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The Essential Cardano Guide to the Ecosystem

Your overview of the people and projects building on Cardano

“The point of **collective innovation** is that thousands of people are coming to build and bring **new things, new experiences.** It’s going to be so much fun”

- *Charles Hoskinson*

Dear Cardano Community



In 2015, Charles Hoskinson and Jeremy Wood had an idea: to change how the world works by creating a transformative blockchain ecosystem. They founded Input Output, a company that, together with a passionate community of developers and users, would lay the foundations for the [Cardano blockchain](#).

Today, Input Output Global, Inc. (IOG) views the world as a series of giant social networks built on hundreds of complex systems. IOG's mission is to collectively evolve social, financial, and governance systems towards a world that puts people in full control of their lives.

Cardano has experienced steady growth since it went live on September 27, 2017. The blockchain is now at the heart of an ecosystem with millions of users and contributors. This community is as determined as IOG to change the world and make it better for all.

Over the past five years, Cardano has evolved as a sustainable proof of stake (PoS) blockchain with minimal carbon footprint and low transaction fees for users. With the introduction of [smart contract](#) and [native token](#) capabilities in 2021, Cardano

became a global development engine. Alongside this, an enthusiastic developer community started to create DApps and NFTs. Millions of NFTs have been minted on Cardano since.

IOG recently marked Cardano's fifth birthday in a special way: the deployment of the Vasil upgrade. Named after Vasil St Dabov, a Bulgarian Cardano ambassador who died in 2021, the anniversary was a poignant milestone in the blockchain's evolution. The Vasil upgrade introduced new features and a raft of upgrades and improvements to Cardano's usability and scalability.

Cardano has gone through four development themes – Byron, Shelley, Goguen, and Basho. Voltaire, which will ensure the long-term stability of the system, is the fifth and last stage of the initial roadmap. With 3,000+ nodes running the network, Cardano is the most decentralized PoS blockchain in the world. The ecosystem continues to grow, and the exciting era of community governance, Voltaire, is underway.

As the ecosystem blooms, it will be supported by a new member-based organization structure. This report seeks to offer a foundation for understanding, a compendium of the theoretical concepts, technological components, and achievements that underpin and define Cardano.

More importantly, this report seeks to set out the first extensive review of the Cardano ecosystem, highlighting some of the people and projects building on Cardano and powering its future. It doesn't claim to be comprehensive – amid such rapid growth we can't hope to capture every worthwhile project here. Instead, IOG hopes it provides a valuable snapshot of where Cardano is today. And, above all else, chart how the whole Cardano community is working together to build a future that is more empowering, more secure, and just, well, better.

Tim Harrison,
VP Community & Ecosystem



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Founding entities



Input Output

Founded in 2015 by Charles Hoskinson and Jeremy Wood, **Input Output** is one of the world's preeminent blockchain infrastructure research and engineering companies. IOG is committed to the highest principles of academic rigor and evidence-based software development. The organization builds high-assurance blockchain infrastructure solutions for public, private sector, and government clients.



Cardano Foundation

The **Cardano Foundation** is an independent Swiss-based non-profit that oversees and supervises the advancement of Cardano. The foundation is the legal custodian of the Cardano brand and sets the direction for decentralized economic empowerment, working with regulators in different jurisdictions to shape blockchain legislation and commercial standards. The CF also empowers the Cardano community to leverage the Cardano protocol to solve real-life problems.



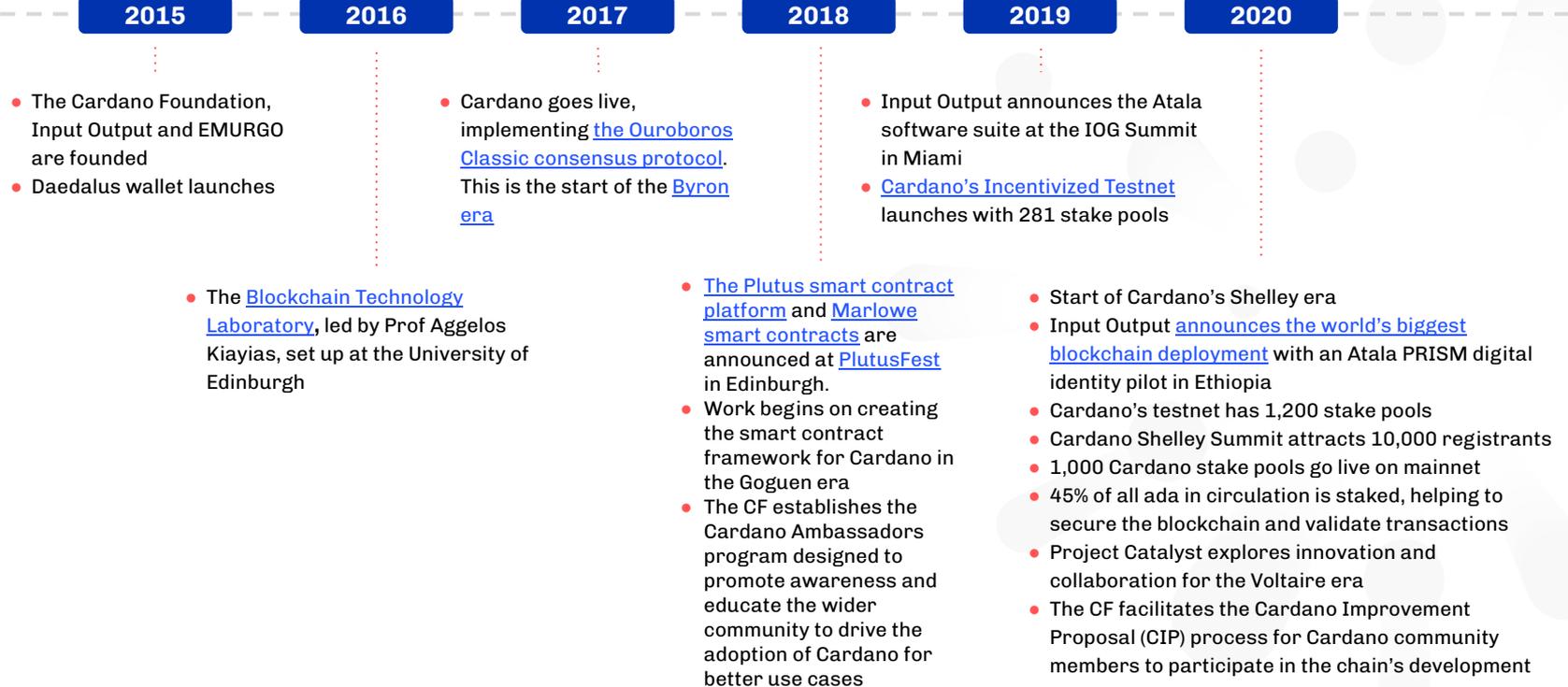
EMURGO

EMURGO is the official commercial arm of Cardano and provides socially impactful Web3 solutions to solve the most intricate problems of organizations and individuals. As a founding entity of the Cardano blockchain protocol, EMURGO's Fintech, Media, Ventures, Middle East & Africa, and Academy business units provide large-scale blockchain development and rapid solutions deployment leveraging Cardano to benefit its global clients.

