uses a partner-supported dataset and a defined scouting or selection baseline. Retrospective validation is followed by an academy or prospective recruitment pilot. Technical, tactical, physical and contextual measures remain role-specific and accompanied by evidence and uncertainty.

Access rules distinguish public performance information from more sensitive health or personal context. Human coaches retain responsibility for recruitment and development. Evaluation measures useful discoveries, false positives, time saved, prospective outcomes and variation across data availability and participant groups.

Join AS: coach, athlete, club or academy, sports scientist, computer-vision engineer, statistician, scout or safeguarding specialist.

A13. AIoT

AIoT connects device identity and live state to Ghost reasoning and Circle coordination. Connectors translate supported device interfaces into normalized observations and capabilities. Edge intelligence handles suitable local processing, while remote runtimes support planning and fleet-level context. [S18]

The initial development focus is one device family and a controlled workflow from observation to an approved maintenance or service action. The pilot records state freshness, credentials, controller limits, required approvals and the resulting device or business-system state.

Evaluation covers disconnection, stale observations, invalid commands, operator override and recovery. Integration, monitoring and licensed Skills can provide commercial value. Physical execution remains within the device's local control and validated operating conditions.

Join AS: device engineer, industrial integration specialist, edge-AI developer, operations lead, telemetry engineer or safety expert.

A14. cBand

cBand explores an AI-native wearable combining Ghost access, wallet identity, key-backed approval and place-specific context. The concept joins an open-cuff form and surrounding display to connected capabilities, with Slim and Wide proportions around one common operating model. [S19]

The initial development focus is a feasibility package and a prototype of signing or the physical context handshake. The wearer sees the request, purpose and consequence; the authorization component holds the relevant key; the Ghost coordinates the approved workflow.

Evaluation covers readable intent, owner verification, removal behavior, recovery and key isolation, alongside mechanical, display, radio, battery and thermal constraints. Manufacturing and support economics follow the validated hardware design. Existing mobile and web interfaces continue to serve the same protocol functions during development.

Join AS: industrial designer, hardware engineer, secure-element specialist, embedded developer, ergonomics researcher, manufacturing partner or interaction designer.

A15. Candao Foundation

Candao Foundation combines venture support, capability matching, allocation of development capital and preservation of valuable talent and assets. Its 2,517,960,000-CDO allocation follows the schedule in Chapter 6. The proposed governance model connects qualified participation to analysis, voting, conflict disclosure and stewardship. [S01; S11]

The initial development focus is an operating charter, defined decision responsibility and a selected team advancing through agreed milestones. Support can include CDO, expertise, infrastructure, distribution or strategic access. Core development and investment-type support use different rights agreements.

The venture model also supports recombination: team integration, technology transfer and new configurations around useful surviving assets. Evidence of work and collaboration informs subsequent formation and support decisions.

Join AS: founder, researcher, professor, investor, operator, mentor, technical reviewer, legal specialist or qualified governance participant.

A16. Candao Platform Internal Team

The Internal Team maintains and develops the shared platform across protocol, product, partner delivery and ecosystem growth. Founder Developers, Founder Creators and Founder Entrepreneurs take responsibility for workstreams that connect technical progress to user and business value. [S12]

The initial development focus is a concrete workstream with reviewed changes, representative tests, controlled release and a continuing incident owner. Partner projects contribute reusable integrations, permission templates or workflows wherever the common architecture supports them.

Evaluation considers delivery quality, continuity, reusable capability and contribution to the team's capacity. CDO, performance incentives and separately negotiated equity or project rights follow actual agreements, including intellectual property and confidentiality provisions.

Join AS: Founder Developer, Founder Creator or Founder Entrepreneur, with a defined responsibility in protocol, mobile, distribution, enterprise delivery or security.

A17. Multirole Houses

Multirole Houses provide local environments in which repeated contact becomes collaboration. A House combines curated meetings, build sessions, creator work, demonstrations and business implementation. Its Ghost connects member intent to the live session, while Circles preserve projects and commitments afterward. [S13]

The initial development focus is one qualified host, a suitable venue, recurring programming and a measurable connection to Nearby, MeetNow and follow-up work. Local businesses can bring workflows for prototype and implementation sessions; partners can commission defined activations and product feedback.

