


# BTG UNIVERSAL TECHNOLOGY FOUNDRY

The complete technology creation, repair, computing and commercialization platform

## THE COMPLETE SYSTEM DESIGN · OCTOBER 2026

The completed BTG Universal Technology Foundry is a unified technology creation, repair, execution and economic infrastructure platform. Every component belongs to one lifecycle: preserve the original, understand what it does, develop improvements, validate behavior, operate under authorization, and record actual economic use. The platform is being engineered toward this completed architecture; the description is a specification of that destination rather than a claim that each production connection is live today.

Reader note: this document defines the completed platform and intended operations. Current implementation evidence is available separately through the Development Centre.

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# Executive architecture

The Foundry is not a collection of unrelated applications. It is a single underlying technological system with distinct user experiences. BTG Studio is its construction and import interface; NIKI Council contributes multiple independent engineering perspectives; DataChips, Circuits and Genomes carry reusable executable capabilities; ADAM and BTDU preserve canonical meaning, records and repeatable execution; FarmNodes allocate and perform actual computational work; ENTITY anchors identity and permission; Bridge is the owner-controlled point of entry for protected data and contributed computing; Bit Trade Global connects recognized assets with economic rights and recorded technology use.

Every lifecycle transition produces an evidence object naming original source, version, test method, authorizing identity and observed outcome. A failure is retained as failure evidence and never silently converted to a successful technology capability.

## 1. Bring complete systems into the Foundry

A developer imports a complete program archive, connected project repository, dataset, system design or supported AI model. The importer records a byte-for-byte source reference, declared ownership and licence claims, dependencies, settings, required hardware and previously known tests. It distinguishes source the owner is allowed to provide from shared or third-party material that requires separate permission.

Importing a program is not a declaration that its owner may publish, trade or change the source. The first artifact is an immutable snapshot. The second is a proposed dependency graph. The third is a validation plan that separates known behavior, uncertain behavior and intended improvements.

## 2. System understanding and preservation

Original code is examined through supported parsers and inspectors. The system maps functions, service boundaries, database schemas, UI flows, assets, device and network dependencies and expected performance. The intent is to make an unfamiliar system understandable to both its human owner and the Council before any repair is attempted.

The Foundry does not assume every native binary can be reconstructed without source, build tools, signing authority and platform assets. Components that cannot be analyzed receive a clear explicit boundary rather than a fabricated conversion result.

## 3. NIKI Council: create, challenge and refine

The completed Council uses 25 distinct AI seats with meaningful separation between creators, critics, reviewers and specialist evaluators. Each seat has identifiable model provenance and testable responsibilities. Model ideas must be supported by source evidence and challenged through independent tests, including failure scenarios, rather than accepted because a model is persuasive.

The Council may propose a corrected algorithm, an additional DataChip, a new system interface or a more efficient compute plan. Its output is a candidate. Only a result passing defined acceptance checks can enter the reusable component library. That separation is central to dependable autonomous engineering.

## 4. DataChips: reusable units of technology

A DataChip is a versioned software capability with typed inputs, outputs, resource requirements, provenance and declared safety boundaries. DataChips are not physical silicon chips. They can represent calculations, source parsers, geospatial operations, service adapters, AI evaluation steps or other bounded computing functions.

A chip becomes useful only when its behavior can be repeated with the same declared inputs and constraints. The Foundry preserves what it does, how it was tested, which rights govern it and which execution environments it can operate within.

## 5. Circuits and Circuit Genomes

Circuits connect multiple DataChips through typed interfaces, explicitly defining intermediate data, sequencing, decisions and error behavior. Circuit Genomes describe complete composable capabilities, including versions, dependency hashes, required resources, safety limits and replayable acceptance suites.

This creates a practical pathway from fixing one application to constructing components that a second application could safely reuse. The system does not automatically grant portability; compatibility must be demonstrated through tests on the target platform.

## 6. ADAM and BTDU: authoritative knowledge and execution

ADAM orchestrates approved state transitions and execution under defined policy. BTDU retains authoritative payloads, structured meanings, provenance and the ability to reconstruct semantic views without changing the underlying source of truth. The complete design avoids parallel, conflicting databases pretending to be equally authoritative.

Receipts for installed Genomes, state transitions, authorizations and executions are linked to the actual source and test history. Hashing and deterministic replay provide evidence that a later observer can inspect. A receipt is a record of what happened, not proof that a separate economic or legal right exists.

## 7. Research-derived engines incorporated as optional accelerators

Historical AION, ARCI and ForgeNet work may contribute validated semantic-computation techniques, deterministic proofs, data preparation, model tooling and adaptive routing. These are plug-in engines subordinated to the Foundry's authoritative identities and data lifecycle.

No independent experimental substrate may replace ENTITY signers, the canonical BTDU payload or approved execution policies merely because it offers a similar feature. Each adapted engine must demonstrate a clear performance, reliability or comprehension benefit under equivalent test conditions.

## 8. Adaptive computation on real hardware

Before executing a workload, the Foundry measures the available CPU threads, memory, GPU features, storage, device permissions and relevant network constraints. It selects a safe local execution plan, streaming data strategy, algorithmic simplification or authorized offload to a FarmNode host.