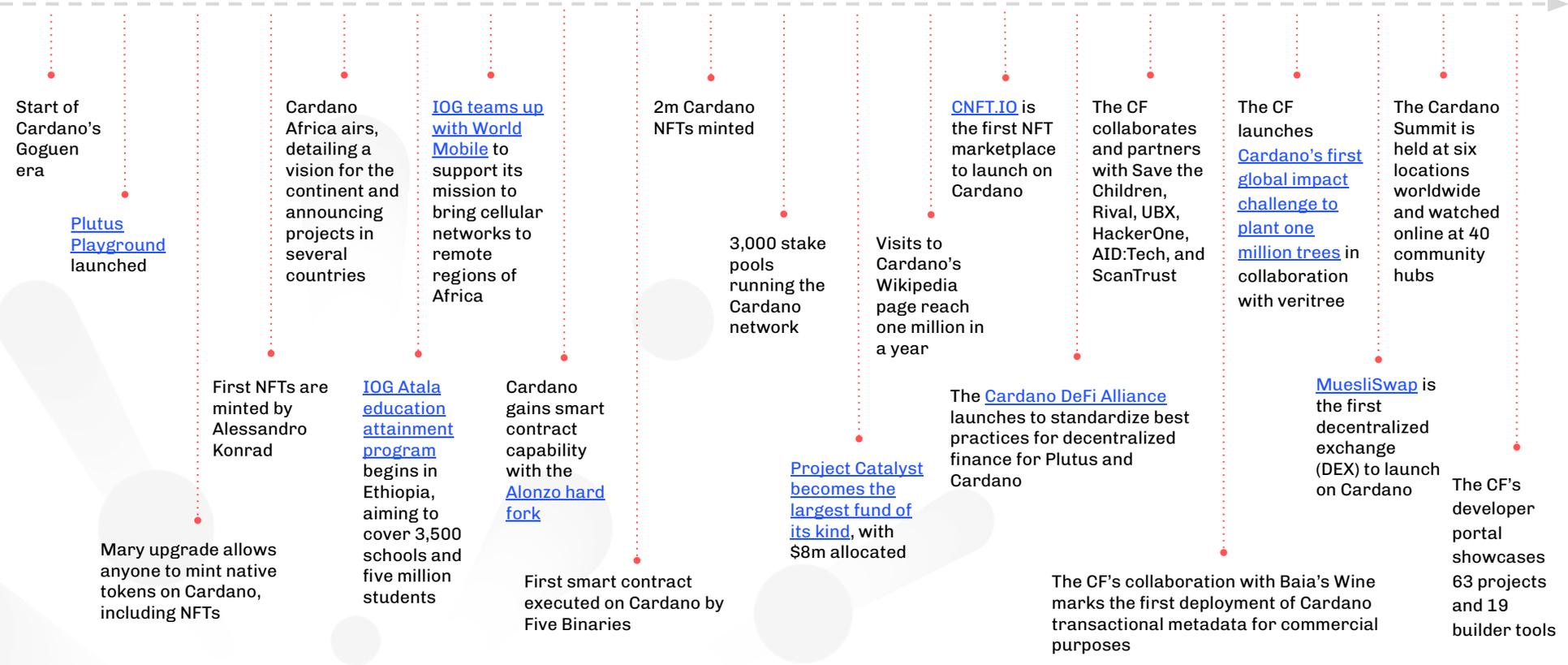


How far Cardano has come: an ecosystem timeline

Here are some of the milestones from the Cardano blockchain and its ecosystem.



2021





Financial Times launches [FT Wilshire digital asset indices](#) ranking Cardano in the top five

[Wave Financial launches ada yield fund](#) to support Cardano's DeFi start-ups

Crypto Carbon Ratings Institute estimates Cardano uses the same power as 57 US homes. Bitcoin mining consumes 100,000 times as much electricity

The Cardano Foundation [pioneers a carbon offset program](#)

IOG co-founder Charles Hoskinson [discusses blockchain technology](#) and the need for appropriate regulation with a US House Agriculture Subcommittee on Commodities Exchanges, Energy, & Credit

[Project Catalyst, in collaboration with Iceaddis, launches Ariob](#) - an incubator designed to offer high potential Catalyst funded start-ups access to venture-building expertise and resources to help develop products that solve real-life challenges in Africa

IOG presents vision for the Lace wallet platform at Consensus 2022

Pipelining is introduced as a scaling improvement that will improve block propagation times by reducing the 'dead time' between blocks

Cardano [celebrates five years](#)

The CF's developer portal showcases 104 projects and 72 builder tools

[Hydra](#) is announced. This layer 2 technology will improve Cardano's capacity by processing transactions off-chain while using the mainchain ledger for secure settlement

SingularityNET's decentralized AI platform is [ported to Cardano through a converter bridge](#)

Block size on Cardano increases by 8KB to 72KB (a 12.5% increase)

The CF collaborates with organizations and projects such as UNHCR, NMKR, fivebinaries, veritree, SundaeSwap, TURF, Home of Blockchain.swiss, the University of Zurich's Blockchain Center, and Etter Studio

[Marlowe Playground](#) is launched to help anyone write financial contracts

[The Vasil upgrade goes live](#) on Cardano

The CF releases the first [State of the Cardano Developer Ecosystem report](#)

WHY CARDANO?

Cardano is a proof-of-stake (PoS) blockchain designed to address the design and development challenges of earlier blockchains and cryptocurrencies. It aims to meet the needs of global users by focusing on scalability, interoperability, and sustainability.

- *Blockchain advantages*
- *Staking*
- *Technology*
- *Addressing the blockchain trilemma*
- *Community*

Blockchain Advantages



Applied research

Cardano is grounded in a rigorous research methodology. New features are subject to academic peer review and prototyping before implementation. Research, analysis, and mock-up results determine technical specifications. Formal methods and functional programming set out expected capabilities.

Development methodology

Cardano has been built using semi-formal methods. Mathematical specifications, property-based tests, and proofs support strong guarantees for the functional correctness of core components.



Open source

Cardano's developers are committed to open source principles. There are no patents, and repositories are open. Ada holders can suggest improvements through the Cardano improvement proposal (CIP) system.



Permissionless approach

Cardano is a public, permissionless blockchain – anyone can participate in network activities by staking, delegating, or helping make decisions.



Decentralization

Cardano is maintained by over 3,000 distributed, community-run stake pools. Network participants validate all blocks and transactions without relying on a centralized authority.

