



Orchestrating Multi-Step AI Processors and RAG Applications on-chain

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Abstract

The GURU Network provides a transformative platform for startup innovators and dApp builders, integrating AI and blockchain technologies to simplify the development process and operations of startup as a business. Through the FlowOrchestrator tooling and interface, the network offers low-code solutions and snippets that focus on business ideation rather than technical complexities. This enables builders to focus on creating value in non-crypto adoption niches with intuitive tools that streamline AI-driven processes such as GPT Completions and RAG(Retrieval-Augmented Generation) Memory Embeddings. Our ecosystem prioritizes mass adoption projects by empowering founders from mainstream markets, offering an accelerator program that provides mentorship and early adoption incentives.

Early adopter's projects already utilize the FlowOrchestrator for initial setups, preparing for a transition to a decentralized orchestration layer on the GURU Network mainnet. This strategic integration of technologies underpins the GURU Network's mission to provide new economic means and support for entrepreneurs, fostering an ecosystem where innovation is supported from ideation to market-ready deployment. Rather than fearing AI's impact on job security, the platform allows individuals and companies to leverage AI to enhance efficiency and create new opportunities. By providing tools that integrate AI into daily routines and business operations, the GURU Network and \$GURU token sustains the economic model, encouraging participation and innovation within this vibrant ecosystem.

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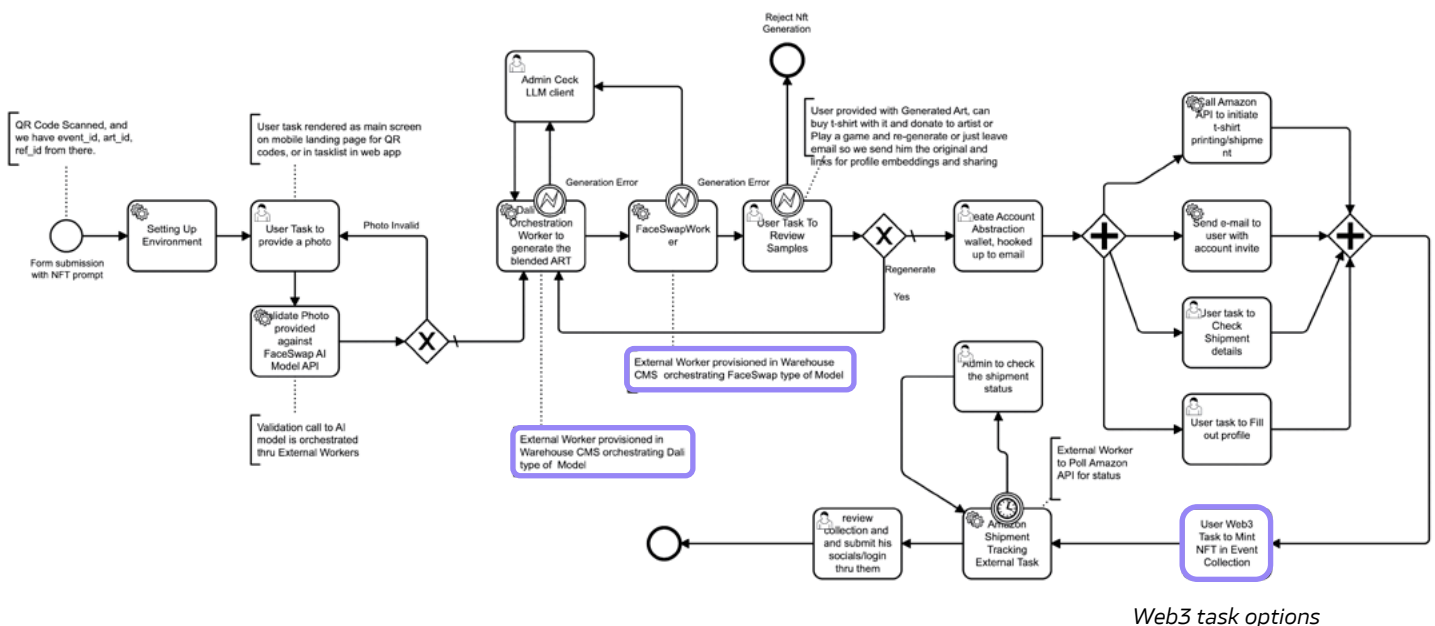
Summary

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Introduction

DexGuru is preparing to launch a new GURU Platform, which is focused on AI, data, and user flow orchestration. The platform was developed iteratively as a core backend for DexGuru's existing products, such as Block Explorer, Data Warehouse, and Trading Terminal. It allows the building, deploying, and maintaining of new applications and mechanics, while the GURU Platform operates as an infrastructure layer. In addition to productizing existing systems, we introduce a new execution layer (on-chain/off-chain/user/AI) which has its roots in one of DexGuru's previous hackathon projects, ChainFlow([GitHub](#)), which has been reused for DexGuru's points system as FlowOrchestrator.

How does the GURU Platform Work?



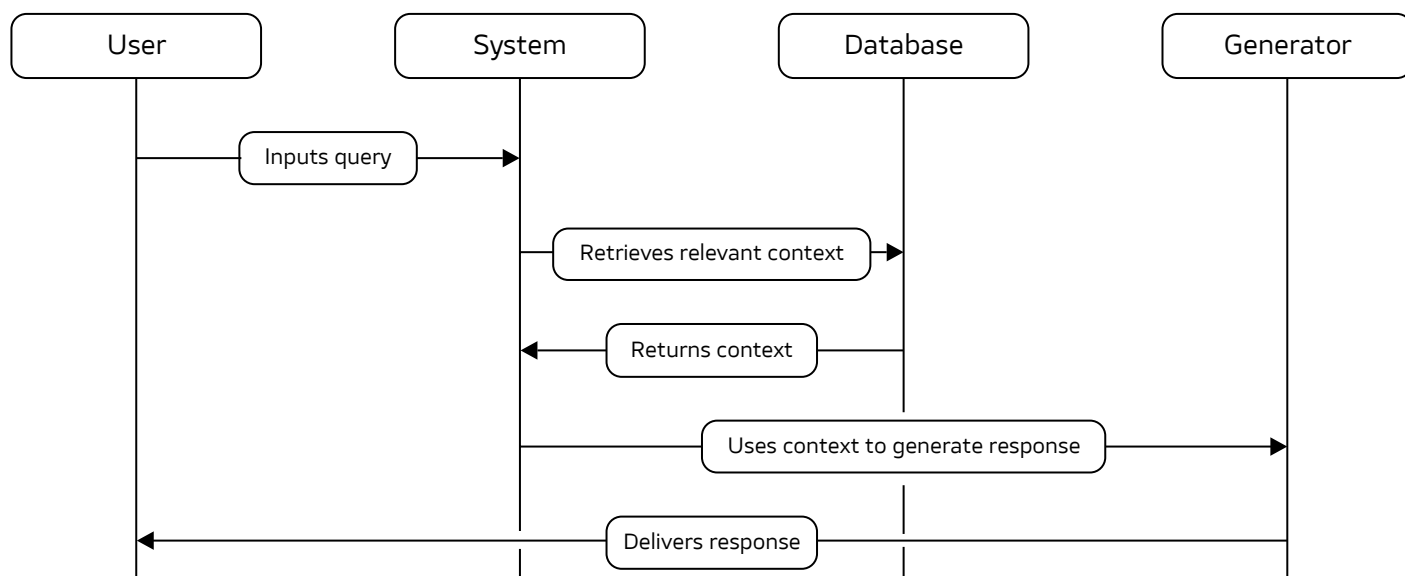
The GURU Platform is focused on providing dApp developers and users with an orchestration layer and offers single execution context for a variety of environments (on-chain/off-chain/user/AI interactions). We aim to achieve a mutually beneficial situation where dApps developers can try and achieve results fast, focusing on their business use cases more than technical aspects of future apps.