Evaluation concerns repeat participation, completed collaborations, safety, host consistency and viable operating costs. The network can standardize quality and accountability while localizing its program to the city and community.

Join AS: host, local founder, developer, creator, community steward, sponsor, customer, expert or events operator.

A18. Zero Fee Foundation

Zero Fee Foundation develops the contributor movement around direct economic participation and explicitly priced services. Its work combines communication, implementation, organizing, measurement and protection of users. It connects a broad economic principle to functioning alternatives in specific markets. [S14]

The initial development focus is a documented pilot with a defined fee baseline, remaining cost structure, replacement workflow and participant outcomes. Creators and educators explain the mechanism; builders and operators implement it; researchers measure quality and value retained; legal and security specialists review the operating boundaries.

Results feed reusable standards, reference implementations and local replication. Participation can progress from a task to a working group, maintenance, project leadership or stewardship, with recognition and rewards linked to verified contribution.

Join AS: educator, creator, writer, engineer, founder, economist, researcher, lawyer, auditor, translator or chapter organizer.

Appendix B. Glossary

Active identity. An identity represented by software that can use authorized context and participate in a workflow.

Active Proof of Stake. An asset-specific distribution model in which holders stake tokenized ownership or revenue-right instruments and participate under the associated legal and economic terms.

Agent owner. The person or entity controlling an agent's authority and responsible for its participation.

Allocation. A designated portion of token supply reserved for a stated purpose.

Artifact. A versioned output, such as code, research, media or a contract, linked to its task, contributors and rights.

Asset Ghost. A representative of a resource, including its capabilities, operating state, constraints and commercial context.

Brand Token. A brand-specific loyalty and participation token with its own utility, fixed supply template and qualifying market-fee rules.

Business Link. A relationship-research and guided-introduction workflow that develops an evidence-supported path to a specific target.

Capability Manifest. A structured description of the outputs an agent or asset can deliver under current conditions and constraints.

CDO. The Candao ecosystem token, used in defined participation, contribution and development mechanisms.

Circle. A permission-aware working environment connecting independently owned participants, agents, tasks, artifacts, resources and settlement.

Cliff. The initial period during which regular vesting installments remain restricted, separate from any specified initial release.

Demand-Based Circle. A team or organization assembled around an objective, budget, timing and required capabilities.

Demand-Backed Quest. A mission that aggregates conditional customer interest, reservations or support before approaching a provider or organizer.

Execution receipt. A record associating an action with its participating identity, authorization, external result and supporting evidence.

Ghost. A persistent software representative operating for a defined owner within an explicit permission boundary.

Ghost Runtime. The execution environment for a Ghost's model configuration, task context, memory and tool interactions.

Join AS. Role-specific participation indicating the capability a person or agent is available to contribute.

Join Me. An invitation to participate in a specific opportunity, activity or initiative.

Model week. A relative position in the token release schedule; calendar dates require a defined anchor.

Owner Vault. The control layer for identity, key references, recovery and permissions over owner-controlled context.

Permission envelope. The grant identifying actor, owner, purpose, permitted context, receiver, actions, limits, duration and retention conditions.

Physical Execution Receipt. A service record connecting device and job evidence, Skill identity, human approvals, quality acceptance and settlement.

Player Digital Twin. A permissioned longitudinal representation of an athlete's performance, role and development history.

Proof of Quest. Mission-specific evidence of presence, timing, content, performance, acceptance and settlement.

Resource. An asset, right, contract, dataset, capacity or other item a participant is entitled to own, control or coordinate.

Rights Sheet. The specification of an instrument's issuer, underlying claim, holder rights, restrictions, evidence, lifecycle and recovery procedures.

RWA. A real-world asset or associated off-chain right.

RWA as a Service. A physical-service model in which customers buy outcomes delivered through coordinated assets, Skills and operators.

Skill. A versioned software capability with defined inputs, hardware or tool compatibility, permissions, outputs and evaluation criteria.

Staking. A token commitment under specified program rules, including its purpose, duration and withdrawal conditions.

Treasury. An organization's economic inventory of balances, assets, contracts, rights, budgets and obligations.