Staking



Consensus protocol

Ouroboros, Cardano's consensus protocol, establishes rigorous security guarantees. It was the first provably secure, mathematically verifiable PoS blockchain protocol, and continues to evolve. The original paper has been cited by academics 1,300 times.

Staking experience

Cardano offers liquid staking with no lock-ups or slashing. Every ada holder who delegates their stake helps secure the network and earns rewards every five days.



Environmental impact

The largest proof-of-work (PoW) blockchains consume as much electricity as a medium-sized country. In contrast, researchers calculate Cardano's power consumption as equivalent to that of 57 homes.

Technology



EUTXO

Cardano's accounting model builds on the security and decentralization of Bitcoin's UTXO with even more powerful and expressive smart contract capability. EUTXO ensures transaction predictability and determinism.

Seamless upgrades

The hard fork combinator ensures smooth protocol transitions and ledger upgrades. Unlike hard forks in earlier blockchains, Cardano's combinator technology saves the previous chain history and allows nodes to upgrade gradually while supporting old and new protocol rules.



Functionality

Cardano is establishing a foundation for global, decentralized finance (DeFi) using smart contracts to develop DApps and provide multi-asset tokens. Custom tokens are treated natively on Cardano, which in combination with EUTXO, on-chain validation, and off-chain computation facilitate products such as NFT bonds, programmable swaps, and derivatives.

Source: [Essential Cardano](#)

Programming languages

Built on Haskell, Cardano emphasizes pure functions, high assurance code, and formal verification. The core of Cardano is a low-level language designed for on-chain execution. Off-chain code can be written in any higher level language and compiled to run on the chain. Plutus is a general purpose smart contract language for Cardano, and Marlowe is for building financial smart contracts without needing deep programming knowledge.



Addressing problems of earlier blockchains



Scalability

The ability of a blockchain to adjust to growing demand. Cardano is scaling by improving the processing power of the mainnet (layer 1 solutions such as faster transactions, larger block sizes, and more efficient smart contracts) and by adding processing power that works off the main blockchain (layer 2 solutions such as Hydra and sidechains – separate blockchains linked to the main chain). Together, these solutions boost network performance, provide higher throughput, and reduce costs.

Interoperability

The ability to work with other blockchains is essential if the technology is to be adopted globally. Cardano is not only building bridges so transactions can work with other blockchains, but can handle many token types and smart contract languages.



Sustainability

Cardano is sustained by a global community that proposes and implements system improvements funded by a large treasury. This ensures truly decentralized long-term growth.



Community



Decentralized governance

Project Catalyst is one of the world's largest decentralized innovation funds, where ADA holders can vote on funding the most promising projects. In two years, over 50,000 members have set 1,000 projects underway, allocating \$32m from the Cardano treasury.

Ecosystem

Cardano is supported by one of the largest and strongest blockchain communities. Tens of thousands of highly-engaged people are helping expand the ecosystem – and are key to the long-term sustainability of the network.





Cardano in numbers

11k

Members of IOG's technical
Discord community

18k

Subscribed to IOG's
developer digests

7.2m

Native tokens

696k

Members of Cardano
subreddit

56k

GitHub commits in 2022

1.3m

Following Cardano on Twitter

3.7m

Wallets on the Cardano
blockchain

1.1k

Projects building

4.8k

Smart contracts

3.2k

Stake pools

56m

Total transactions

10k

Members of Cardano
Community Discord

Data correct as of 13 December 2022. Sources: IOG internal data, Mailchimp, Twitter, GitHub, Discord, Cardano on-chain data, Reddit



Alliances

Alliances and members-based organizations can help standardize blockchain and DeFi best practices. Some of the current alliances doing this important ecosystem work include:

UTXO Alliance: created to kickstart collaboration with individuals and organizations working to make the UTXO model more scalable, secure, and interoperable.

Cardano DeFi Alliance (CDA): a consortium of projects aiming to standardize Plutus and Cardano best practices for DeFi.

Hyperledger Foundation: an open source community focused on developing frameworks, tools, and libraries for enterprise-grade blockchain deployments. Created by the Linux Foundation.

Guild Operators: a group of well-known and experienced community members that provides information about various guild tools which simplify various stake pool ops (setting up, managing, and monitoring pools) for Cardano stake pool operators (SPOs).

NFT Guild: an association dedicated to developing standards and building tools for the NFT community.

Cardano Single Pool Alliance (SPA): a group of separate SPOs who have vowed to run a single stake pool for the sole purpose of providing the Cardano ecosystem with true decentralization.

xSPO Alliance: a group of small SPOs that joined with a total live stake of less than one million ada each.

Cardano Self Sovereign Identity Alliance (CSSIA): The primary mission of the Cardano SSI Alliance is to drive the adoption of SSI in the Cardano ecosystem by aligning the community on standards and interoperability of SSI.

Core research

Cardano is grounded in a rigorous research methodology. Innovations are subject to academic peer review, prototyping, and [independent audit processes](#) before implementation. Research, analysis, and mock-up results determine technical specifications, while formal methods and functional programming set out expected capabilities. This commitment to academic research is demonstrated by:

- Eight IOG research staff are professors from various universities
- IOG launched the groundbreaking Blockchain Technology Laboratory at the University of Edinburgh in 2017
- The CF partnered with the University of Zurich (UZH) to sponsor a PhD position in Blockchain Analytics
- The CF sponsors 12 students at the University of Zurich's UZH blockchain-based Summer School
- The Edinburgh lab [researches topics](#) such as ZK Snarks, proof of useful work, and more
- The University of Edinburgh and IOG are working on the [Edinburgh Decentralization Index](#)
- Other institutions in the research network include the University of Athens, Tokyo Institute of Technology, and the University of Wyoming
- IOG researchers are regular contributors to leading academic conferences

\$4.5M

Invested by IOG in [Stanford University's Blockchain Research Hub](#)

160+

[Published research papers](#)

40

IOG staff on [Google Scholar](#)



Cardano in education

Numerous players across the ecosystem are committed to education. Here are some of the ways in which the Cardano community can learn about blockchain and develop skills to serve future development and growth:

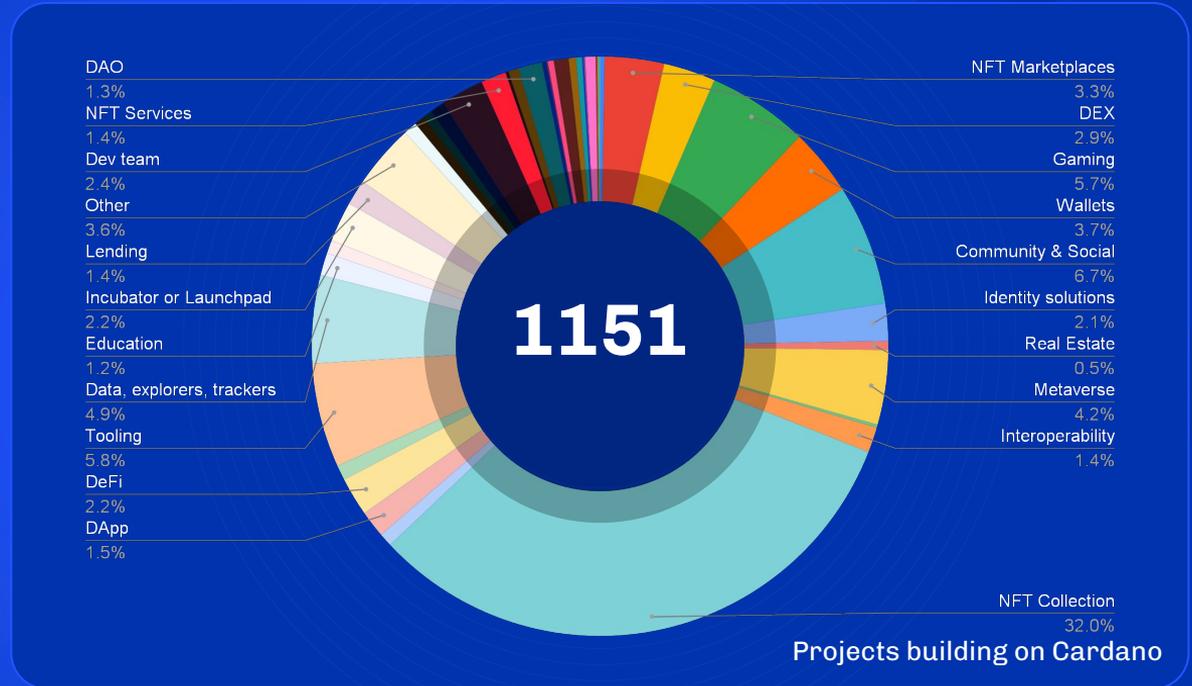
- **2,437** students enrolled in the 2022 Haskell bootcamp
- **135,000** subscribers to IOG's [YouTube channel](#)
- **200+** videos were published on IOG's YouTube channel in the past 12 months
- The **Cardano Foundation** sponsors a PhD position in blockchain analytics at the University of Zurich
- [Cardano Docs](#) hosts all the documentation about the Cardano blockchain
- [The EMURGO Academy](#) offers a certification for blockchain developers, and focuses on incubation, training, and promoting blockchain technology
- [The Genius Academy](#) is an educational and mentorship academic platform by Genius Yield that teaches DeFi concepts through simple-to-understand articles
- The [Plutus Pioneer](#) and [Marlowe Pioneer](#) programs educate thousands of blockchain enthusiasts about smart contracts
- [Gimbalabs](#) builds technical, educational, and community infrastructure for Cardano developers
- The **Cardano Foundation's [Stake Pool School course](#)** is designed to (re)introduce users to Cardano, walk them through how to set up a stake pool, and provide guidance on managing and maintaining their stake pool to ensure optimal performance
- [Wada](#) provides Africans with the blockchain tools they need to reimagine socioeconomic models in a way that reflects local cultures, values, and aspirations
- [The Deep Dive into Blockchain course](#) at the University of Zurich includes a session on smart contracts and Marlowe
- [The Atala PRISM Pioneer](#) program has a software development kit to help train designers and developers in creating decentralized identity products
- Several books about Cardano have been published, including John Greene's [Cardano for the Masses: A Financial Operating System](#) in 2022 through [Book.io](#)

A growing ecosystem

The Cardano ecosystem continues to expand at a remarkable rate with over 1,100 projects building on the blockchain ([read about how we calculate this number here](#)). These projects range from DEXs to wallets, DeFi, identity solutions, marketplaces, cellular and broadband connectivity, NFTs, and many more.

Cardano is also becoming interoperable with other blockchains thanks to projects like [Milkomeda C1](#), a sidechain protocol that delivers EVM-compatibility to Cardano.

Interoperability leads to an extended ecosystem, providing teams and businesses from other blockchains with the possibility to build on Cardano.

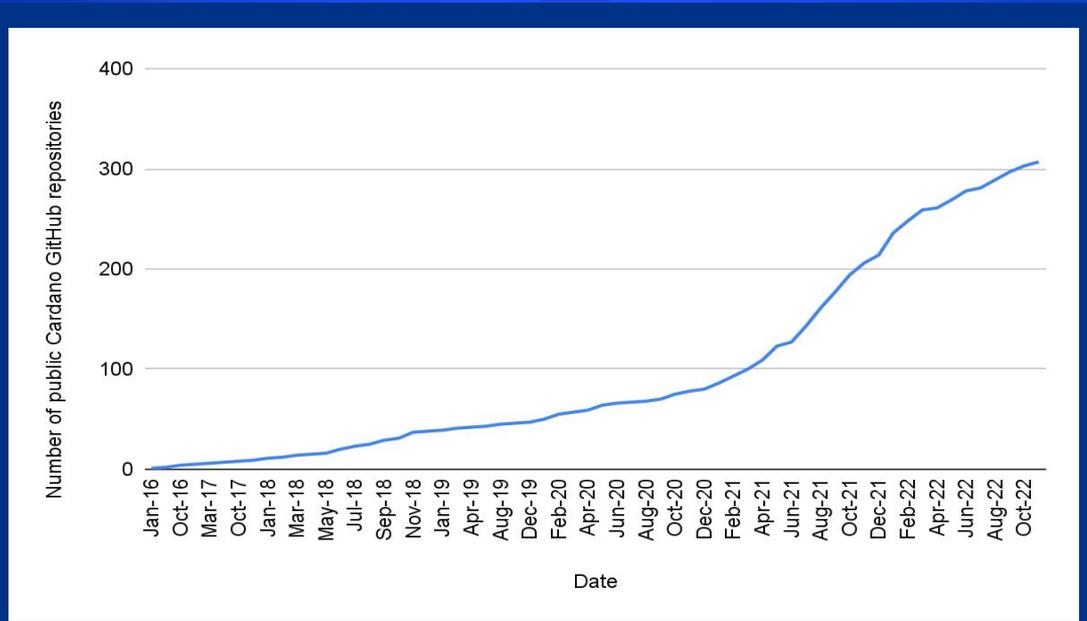


Featuring a project does not constitute an endorsement. Project profiles are in their own words and provided by each project. We reached out to over 150 projects and did not get a response in every case - if a project is missing, it doesn't mean we deliberately left them out. [Read about our methodology in more detail.](#)

Where the Catalyst icon  is shown, this denotes that a project has received funding from Project Catalyst.



Growth of projects over time (based on creation of Cardano GitHub repositories)



This graph shows the growth of Cardano GitHub repositories over time. We have seen massive expansion in 2022 with the numbers increasing by 43% this year. Source: IOG internal data

“Technology is not enough, community is equally important.