Real-world actions are managed through the user's task list, and automated and on-chain actions through service workers. AI models have their task lists distributed across all computation nodes. Using GURU Platform is beneficial for participating parties:

For dApps Developers

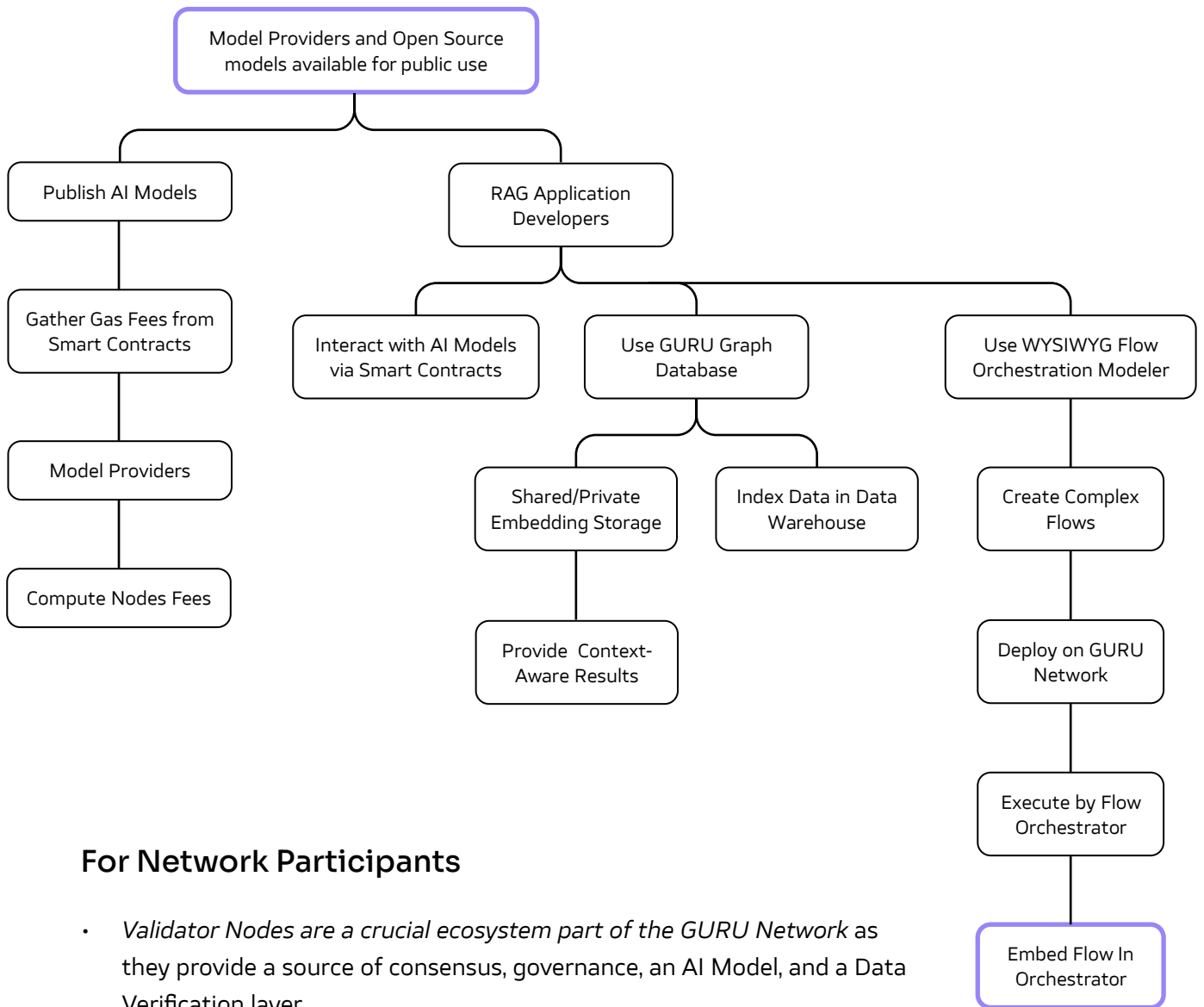
- *Embed blockchain data dashboards and pages as no-code solutions* directly into front-ends. *Ready-to-use, battle-tested process snippets* allow for fast, “hackathon” style development, most of which happens in platform interactions in a low-code building mode. Those snippets may automate and simplify the processes like token transfers and checkout and hook up to more comprehensive mechanics like stacking or dynamic liquidity management.
- *Utilize the task list interface available out of the box for asynchronous user interactions or support-type scenarios, handling Errors through tasks assigned to the admin/support team.*
- *Execute on-chain actions triggered by off-chain events* or scheduled. These triggers could be based on any off-chain or business actions in the BPMN engine.
- *The Platform Rest API wraps up all the main components of the BPA definition*, allowing for easy use and integration from the front or back end and different statistical metrics pipelines. The core of the GURU platform consists of *an Events Bus* we expose externally (Websockets), available for utilization as a trigger events feed.
- *Our External Workers concept allows dApp developers to orchestrate* execution of blockchain/GPT transactions in a *non-custodial* way. The user controls the execution runtime of ExternalWorkers (running them locally, for example), sharing his private key to sign those executions only with the worker running locally. This concept is also open-sourced and battle-proven.