This cannot magically transform a local GPU into a larger physical GPU or erase network latency. Adaptation changes the execution strategy and where work runs. Benefits are judged through actual completed jobs, memory and energy measurements, speed, resource protection and result equivalence.

## 9. FarmNodes and the host fabric

A FarmNode is a logical computational unit that may execute a chip or Circuit. A physical host can carry multiple FarmNodes with declared capabilities and isolation boundaries. Users or organizations may volunteer part of an authorized computer's resources, and the host only accepts work compatible with its permissions and operating limits.

The network records which physical device actually performed work, what resources were measured, what was completed and how the output was verified. Merely registering a machine, listing 1 million instruments or declaring available RAM does not constitute real investment value.

## 10. ENTITY: unified identity, permissions and ownership evidence

ENTITY is the planned shared identity and authorization backbone across BTG Studio, the FarmNode Host, Bridge and Bit Trade Global. It records actor identity, delegated authority, rights, events, usage boundaries and revocation. Each product remains an interface to the same trust relationships rather than inventing new credentials and incompatible consent databases.

ENTITY documents assertions and evidence of rights; it does not create legal title simply by issuing a cryptographic identifier. Ownership and permitted use depend on lawful sources, explicit agreements and verified authorization.

## 11. Bridge: owner control of data and computing

Bridge lets individuals, developers and organizations connect protected information, approved data sources and opt-in computer resources to the Foundry. Owners select what may be accessed, by whom, for what purpose, for how long, and what happens when permission is withdrawn.

Bridge is neither a market exchange nor an automatic transfer of ownership. A person may allow a dataset to support a particular analysis or provide constrained compute without agreeing to publish private files, monetize personal information or issue investment instruments.

## 12. Bit Trade Global: the economic layer

Bit Trade Global remains a separate branded market and economic product within the Foundry. Data, executable software, algorithms, original inventions and technology-use rights may be described as assets with documented provenance and terms. The Exchange keeps instrument details, issuer profiles, historical executions, entitlement records and separate commercial or financial ledgers.

Three classes must remain distinct: permission to use a technology, a transferable contractual or intellectual-property right, and a legally issued financial investment security. Licensed usage may support commercial revenue; investing in an asset-related business is not ownership of a copy of the data. Real market orders and settlement require their own legal and operating authority.

## 13. From contribution to attributable economic value

Under a defined participation agreement, a contributor’s computing resources may execute part of a qualified workload. If the work is actually completed and accepted, the system records device identity, consumed resources, authorised use and contractual entitlements. A properly formed asset can create recurring value when another party obtains permission to operate a qualified capability.

The internal value model must not count promised computing, uncompleted jobs or an invented token price as earned economic value. Asset descriptions, actual license sales, contractual income, payouts, securities transactions and cash settlement each have independent evidence requirements.

## 14. Products that share one foundation

HuntAR, SearchAR, HikeAR and other field applications should use common typed computing and rights services while retaining their unique camera, GPS, legal, navigation, incident and industry-specific workflows. The first demanding validation use case is HuntAR because orientation, AR overlays, live 2D mapping and device performance must work together.

A second unrelated application is necessary to demonstrate the Foundry’s general usefulness. Success in one bounded numeric task or one source importer is a starting point, not evidence that any arbitrary application can be repaired and shipped automatically.

## 15. Safety, rights and deployment lifecycle

A version moves from intake to an identified candidate, reproducible tests, independent evaluation, owner approval, signed native packaging, real-device acceptance and monitored release. Failures retain their tests and logs. Security policies limit model disclosure, unapproved hardware actuation, private data access and economic transactions.

Authorization is applied at every critical boundary: source import, AI provider sharing, compute placement, device control, signing, commercial licensing and market settlement. High-stakes software demands stronger tests and appropriate human control.

## 16. Education through Boundary Tech Generation

The planned independent nonprofit initiative provides free local technology education in Grand Forks and Boundary Country, using BTG-donated educational software. Children learn through safe game creation, apps, simulations, robotics and software projects, with age-appropriate teaching and guardian controls.

The education environment is separate from Bit Trade Global trading, private contributor datasets and live device farms. No child is compelled to join a commercial platform or surrender original student projects to participate.

## 17. Completed-system experience

A user opens BTG Studio and imports a supported source archive. The application displays detected subsystems, warnings and the original snapshot. The Council proposes repairs; the original system’s behavior becomes a frozen testing reference. New DataChips are assembled visually, independently challenged and routed through the ADAM/BTDU engine on appropriate FarmNodes.

When qualified for the intended devices, an owner-approved signed release is exported. ENTITY retains the rights context; Bridge governs consent and contribution; Bit Trade Global can register authorized assets and accurately record their real use under separate commercial terms. The original project remains recoverable.

## 18. Definition of completion

The Foundry can be called complete for its defined supported scope only when the import-and-repair cycle works from real input to genuine target installation, with reproducible tests and rollback. Identity and rights remain unified. Three independent physical hosts are demonstrably governed and metered, and independent model review operates as specified.

Completion is not simply a source consolidation, a catalogue of model seat names or the number of registered logical nodes. The technology must be judged on end-to-end function, user experience, ownership control, safety, measurable performance and reliable economic records.

# SOURCES & PUBLICATION CONTROL

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