Cardano has one of the most vibrant communities and
we are very excited to be part of it”

- Flint wallet

Wallets

Cryptocurrency holders use wallets to manage digital assets, make on-chain transactions, and delegate their ada stake to help run and secure the Cardano network. 'Light' wallets for Cardano, such as Yoroi or Lace, are designed for fast, easy access via a browser on a computer or mobile device; full-node wallets, such as Daedalus, are designed for desktop 'power users'.

Some of the many wallets compatible with ada and Cardano native tokens include, but are not limited to:

Flint



Your friendly go-to wallet for DeFi, sidechains, and NFTs.

"Technology is not enough, community is equally important. Cardano has one of the most vibrant communities and we are very excited to be part of it."

Daedalus



A desktop, full-node hierarchical deterministic (HD) wallet for ada and Cardano native tokens, bundled with a full node. It stores the entire history of the blockchain and validates all blocks and transactions for trustless and autonomous operation.

GeroWallet



GeroWallet is a UX-focused light wallet and DeFi platform for Cardano.

This wallet focuses on providing a clear and intuitive experience to new users as well as facilitating everyone's needs within a single platform including buying, sending, storing, and trading ada and Cardano native tokens, NFT support, and staking.

Nami



Nami is an open-source and non-custodial wallet on Cardano, which you can connect to your favorite DApps. Nami heavily contributed and shaped CIP-0030, the DApp connector standard on Cardano. It was the first wallet to implement it and test out different variations of it. Nami denied the multi address standard and went with a unique single address standard.

Lace



A light wallet that brings together a wealth of Web3 features, from managing digital assets to accessing NFTs, DApps, and DeFi services, so you can discover and enjoy a new world of digital experiences.

NuFi



NuFi is a non-custodial Web3 wallet for staking, NFTs, and DApps on the Cardano, Ethereum, Milkomeda*, Flow, and Solana blockchains. Integrated features also include the Wingriders Cardano DEX, a cross-chain crypto-to-crypto exchange, and buy/sell functionality. Hardware wallets supported. (*coming soon)

Eternl



Please describe your product or service

Your Cardano light wallet on desktop and mobile. Eternl has become the go-to wallet for power users on Cardano. Our users like the information-rich UI and the ability to buy NFTs on the go on their mobile devices using the Eternl DApp Browser.

What makes you unique compared to others in the space?

Not only can you swap tokens and buy NFTs on the go, but we've also listened to our community and implemented many pro features for NFT collectors.

What innovations are you bringing to the Cardano ecosystem?

Our "Token Fragmentation" feature helps NFT holders organize their wallets. NFT project can clean up their royalty wallets with our "Collect UTXOs" feature.

Why did you choose Cardano?

We knew from the beginning that Cardano had enormous potential, and we wanted to build a wallet that lived up to that potential. Just imagine where this huge ecosystem will be in 2, 5, or 10 years.

What have you got in the pipeline for the next 12 months?

We have begun work on Eternl v2, which will focus on user-centric design, ease of onboarding, and performance.

Users can also secure their ada and Cardano native tokens in memory-stick-like hardware wallets. These types of wallets allow users to store their private keys offline. They include: [Trezor Model T](#), [Ledger Nano S Plus](#), [Ledger Nano X](#), [BC Vault](#)

Also check out [Typhon](#), [Yoroi](#), [Atomic](#), [Exodus](#), [Bynet](#), [GameChanger](#), [C-wallet](#), [LodeWallet](#), [C64](#), [Begin](#), [Mantium](#), [Ray](#), [AdaLite](#), [Thrift](#), [Ledger Live](#)

“It inspires us to see Cardano's PoS protocol supporting energy efficiency and the overall unique development through peer-reviewed research. The architecture helps us to launch projects at scale”

- NMKR

Community-built resources and tools

A blockchain is as strong as its community. And Cardano has one of the strongest communities in the industry.

The community takes part in building projects, resources, and tools for Cardano developers and users, such as:

Gimbalabs



Gimbalabs provides Dandelion-distributed infrastructure and project-based learning courses that support everyone building on Cardano and incubating new projects.

Cardano is the only ecosystem that aligns with our fundamental beliefs about what a decentralized, open, permissionless, blockchain-enabled system can be.



Blockery



Blockery enables companies to integrate with blockchains at low cost, with high development velocity and high security. We provide a custodial wallet with automations layered on top to make blockchain integration easy. Our security solution for cryptographic key management is second to none.

NMKR



With NMKR you can use the full power of Web3 & NFTs to create amazing DApps, NFT collections, and much more. All of this without having to worry about the complexity of interacting with the Cardano blockchain. We focus on the tech, so you can focus on your product. NMKR offers the easiest and most flexible tools & APIs to mint your NFT on Cardano.



BloxBean



List of open source projects aimed at solving tooling issues and development challenges on Cardano.

We chose Cardano for its unique research-driven approach, backed by formal verification, peer review & focus on correctness. The use of the EUTXO model opens the door to many possibilities without sacrificing security.



Demeter.run



Please describe your product or service

A platform providing tools & infrastructure for building Cardano DApps. Access Cardano Node, DB Sync, Ogmios, and many more. No setup is required, create a project and get access to all of the tools.

What makes you unique compared to others in the space?

Cool & simple developer experience

What innovations are you bringing to the Cardano ecosystem?

A platform for building and deploying DApps that can be either self-hosted or Cloud-based, everything based on open-source projects.

Why did you choose Cardano?

We chose Cardano because we believe that the research & engineering team behind the project has made all of the right architectural decisions: PoS, UTXO model, hard-fork combinator, functional programming for smart contracts, etc. From our perspective, these are all correct decisions that provide the right set of trade-offs to build a robust financial operating system at a global scale.

What have you got in the pipeline for the next 12 months?

Provide developers with more out-of-the-box tools. We plan to include Hydra Heads, Machine Learning infrastructure, OLAP workloads, and many more.

Community-built resources and tools

Anvil



Providing a highly efficient multi-sig minting platform that is customizable to the project and its branding. We are utilizing 'franken addresses' for our staking system, so users still retain ownership of their asset while staking. Our marketplace is underway. We created a NFT naming tool that applies what you type on to the NFT before minting. We helped create a land mapping system with our Software Development Kit.

Lucid



Lucid is an open-source library for writing off-chain code for Plutus smart contracts and for building transactions in the easiest way possible. It achieves that by abstracting away all the complexity that comes with building transactions (eg coin selection, balancing the transaction, calculating fees, script costs, etc.). Lucid is written in TypeScript and can be run in pretty much any environment out of the box. From browser, backend in Node.js or Deno to mobile applications.

Blockfrost



Blockfrost provides free, instant, and scalable, enterprise-grade access to the Cardano ecosystem, IPFS, and Milkomeda.

We are building on Cardano because of its two major advantages: the technology and the community.

Cardano Stack Exchange



The ever-growing, question-and-answer website about programming and Cardano's technology. There is a reputation-based hierarchy to introduce organization mechanisms led by experienced and knowledgeable contributors. It is free and takes no time for users and developers to sign up.