For RAG(Retrieval-Augmented Generation) Applications Developers and AI Models Providers



RAG Mechanics consists of GPT which is aware of application context anyhow. In the case of GURU AI we are talking about blockchain transactions, assets, prices, liquidity and volume dashboards available as RAG Application context by default. On top of it dAPPs developers can add their own data. GURU Platform provides an easy to use interface to create, store and query *embeddings* for *RAG context*. That creates additional economy scaling mechanisms within the GURU network:

- *RAG application developers can choose from a variety of supported models and providers* running them within the ecosystem.
- *External Workers are provided in the form of templates, allowing for easy-to-use GPT-type integrations.* These requests occur at the infrastructure level and are distributed across compute nodes registered on the GURU Network (compute nodes reference smart contracts). The network provides decentralized, censorship-free compute with SLAs tested and validated by compute node stakes.
- *Model providers publishing AI Models for distributed computing.* As an AI Model publisher, users gain a percentage of gas fees spent on gas interactions with the model-reference smart contracts; the rest goes to Compute Nodes.
- *Use the WYSIWYG Orchestration Modeler to create complex flows* that combine on-chain/off-chain/User/GPT interactions with business logic. Composed process definitions can be deployed on the GURU Network and executed by the Flow Orchestrator.



For Network Participants

- *Validator Nodes are a crucial ecosystem part of the GURU Network as they provide a source of consensus, governance, an AI Model, and a Data Verification layer.*
- *Compute nodes running AI models earn computation fees through CSR (Contract Secured Revenue). Fees paid by developers interacting with deployed model-reference smart contracts, and verified by validator nodes.*
- *There are dedicated (full-time) compute nodes and GURU Wallet SDK compute nodes with lower tier expectations.*
- *EOA Accounts representing regular users allowed and incentivized to utilize provided AI orchestration snippets as GPT assistants. As an example use case it can be delivered as a browser extension hooked up to GURU Wallet SDK.*
- *GURU Wallet serves as a window into GURU Network participation. As a builder, user or compute node runner wallet serves as the main interface to communicate with the Network and control all the processes/projects attached to the account. Ecosystem dApps are listed at hotspots in Wallet and Platform.*

- *Data analysts and developers can monetize their APIs and Queries by publishing them within the ecosystem. When published, a query-reference smart contract is deployed on the GURU Network, which allows developers to utilize this data for smart contract execution. Whenever someone pulls data from these APIs, the GURU Network Oracle tracks their usage, and any profits generated are shared with the developers. This function creates a mutually beneficial system where developers can earn revenue from their data, and users can access valuable information through the smart contract.*

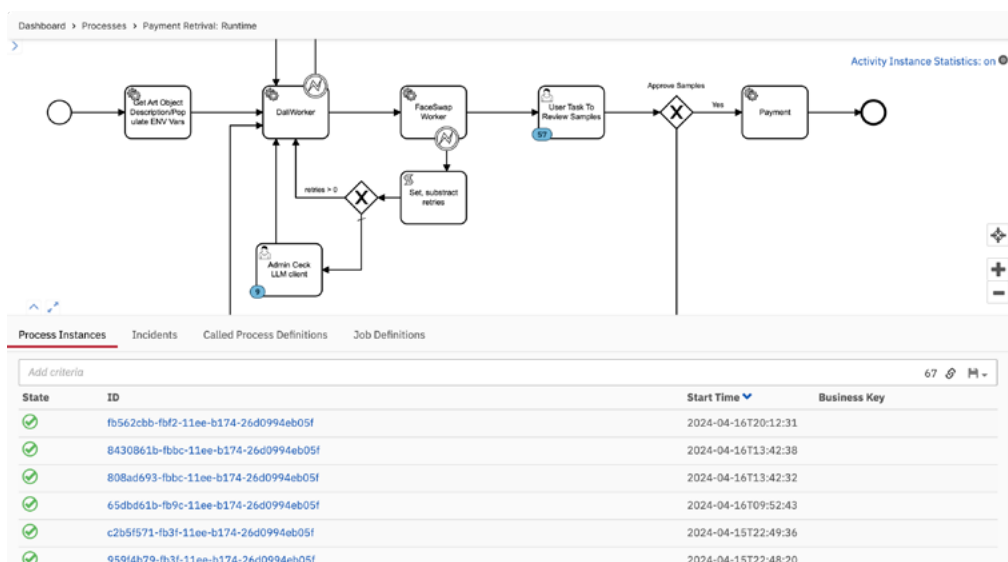
Core Platform Components

One of the main problems we must solve to achieve crypto mass adoption is the fragmentation of data, users, off-chain and on-chain mechanics. This situation would worsen with processes handled by AI models coming into place. In Web3 world we see how fragmented ecosystems have siloed TVLs, blocking the industry from moving forward. We are playing on the same field of fighting against fragmentation provisioning tooling to merge all execution contexts.

GURU Platform serves as an interface for network participants to manage and administrate services provided by GURU Network using Flow Orchestrator and Data Warehouse.