Twin-Ghost modes. Professional and Personal projections of one owner-controlled identity, with purpose-specific disclosure rules.

Vesting. Release of a token allocation under a specified schedule of restrictions and installments.

Wellness Wallet — AI Managed. Private portfolio coordination using specialist agents, portfolio context and separately authorized execution.

Work Graph. A structured representation of work, capability, demand, resources, dependencies and accepted results.

Zero Fee. The economic design principle of direct value exchange without a permanent platform percentage imposed merely for intermediation, while pricing actual services explicitly.

Appendix C. References

The project design papers below define the architectural and economic basis of this whitepaper. Bracketed references identify these documents; page references use PDF page order.

[S01] **Candao. CDO Tokenomics – Final Listing Allocation and Vesting Schedule.** 5 pages. Supply, allocations, cliffs, initial release and weekly schedule.

[S02] **Candao. Ghost Protocol.** Product Architecture / Concept Overview. 14 pages. Active identity, permissioned coordination, memory, Business Link and physical context exchange.

[S03] **Candao. Circles.** Programmable Economic and Organizational Network for Humans and AI Agents. 9 pages. Roles, multi-owner agents, Work Graph, artifacts, Treasury and settlement.

[S04] **Candao. Data Ownership.** Private Keys, Owned Context and AI-Ready Storage. 14 pages. Owner Vault, encrypted object graph, retrieval, execution configurations and infrastructure authority.

[S05] **Candao. Nearby in Maps.** Ghost-Powered Discovery, Matching and Meetings. 16 pages. Twin-Ghost modes, persistent missions, location policy and MeetNow.

[S06] **Candao. Quests.** Business-Oriented Creator Network. 12 pages. Mission specification, targeting, evidence, reward models and demand-backed participation.

[S07] **Candao. Brand Tokens.** 14 pages. Loyalty, redemption, 21-million supply template, brand claims and qualifying market fees.

[S08] **Candao. Tokenization & RWA Exchange.** 11 pages. Resource rights, issuance, proof, market design and lifecycle servicing.

[S09] **Candao. RWA as a Service.** Physical AI and Economic Infrastructure. 13 pages. Capability Manifests, Skills, autonomy classes, physical evidence and asset economics.

[S10] **Candao. Blockchain Interoperability.** 12 pages. Logical identity, chain adapters, routing, supply reconciliation and settlement policy.

[S11] **Candao. Candao Foundation.** Venture and Talent Architecture. 10 pages. Venture formation, acceleration, governance and recombination. CDO allocation follows [S01].

[S12] **Candao. Candao Platform Internal Team.** 5 pages. Core workstreams, partner delivery and contributor alignment.

[S13] **Candao. Multirole Houses.** 12 pages. Local collaboration, recurring programs, host responsibilities and commercial activity.

[S14] **Candao. Zero Fee Foundation.** Movement and Contributor Architecture. 10 pages. Economic principle, contributor roles, pilots and standards.

[S15] **Candao. AI Trading Arena.** Product Concept / Research-Based Architecture. 12 pages. Funded live competition, agent systems, verification, subscriptions and Wellness Wallet – AI Managed.

[S16] **Candao. Predictions Market.** 10 pages. Question design, forecasting, market structure, resolution and operating modes.

[S17] **Candao. AI Sports.** 10 pages. Player Digital Twins, scouting, development, team composition and pilot evaluation.

[S18] **Candao. AIoT.** 14 pages. Device identity, normalized state, edge intelligence, local control and service coordination.

[S19] **Candao. cBand.** Hardware and Interaction Concept. 16 pages. Wearable interface, key-backed approval, physical handshake and component architecture.

[S20] **Candao Foundation. Team Offer and Operating Terms, v0.4.** English, 2 pages. Six-month start allocation, follow-on support, capital matching and Core / Independent rights pathways.

[S21] **Candao. Matchify Platform Repository Documentation.** PBCandao/official_matchify, README.md. Documented web architecture and product components. Version: a9109bff61e7397c2b56eba0c1bf2d0bfcd9e429.

[S22] BNB Smart Chain. CDO genesis distribution transaction 0xc50592c6...3939f304, block 61,284,508, 15 September 2025. Publicly verifiable on-chain.