Joget



Joget, Inc, the developer of the Joget open source no-code/low-code application platform, empowers business users, non-coders, or coders to create enterprise applications across industries and countries. Joget is a proven platform for a wide spectrum of organizations, ranging from Fortune 500 companies to government agencies across the globe.

Mesh



Providing tools and services for easy blockchain integration.

User security is a top priority and we needed a blockchain that shares this idea. Indeed, Cardano offers top notch security from Smart Contract programmability to network reliability.

Koios



Koios is best described as a Decentralized and Elastic RESTful query layer for exploring data on the Cardano blockchain to consume within applications/wallets/explorers/etc.

We are passionate about what Cardano can achieve and we thought this was a service we had to provide to complete and promote the concept of decentralization.

FreeLoaderz



A coalition of SPOs and community members working together to improve transaction speed and enhance the Cardano experience. The project started with load balancers designed to maximize transaction throughput. It has now expanded to include a Decentralized Autonomous Organization (DAO) and a SmartClaimz project that will revolutionize Cardano token distribution.

Also check out: [A list of community-built developer tools on Cardano](#)

“Cardano's unique EUTXO model enabled us to develop a scalable, safer, and more feature-complete DEX protocol. These upsides at the end of the day bring an immeasurable benefit for the end user”

- *MuesliSwap*

DEXs

A decentralized exchange is a type of crypto exchange with no intermediary, where users can securely trade their assets directly with other peers through smart contracts. There are two popular DEX frameworks:

- **Order book:** the currency exchange model used in traditional markets. This model utilizes a list of open buy and sell orders made by users for a specific number of assets. An order matching system is required to match buy and sell orders on the order book.
- **Automated market maker (AMM):** This model enables the automatic and permissionless trading of digital assets without the need for matching engines or counterparties, through the use of liquidity pools and AMM formulas for pricing assets. Using liquidity pools can lead to impermanent loss, although Cardano's EUTXO accounting model is deterministic and offers better predictability of impermanent loss.

Cardano DEXs include, but are not limited to:

WingRiders



WingRiders is an Automated market maker (AMM) DEX on top of the Cardano EUTXO model on the main chain.

The project aims to be an infrastructure element of the whole Cardano ecosystem. Wide and very easy integration into any wallet or DApp. Accessible via many platforms, supporting connectors, and HW wallets.

MuesliSwap



MuesliSwap is the first and only hybrid decentralized exchange on Cardano mainnet and Milkmeda.

MuesliSwap's goal is to bring together the best of traditional finance and decentralized finance (DeFi). Both the orderbook and AMM approach to token trading by MuesliSwap are tailored to the Cardano EUTXO model.

Genius Yield



Unique DeFi platform that combines a concentrated liquidity DEX with an automated yield optimizer.

We are a team of enthusiasts focused on achieving one common goal - unlocking DeFi for everyone. Genius Yield platform is built from the ground up to make full use of Cardano's EUTXO-based ledger.

SundaeSwap



SundaeSwap is the largest DEX by community and the first AMM to launch on Cardano.

SundaeSwap Labs contributes to the SundaeSwap protocol, a DEX and automated liquidity provision protocol built on Cardano. We were the first to launch an AMM on Cardano and are working on other software to bring to the ecosystem.

MinSwap



Please describe your product or service

MinSwap is a community-centric DEX on Cardano. We are a 100% community-funded project that got funding on Catalyst Fund5. MinSwap aims to become the best place for Cardano projects to list their tokens and have the Cardano community support them, trade them, and earn yield and passive income from them.

What makes you unique compared to others in the space?

MinSwap was launched with the community in mind from the get-go. SMIN tokens are fairly distributed, without any sort of private or VC investment. The Cardano blockchain has a very tight knit and active community, which makes it the best chain to launch community-centric protocols. MinSwap currently has the highest volume and liquidity of any DEX on Cardano, making it the best platform to trade Cardano native tokens.

What innovations are you bringing to the Cardano ecosystem?

MinSwap has pioneered several ideas that are new not only to Cardano, but to DeFi as a whole, such as the [FISO](#) (touted one of the fairest models to distribute tokens to the community), the [MIN](#) token, or new primitives to allow projects to bootstrap liquidity, such as the [Liquidity Bootstrapping Event or the Collective Zap-in](#). MinSwap also has a different approach to the [MIN emission allocation](#), which is based on a quantitative formula, and the MIN vesting schedule, which, unlike the industry standard, is not fixed, but dynamic.

Why did you choose Cardano?

Cardano is the most decentralized and advanced PoS chain and counts on an incredibly passionate community that makes it the best place to launch community-driven projects such as MinSwap.

What have you got in the pipeline for the next 12 months?

MinSwap is always iterating and improving the current DEX. The biggest objective in the next 12 months is to fully embrace community governance via the SMIN token. With that, the community will guide the development, especially in terms of revamped tokenomics and new products. We are particularly excited about leveraging some optimizations and new features that the advent of Vasil made possible.

Also check out: [BynetDEX](#), [Blueshift](#), [Spectrum](#), [Axo](#), [Adax](#)

“If ever there was a bedrock for which the digital revolution should be laid, it should be Cardano. The robust security, functionality, and extensible language make it a no-brainer”

- ADA Handle

NFTs

Non-fungible tokens (NFTs) are unique tokens stored on a blockchain. NFTs can represent digital ownership rights of real-world assets, such as a building or a painting, or be an asset in and of themselves. Cardano supports NFTs as native tokens, meaning that anyone can mint their own NFTs without needing a smart contract.

NFTs make up a large portion of Cardano native tokens, and yes, Cardano did have NFTs before it had smart contracts. Some of the popular collections of Cardano NFTs include, but are not limited to:

aeoniumsky



aeoniumsky takes a different path from other NFT projects, focusing on slow growth and storytelling through the illustrative and animated BLOCK series. The name is derived from the greek word *aeonium* meaning 'ageless or limitless', paired with sky to mean an infinite or never ending sky. Each series connect seamlessly to the next forming an illustration with no end.

DRRS



Driven by community, art, value, and utility. One of the most passionate communities in NFTs. First-in-space worldwide IRL scavenger hunt. Leading the evolution of the NFT market from hype toward values.

Real brand building: our growth strategy is value-based, our macro goal is to break through beyond the NFT market. Roadmap 2.0 is in full swing.

BlockOwls



BlockOwls is first and foremost an art based NFT project. Its main mission is to bring joy and love to the space, this through playful 3D animation videos, NFTs and creative activities.

We focus on creating high-end 3D animated stories. We also have a big creative team with a marketing background that can contribute to other projects to make them communicate better to the mainstream.

DEADPXLZ



DEADPXLZ was born out of a desire to build in and innovate the crypto space as well as bring people together in a thriving community of like-minded individuals. DEADPXLZ is currently developing a crypto gaming platform named PXL Wars, built around a novel Play to Win & Earn model with the goal of not only rewarding those who are good at the game but also rewarding the holders of the Genesis PXLZ collection.