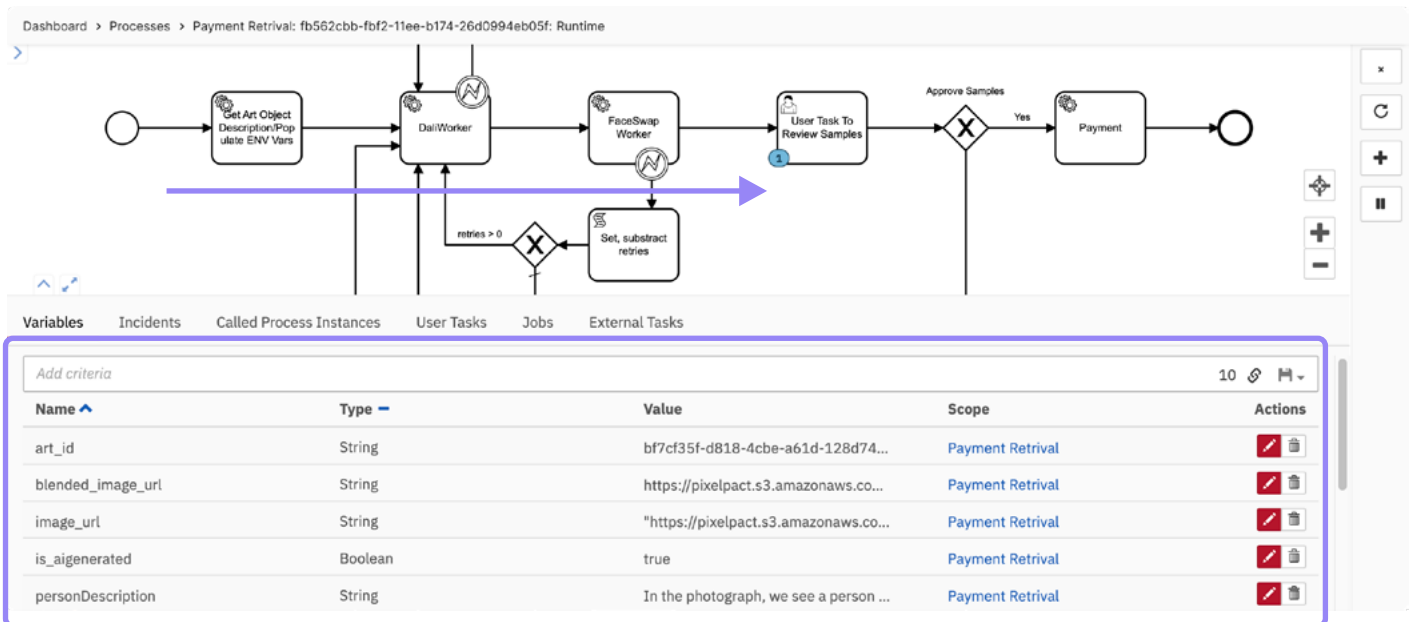
Flow Orchestrator

FlowOrchestrator provides a single execution context for multiple orchestrated environments, including on-chain/off-chain, AI, and local and decentralized contexts. All those environments share the same process runtime context, the easiest to explain on a diagram:



Where is the context of each process instance:

*Context container shared across execution environments AI/User/OnChain/OffChain
in a context of one BPA run*

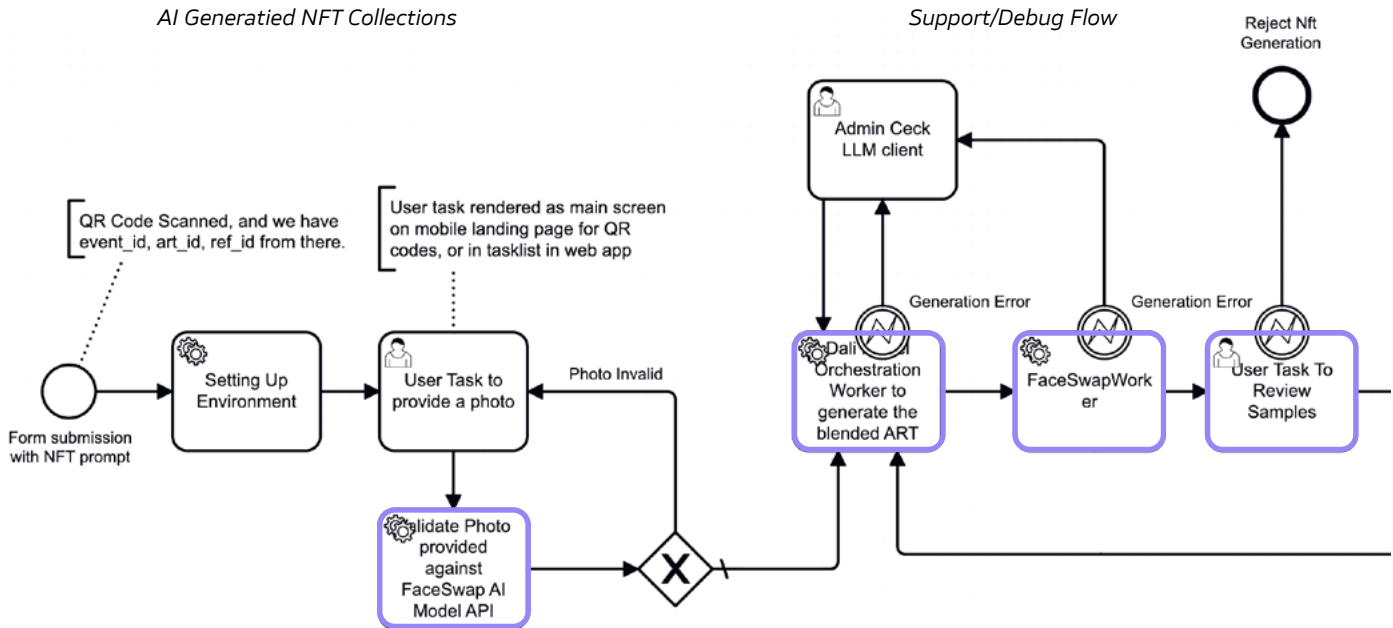


FlowOrchestrator provides an interconnected state machine for business process instances runtime. The architecture includes the Event Bus of the FlowOrchestrator exposed on-chain as native GURU Network orchestration oracles. They can participate in on-chain activities and or off-chain dApps interactions, allowing for incorporating dynamic responses into reactive front-ends. FlowOrchestrator, after public release, would allow to:

- Design complex flows and comprehensively orchestrate on-chain/off-chain, users, microservices, and AI interactions asynchronously with the shared context of multi-platform runtime.
- Seamlessly orchestrate multi-step LLM/AI models, allowing for sophisticated decision-making and automation directly within smart contracts or on dApps level over exposed APIs.
- Analyze and optimize BPA definitions based on execution history data available with every step input/output variables.
- Complete Transparency of BPA definitions and deployed on-chain reference contracts allows onboarding of RWA(Real World Assets) Escrow projects with a comprehensive line of participants and flow gates.
- Reuse Published BPA Definitions, facilitating seamless user interactions with blockchain and AI-based services.

- Distribute Execution when working in pairs with GURU Wallet, which allows remote execution from FlowOrchestration on particular actions.

AI Generated NFT Collections



Data Warehouse

Warehouse provides an easy-to-use interface where users can compose their process and dApps. Orchestration tools available:

- On-chain interactions as snippets for token transfers, swaps and checkout.
- Generative models orchestration snippets for images and context aware chat completion generation.
- Data queries, dashboards and signals as oracles. Those snippets are attached with components we provide as SDK for front-end (NextJS, React).