Yummi Universe



By utilizing the power of blockchain technology, we can create the next iteration of "Pokemon cards" by creating collectible NFT trading cards that will last forever and be playable across all future developments. We will create games around true ownership, granting players full custody over in-game assets that can live on the blockchain forever.

SpaceBudz



Please describe your product or service

SpaceBudz is a collection of 10,000 unique little astronauts. The project has been around since the inception of Cardano NFTs. Since then it has been exploring the limits of the Cardano blockchain and it has led to multiple developments like the first EUTXO-based NFT marketplace, the creation of multiple CIPs, a wallet, the Lucid library, and much more. This is just the beginning of a bigger adventure.

What makes you unique compared to others in the space?

SpaceBudz is an inclusive project, which is known mostly for its pioneering work. Creation of multiple CIPs and lifting up others by providing tools not only to our community but the entire Cardano community. We are thinking of the bigger picture and understand if we want SpaceBudz to succeed, we need Cardano to succeed.

What innovations are you bringing to the Cardano ecosystem?

Tools and products we created are an EUTXO-based marketplace, the Nami wallet, Lucid, an off-chain framework for Plutus contracts written in TypeScript, and some other small DApps. All we do is open-source and accessible to everyone. One of our goals is to bring Cardano more into developer-friendly environments like JavaScript to unlock its full potential.

Why did you choose Cardano?

Cardano is built with first principles in mind. We believe the only way to have a real impact on the world is if you approach problems with this mindset. We want to be part of this journey.

What have you got in the pipeline for the next 12 months?

SpaceBudz will undergo a token migration, build a new marketplace, and many other things. Exploring governance etc.

NFTs

The emerging NFT ecosystem is expanding beyond creator collections into exciting new models of utility. These include:

ADA Handle



Our product is ADA Handle. ADA Handle is a human-readable naming standard on Cardano that allows users to send and receive value across the blockchain using a name, rather than a hash. Cardano's infrastructure allows our naming standard to differ from other similar industry products. This gives us increased composability and functionality. Our naming standard, The Handle Standard, will be a fully-fledged value transaction rail with built-in personalization, privacy, authentication, and SSI.



NEWM



As a growing community of artists, fans, and collectors, NEWM is building an all-in-one ecosystem to fill every gap in the current music space. There will finally be a place for artists to make a living making music and fans/collectors to benefit from a multi-billion-dollar industry through music co-ownership. Our product offering includes, but is not limited to, the following: owning fractionalized music rights via NFTs and FTs, music distribution, trading music rights (Marketplace), royalty collection & distribution, music streaming, and community governance (DAO).



Book.io



Book.io is the leading platform for NFT ebooks and digital content in the Web3 era. Their proprietary technology, Decentralized Encrypted Assets (DEAs), allows all types of media to live perpetually, protected on the blockchain – a seismic shift for blockchain utility. Book.io is working diligently to build an ebook and audiobook marketplace, mobile reading apps, and a publishing portal for independent authors.

Cardano was a logical choice because of EUTXO accounting, unit economics, scalability, and the strong community.

Adadomains



Adadomains is a domain name system on Cardano - the first one trying to implement decentralized minting and ownership.

Each domain is represented as an NFT that lives at a script address and uses the datum of the UTXO it belongs to for information storage.

We chose Cardano because it's the best chain for NFT ownership.

Want to check out the wider Cardano NFT ecosystem? Take a look at [NFT Jungle](#), [Cardano Cube](#), [CNFTHub](#)

NFT marketplaces

There are marketplaces where holders can buy, bid for, and sell NFTs on the blockchain.

These marketplaces include, but are not limited to:

CNFT.io



CNFT.IO is proud to be the first-ever NFT marketplace on Cardano. We launched in July 2021, before smart contracts, and now have over 175,000 users! Our team are always innovating and aiming to bring even more utility to CNFTs in the future.

Cardano has a solid foundation to build upon and its social mission is laser-focused!

Fibo



Fibo is an EMURGO-backed Cardano NFT marketplace empowering creators and collectors for a positive social impact.

A one-stop shop to mint, buy, sell, and tell the impactful stories behind each NFT.

Cardano's vision for an environmentally sustainable blockchain truly empower NFT artists and collectors for a positive social impact.

Artano



Artano is a community driven NFT marketplace.

We choose for Cardano since we believe in the vision and roadmap of IOHK. Cardano is innovation, decentralization and open source. Dquadrant is using open-source technology to create innovative ideas and solutions for businesses.

jpg.store



Please describe your product or service

JPG Store is the largest NFT marketplace on Cardano. Our founders are siblings (brother & sister) aiming to grow Cardano through the fun & vibrance of NFTs! JPG Store is carbon-negative, and we're on a mission to support the next generation of digital creatives & collectors by crafting exciting and innovative NFT experiences.

What makes you unique compared to others in the space?

Our critical focus on community and ability to build fast. We keep a very close eye on Twitter and other social platforms for feedback. Whenever we see something that the community is dying to see from us, we ship secure, functional code as fast as possible (typically in a few weeks). This means we're always one step ahead of the competition. Last but not least, we have a rockstar support team that is always ready to help our customers (< 5 min avg. response time and 4.7/5 review score over 20k support tickets).

What innovations are you bringing to the Cardano ecosystem?

We've already delivered several key innovations including smart contracts, creator royalties, lower fees, as well as new trading features such as offers & bundles.

Why did you choose Cardano?

We chose Cardano due to its focus on real-world problems. No other blockchain has a vision as compelling as providing financial sovereignty and improving democracy for billions of people.

What have you got in the pipeline for the next 12 months?

Our upcoming updates will include NFT auctions and collection/trait-based offers, collection minting, governance, internationalization support and much more!

Also check out: [Epoch Art](#), [NFTJam](#), [Tokhun](#), [Cardahub](#), [Flipr](#), [JamOnBread](#), [SpaceBudz Marketplace](#)

Metaverse/gaming projects

A metaverse is a virtual universe where people can interact with one another as avatars. The term was coined by Neal Stephenson in his 1992 novel Snow Crash.

Metaverse and gaming projects on Cardano include:

Wolves of Rome



We are an immersive strategic trading card game designed to provide collectors and players with ownership of their cards as NFT assets. We are building a great game first using NFT utility and blockchain technology only where it makes sense to enrich the player experience and where it adds value. We have incredible fantasy art, an immersive story rich universe & lore, fun and strategic game loops with an sustainable play&earn economy. We currently have a self funded working alpha of our game being enjoyed by our community.

Metadams



Metadams is a project developed by a french team (BC experts, Maths/Engineering, Finance) and the leading French casual gaming studio TapNation. Deploying a unique metaverse where users will be able to enjoy immersive events with the community as well as earn ada based on their in-game interactions.