When a user gets to project deployment flow, we generate the code package as a docker image. Image/source code could be deployed in the cloud under the user's account or in any other way.

\$GURU Token Utility/Tokenomics

The GURU Network's ecosystem is designed to be a comprehensive and self-sustaining blockchain community that fosters innovation, participation, and growth. At the core of this ecosystem are the \$GURU token, and the \$wGURU native-wrapped token. These elements enable a robust DeFi ecosystem.

A robust and functional DeFi ecosystem would allow GURU Platform dApps users to orchestrate comprehensive financial activities like liquidity yield management, stacking, lending marketplaces, etc. Orchestrated processes allow for a micro-transactions economy where collected funds are released upon completion of tasks by the creator and getting approval from the third party. To power up such an ecosystem, we plan to deploy GURU DEX as the initial ecosystem exchange operations platform, with the original DexGuru Terminal interface as the main gate to it. GURU Dex would have wGURU tokens utilized as reserves across other ERC-20 tokens in the ecosystem, representing separate business processes, AI models, queries, and other types of ecosystem participants in GURU Network. Also, GURU Dex and GURU Token are crucial for Bridge integrations, as Bridging providers need a DeFi ecosystem in place to execute orders.

Core ERC-20 Components of the GURU Network Ecosystem:

- *\$GURU Token*: The \$GURU token remains central to the ecosystem as an externally circulating utility value accounting unit that enables service and transaction provisioning and fees for various operations, including the publishing of APIs, AI models, dashboards, and process definitions. It also plays a crucial role in the FlowOrchestrator system, enhancing dApp functionality and efficiency.
- *\$wGURU Native Wrapped Token*: key to bridging the GURU Network with other blockchain ecosystems, expanding the utility and accessibility of \$GURU tokens. wGURU enables users to participate in DeFi applications within the GURU Network.

Ecosystem Governance

Ecosystem projects from vendors and clients are planned to have governance stake in the GURU Network Ecosystem. The exact framework of the future governance system will be provided at a later date, before the mainnet launch. The main mechanics and governed “handles” would be tested during the Testnet phase.

Staking Mechanisms

Staking within the GURU Network involves locking \$GURU tokens to support network operations and security. Participants are rewarded for their contributions, which include securing the network and facilitating transactions. Staking is a foundational element of the network's economic model, incentivizing participation and long-term commitment from its users.

Currently, we are researching bridging solutions for available options on stacking on bridge architecture, which would make sense for \$GURU as the primary utility token of the FlowOrchestrator ecosystem.

Contract Secured Revenue

CSR[3] generated from transaction fees, service fees, and other operations within the GURU Network is strategically distributed among contributors, stakers. This distribution strategy is designed to ensure the sustainability and continuous growth of the ecosystem, rewarding innovation and participation while supporting the stability of the network's financial infrastructure.

Service Economy Financial Flow

The utility value of GURU Network Native GURU token is crucial to GURU Network's economy. The token serves multiple critical functions, serving as a unique checks and balances financial ecosystem where each participant is balanced over the \$GURU token economy through the web of multiple financial cross-incentives. After starting the “ecosystem bonfire”, we would have participants throw “more firewood” into it. GURU Platform as an infrastructure layer should provide an uninterrupted supply of “oxygen” through \$GURU token. It should participate in different forms in all the processes and balance the whole ecosystem through specially crafted burn/utility rates ratios on the gates there. \$GURU Token circulation on-chain consists of:

- *Transaction and Service Fees:* The \$GURU token is integral for enabling operations within the GURU Network. Contributors utilize it for listing APIs, AI models, and dashboards and for defining processing workflows. This mechanism facilitates a straightforward means for contributors to offer their innovations and services directly to the network, emphasizing the token's utility in empowering technological and operational advancements.

- *AI Usage and Compute Fees:* utilizes \$GURU tokens as native currency for gas utilization where all compute fees and AI model usage royalties are included via CSR mechanism.
- *FlowOrchestrator Fees:* The Orchestration layer, powered by our proprietary FlowOrchestrator system, utilizes \$GURU tokens for on-chain/off-chain process modeling. This innovation allows dApps to integrate transaction widgets and automated workflows, enhancing user engagement and operational efficiency.
- *\$GURU Token justifies Operational Efficiency via FlowOrchestrator:* The \$GURU token is essential for the functioning of the FlowOrchestrator system. This system is critical for integrating transaction widgets and automated workflows into decentralized applications (dApps) as Native. The token's use in this context underscores its role in enabling and optimizing network operations rather than serving as an investment vehicle.
- Points system shared across ecosystem projects providing cross marketing and cross offers opportunities for ecosystem participants. \$GURU token serves as a value transfer mechanism during cross-dApps marketing campaigns when they expand their user adoption silos.
- The \$GURU Token deployed towards Ecosystem dApp smart contracts serves as an infrastructure subsidy from the infrastructure provider under the planned Ecosystem Growth Accelerator program.
- *Value:* The externally circulating supply of \$GURU tokens provides exchange utility and provisioning liquidity for the GURU Network, helping to jump-start the project ecosystem and faucet-type mechanisms for the GURU Platform.

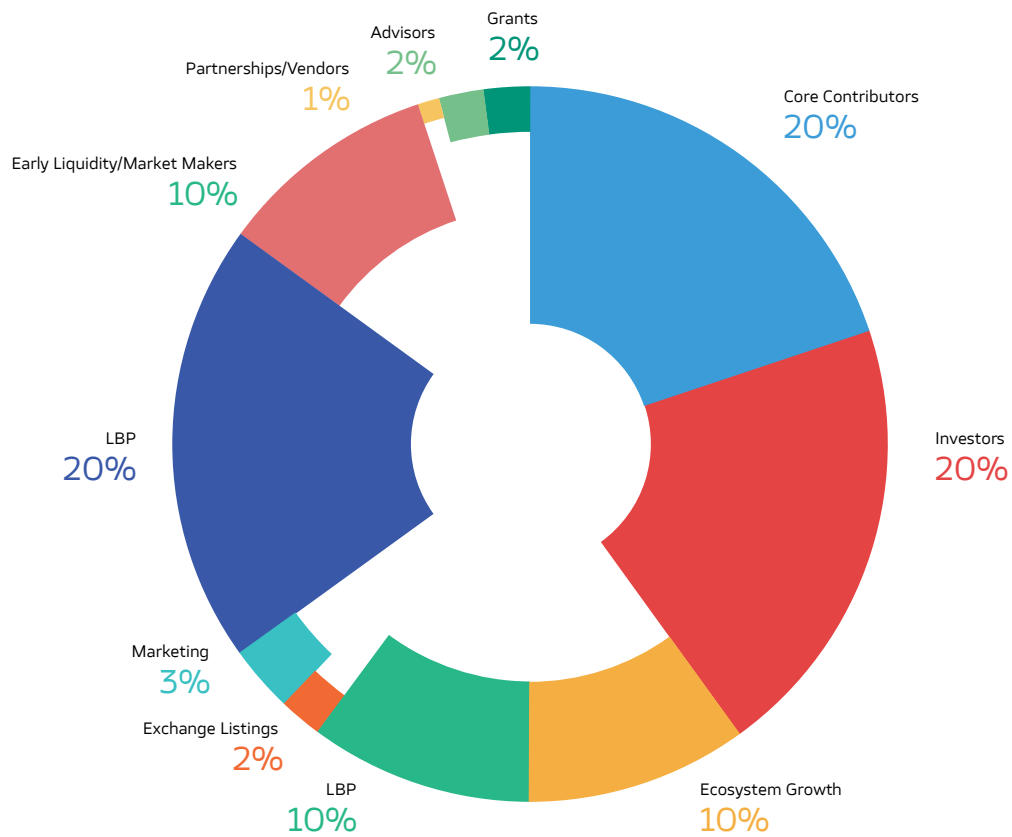
Fees acquired are distributed between ecosystem participants and \$GURU token stakers. All interactions with reference smart contracts are evaluated and paid in native \$GURU token as gas fees, so keeping different burn/royalty exchange ratios for different types of content and orchestration assets would allow the GURU community to govern the economy towards a balanced state.

Token Allocation and Distribution

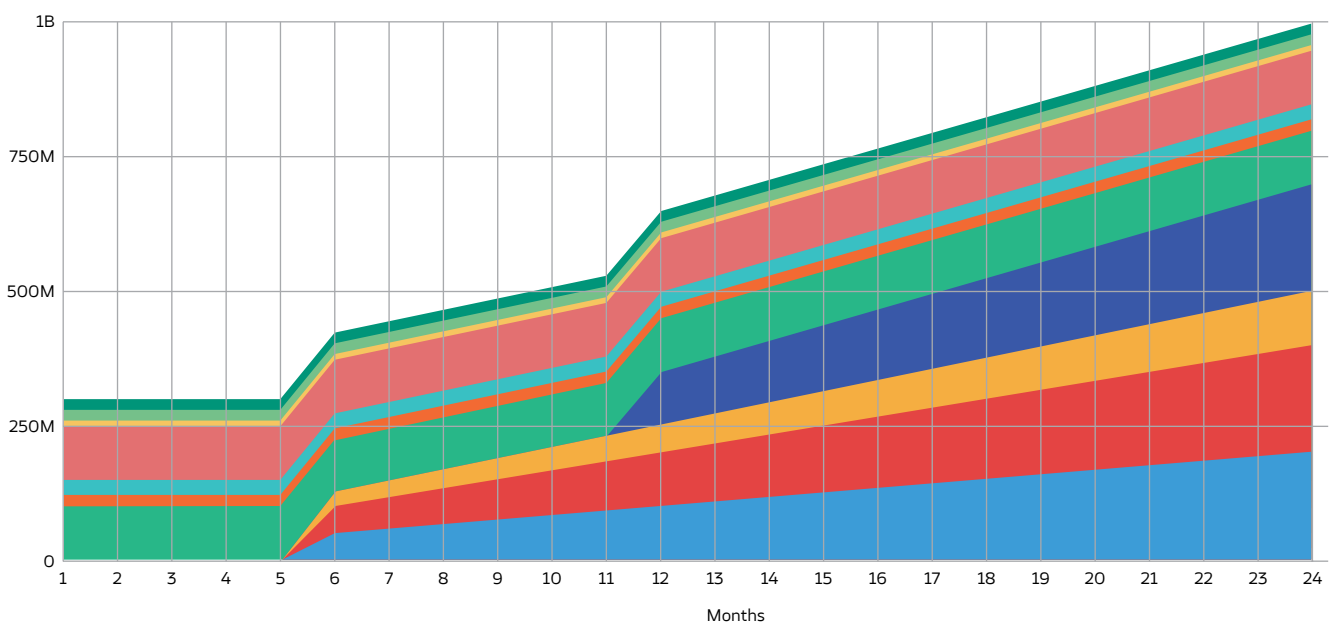
Smart management of \$GURU Token Allocation and distribution for token supply is especially crucial for keeping the whole ecosystem economy balanced and functioning correctly. *Launching and circulating the \$GURU Token externally to the GURU Network counterbalances all GURU Network operations.*

With those means in mind, DexGuru suggests the following vesting plan.

- *Total Supply:* 1B \$GURU tokens to ensure a finite supply for maintaining value.

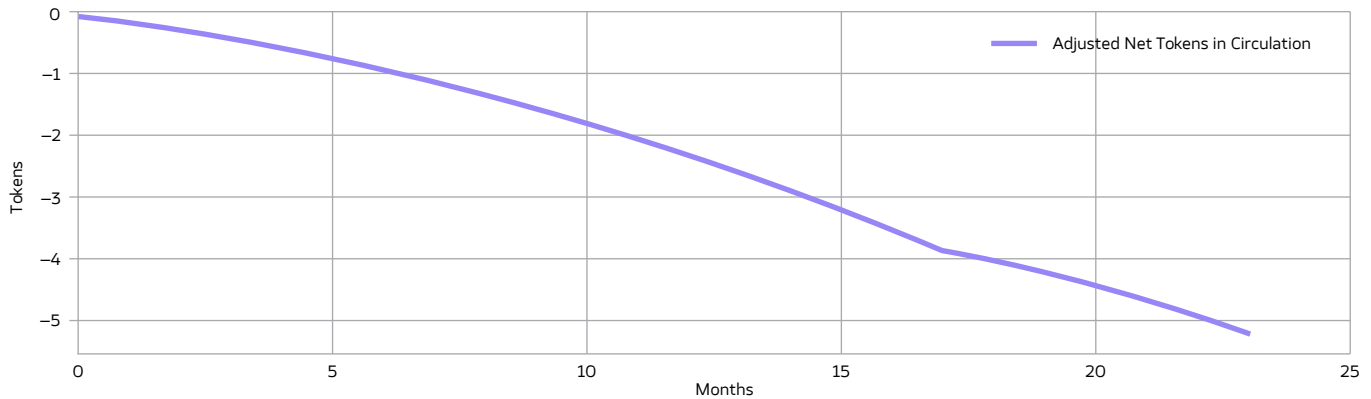


- *Vesting Schedule:* Vesting schedule happens in a 24-month window with events adjusted to a projected roadmap.



- *Price Impact*: Calculated price impact based on vesting schedule and roadmap goals.

Adjusted Impact of Vesting Schedule and Roadmap Goals on GURU Tokens Circulation



The vesting plan also includes correlations of the vesting schedule with Roadmap deliveries, so price impact is counter-impacted by development and adoption traction.

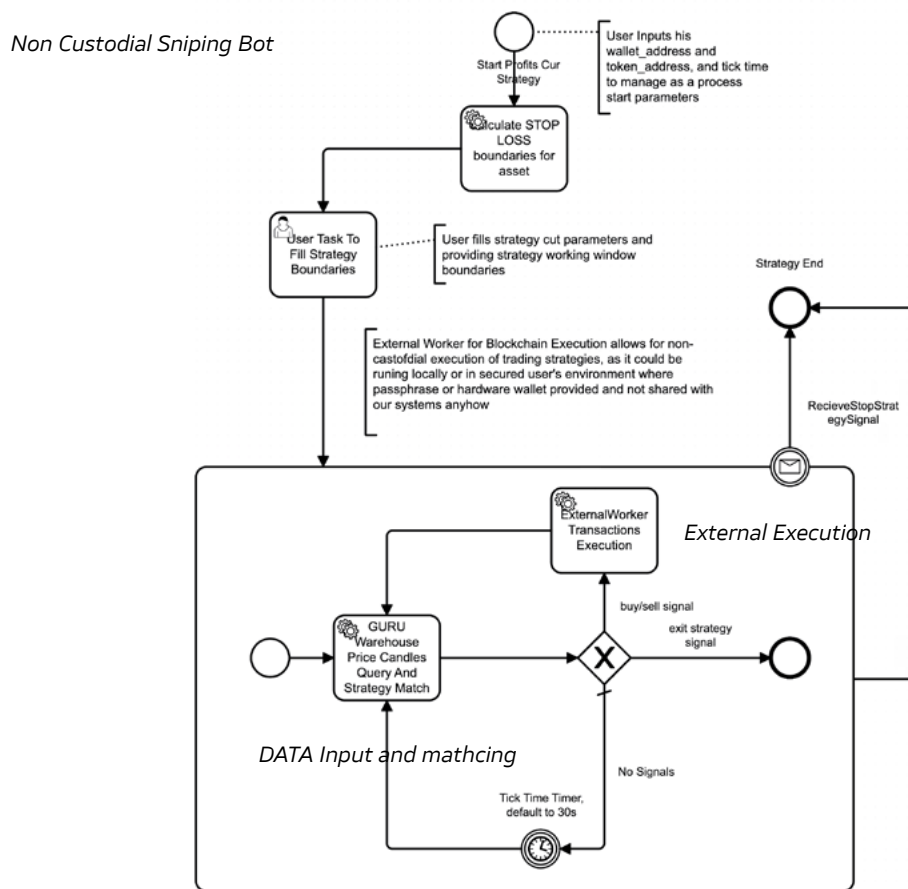
Ecosystem Applications Markets

We expect Ecosystem Applications focused on following markets:

- RAG Enterprise applications are distributed through business development/ demo pipelines promoting Blockchain Process Automation and GURU Platform as a space where AI functionality is balanced with the Blockchain ecosystem and all financial tooling coming along. Deployed and maintained by Integrators presented in Ecosystem. Examples here could be Documentation/Code-aware assistants for blockchain developers.
- Social Fi applications: The fluid nature of our BPA definitions allows the orchestration of different kinds of social mechanics, gamifying the Application experience to the level no one realizes they are onboarding into Blockchain and ERC-20/721 world. An example use case is early adopter project <https://pixelpact.ai/>, where Attendee -> Art interactions through the application are gamified and allow the creation of new art using Multi-Step AI orchestration, which participates further in an orchestrated crypto economy.

- Chatbots and Chat Personal Assistants: We provide easy-to-use telegram and discord bot SDK, which allows builders to create new bots with steps orchestrated against GPT models within our Composer solely, and deploy from locally on Guru infrastructure. FlowOrchestrator provides an option for non-custodial execution through external workers operating in a secure environment.

Using Data Warehouse to build the buy/sell signals calculator, we can combine it in a solid process of a Non-Custodial sniper bot. We can also back-test using years of data:



- GAMEDev Tooling: Game developers want to focus on game process design, mechanics, and balance and not on orchestrating the financial side of Web3 economics or AI orchestration for game item generation. Items are marketplaces with minting and generation through image generation models. We see those products as possible and welcome them into our ecosystem.
- BPA Snippets, Widgets, Queries, and Dashboards providers: Building content around our platform, utilized by dApps built on top, creates a new market, as they all participate in the CSR economy. Those listed markets allow us to illustrate solid clues on the usage of our product and future market adoption.

Key Strategies

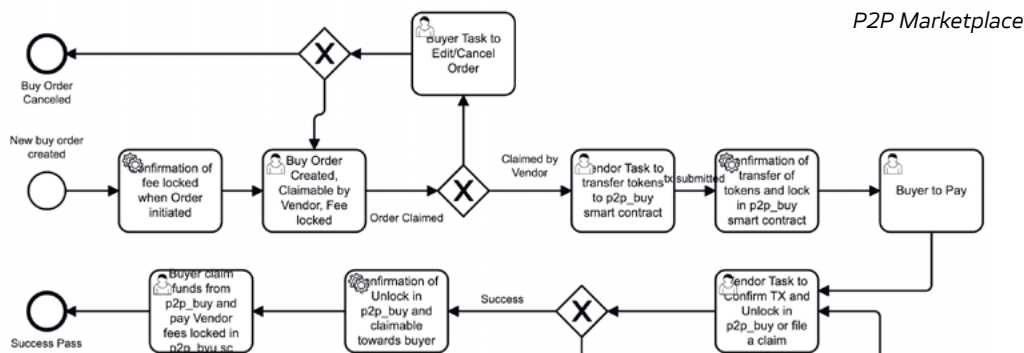
- *Community-Centric Development:* Foster an active, engaged community around our platform by facilitating open dialogue, crowdsourcing ideas for platform enhancements, and regularly updating on development progress.
- *Expanding Use Cases:* Collaborate with artists, developers, and content creators to expand the range of dApps and use cases, showcasing the versatility and potential of the \$GURU token within and beyond our ecosystem. Launch pilot projects in various sectors (e.g., art generation, financial bots, data analytics) to demonstrate real-world utility and encourage broader adoption.
- *Educational Initiatives and Workshops:* Develop a series of educational programs, tutorials, and workshops aimed at users of varying skill levels, from beginners to advanced developers, to lower the entry barrier and encourage experimentation and creation on our platform.
- *Incentive Programs:* Introduce incentive schemes such as airdrops, staking rewards, and competitions to reward early adopters and active community members.

Benefits

- *Processes:* GURU Platform will bring all business processes to the forefront and allow start-up businesses to utilize different AI orchestration snippets in their workflows. For example, a GPT-type orchestrated multi-step business process or protocol-aware RAG application could be provided as an API or embeddable component in *GURU Ecosystem Applications*. Appropriately applied and embedded in the Customer Service pipeline of service, those BPA-making processes are effective while allowing for new client <-> provider <-> ecosystem mechanics, which were impossible before.
- *Markets:* Build on top of Ecosystem knowledge base to launch and iterate faster with on-chain/off-chain/AI and user's actions.

dApp Accelerator and Ecosystem Niche

GURU Network and FlowOrchestrator tooling are focused on providing no-code solutions to builders and creators who want to focus on solving their main business idea problems and not Wrap/Stake/Swap/Mint technical details. These low-code solutions, BPA definitions, and snippets gallery are implemented in an easy-to-use gamified interface, allowing users to design their future businesses at the start.



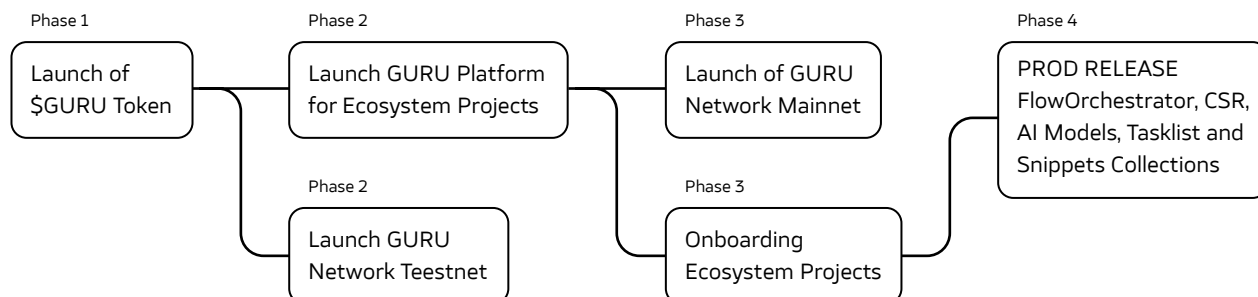
Based on their ideas, this audience would lean more towards projects tackling the noncrypto adoption niche. GURU Platform provides simple tooling combined with cutting-edge tools, people tasks orchestrated, and LLM models providing results in GPT Completions and Embeddings in RAG Memory. However, the user sees an intuitively understandable interface where he builds his new startup through a set of wizards and orchestrated achievements. Mass Adoption Focused Projects with founders came from Mass Adopted Niches. That is our focused audience for the ecosystem, while the tagline and main idea focused on providing new economic means to those participants.

Incorporating AI in their business processes first when building dApps with us, and then trying them attached to their wallets as personal assistant browser extensions (grant program for builders ecosystem priority ideas) as an example use case of possible mechanics there.

As a part of our roadmap, we plan on completing the soft onboarding of dApps into the ecosystem early. During ETHDenver DexGuru partnered with PixelPact.ai and NiftNet projects and is now assembling POC utilizing forked FlowOrchestrator. Those early adopters will benefit from our mentorship and help on every level and feel like they have got into the GURU Accelerator program. Early Adopter's projects production deployment would start from FlowOrchestrator deployed on general use Networks. Mainnet, Optimism, Canto would have an orchestration layer centralized in GURU FlowOrchestrator. After the release of GURU Network Mainnet, those ecosystem projects would decentralize their orchestration layer and utilize GURU Network for AI compute tasks routing and execution and data oracles, for example.

Based on these efforts, we see our mission as evangelists for entrepreneurs who are dApp builders because of their business ideas. We provide an environment where they can mock, create, commit, and deploy in a LEGO process, adjusting whatever they have built to product market fit immediately. Mentorship-type participation in that work would allow the DexGuru team to work through all the possible use cases and create templates and snippets with them and for them, which would further utilize our Snippets/Widgets Ecosystem within the Platform. That would gradually ease OnBoarding mechanisms and open new market niches for Ecosystem dApps.

Roadmap



Our commitment to the GURU Network goes beyond its architectural and economical design; it is also the foundation for the next evolution of our existing products. By running services using GURU Network as infrastructure, we demonstrate capabilities and refine functionality to ensure the platform meets the high standards users expect. This approach allows us to closely align our products' development with the emerging needs of the blockchain community, ensuring that our solutions remain at the cutting edge.

Summary

The DexGuru team capitalized on the momentum of DeFi summer with the launch of the DexGuru Aggregator and adeptly navigated the subsequent crypto winter by transforming challenges into opportunities for builders. GURU Platform started as during rapid development of the GURU Block Explorer, and then GURU Data Warehouse. This addition enhanced our ability to support chain developers with robust data analytics tools like custom queries, dashboards, and Jupyter Notebooks, leveraging the GURU Indexer that aggregates extensive data from 18 blockchains and over 180 DEXes, processing over 15 million events daily.

Committed to continuous innovation, our lean team ensures efficient management of resources and infrastructure. The GURU Network, supported by the \$GURU token, underscores our commitment to fostering a supportive environment for entrepreneurs. This strategic integration of AI and blockchain technologies encourages innovation from ideation to market-ready deployment, enabling individuals and companies to leverage AI to enhance efficiency and create new opportunities.

Crucially, our ecosystem emphasizes mass adoption by focusing on projects that resonate with mainstream markets. Through our accelerator program, we provide mentorship and incentives for early adoption, nurturing founders to catalyze growth and ensure their projects reach their full potential. This approach not only supports but actively encourages participation and innovation, making the GURU Network a cornerstone for future blockchain solutions and widespread adoption.

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