ADAZOO



We've been in the Cardano ecosystem for 4-5 years. After NFTs launched, we wanted to do something to add an use case. So we started building a MMORPG game, we're still adding more features and functionalities, collaborations with other projects (our clubhouses), and growing towards a "miniverse". Our players are able to mint, fight, capture, and level up their NFTs. We are the first actual enjoyable/playable game on Cardano.

CryptoRaggies



Our main product is a 10,000 NFT collection featuring Ragdoll cats also functioning as playable characters in a game live on web, iOS, and Android. We are also one of the pioneers of using Cardano multi-signature minting transactions and have built one of the first ecosystem storefronts to mint in-game add-ons for our game RaggieRun, powered by multi-signature transactions. We also offer our multi-signature storefront solution as a service for other projects.

Pavia



Pavia is an immersive virtual world built upon 100,000 plots of virtual NFT land. It's a place to play, socialize, and build new communities while creating real-world value and rewards. Our focus is on the creators bringing their imagination and talent to the metaverse in the form of interactive 3D content such as games, 3D designs, and real-time interactive experiences.

Cornucopias



Cornucopias is a massive Play/Build/Host/Leann-and-Earn blockchain NFT based Metaverse game.

We have been in the Cardano Community/ ecosystem for a number of years. We believe in the Cardano Roadmap, research, and leadership. Specifically we are excited about NFTs, Peer Reviews, Decentralization, Nodes, Native Tokens, DIDS, Governance and the Cardano Community.

VIRTUA



Founded in 2017, Virtua is a gamified metaverse that provides immersive Web3 gaming and digital collectible experiences - through its curated marketplace, interactive virtual environments, and exclusive brand partnerships.

We're one of the leading metaverse platforms on the Cardano network. We create premium NFTs from our own IPs and exclusive brand partnerships. We're building a home for the Cardano community in the metaverse.

Clay Nation



Please describe your product or service

Clay Nation is a multi-dimensional clay animation NFT and metaverse project bridging arts and culture to Web3.

With origins in an NFT collection of 10,000 characters created from hand crafted, randomly-assembled clay traits, the Clay Nation project today consists of 2 generative art collections, major collaborations with industry leaders as well as early development of an expansive social, festival environment; the clay-verse.

What makes you unique compared to others in the space?

Clay Nation adopts a truly unique aesthetic that you won't see in any other virtual experience. We are creating all assets of Clay Nation from scratch; everything is conceptualised, designed and fabricated in-house.

Clay Nation also takes a community-centric approach, where aesthetic and technical prowess are just one side of the coin. We are working to create an ecosystem which is genuinely fun, unique and that succeeds in onboarding diverse communities into the immersive digital world.

What innovations are you bringing to the Cardano ecosystem?

Building a brand that integrates music, art and culture to Cardano. Along with our partners, we are presenting the capabilities of Web3 in the revolutionization of ownership and creating a unique ecosystem in which those principles can be tested and adopted.

Why did you choose Cardano?

We fell in love with the ethos, sustainability and community of the Cardano blockchain from our very first experiences. Cardano has always felt like the natural home for a project such as ours, and we were active in the ecosystem - running a Stake Pool - prior to the launch of our first project, Clay Mates. This history means that today, Cardano is our roots.

What have you got in the pipeline for the next 12 months?

Partnerships, fun, growth.

“Cardano has positioned itself as the **network of change**. This ethos and vision runs strong through the network and the community. **It is what we first connected to and is what drives us forward**”

- *Built on Cardano*

Data explorers

Data explorers allow blockchain users and developers to learn about the state of the chain and its ecosystem.

Some of the data explorers on Cardano include, but are not limited to:

Built on Cardano



Built on Cardano is organizing, researching, and guiding users through the Cardano ecosystem. We display our research in an intuitive search that not only facilitates education, but specifically encourages exploration of the ecosystem. We are a community-focused, community-contributed, and independently-driven platform.

Cardano Blockchain Insights



Providing statistics about Cardano on- and off-chain data. We run the Cardano Fans (CRFA) stake pool, whose mission is to support the development of Cardano and help ecosystem growth. We are working on several projects: multi-sig NFT minter, NFTs as access tokens, multi-sig token distributor, and read-optimized Cardano caches (oura/scrolls), to list a few.

EUTXO.org



EUTXO.org is a Visual Blockchain Explorer for Cardano.

The main purpose of this project is to visualize the UTXO model in an easy and visually pleasing way. EUTXO.org wants to be the "nicest" explorer for Cardano.

Lido Nation



lidonation.com provides blockchain education in plain English, Kiswahili & Español. We also do outreach, and global community-building including building a user community in Kenya as well providing mentorships for recent computer science graduates wanting to find careers building on Cardano.

NFT Jungle



NFT Jungle is the biggest NFT rarity and analytics database on Cardano, holding about 80,000 collections and over 6 million assets. Our goal is to create advanced tools to onboard NFT and token traders from established chains as well as making their day-to-day actions from buying and selling to tax exporting smooth and easy.

TapTools



Our data analytics tool provides real-time analysis for Cardano native assets trading on decentralized exchanges.

TapTools has also created a portfolio tracker that enables Cardano native asset holders to connect multiple wallets to see real-time statistics/data of the assets they hold.

Cardano Cube



Project description

Providing an overview of all projects and DApps building on Cardano. Cardano Cube helps you navigate and explore the Cardano ecosystem. Follow us and stay up to date with the most innovative projects building on the Cardano blockchain.

What makes you unique compared to others in the space?

We are showing all projects built on Cardano, all clearly categorized so the community can easily discover everything. We are creating a unique connection between builders and the Cardano community.

Why did you choose Cardano?

The approach of IOG to create mass adoption of Cardano and blockchain technology is absolutely amazing. We see extremely talented teams building the next-generation DApps on Cardano.

What have you got in the pipeline for the next 12 months?

As we are growing our platform, in the upcoming 12 months we will add Cardano updates, project news, and an educational environment. We will also improve the discoverability of projects, both by optimizing platform features and adding a more advanced category/tag system (Impact, Features, and more). We're also working on adding trust scores to certain projects.

“Cardano is focused on ways that blockchain can solve real problems in the world. It’s **open to integration with other blockchains** and pushes the industry forward through scalable interoperability”

- *Iagon*

More projects

There are many other projects building on Cardano. Here are just some of them:

Lending & borrowing

MELD



The 'first non-custodial DeFi protocol for lending and borrowing both fiat & cryptocurrencies'. MELD provides a fast, safe, and transparent set of tools for anyone to borrow fiat against their crypto deposits + offers attractive fiat lending solutions.

Lending Pond



Order book DEX, NFT marketplace, and lending platform. Lending Pond is committed to creating a bridge between the decentralized world and the centralized world by creating decentralized derivatives that were not previously possible.

Aada



We provide a platform for users to borrow or lend CNTs without a middle man. It currently runs a P2P service. We revolutionized the ecosystem presenting tradable and transferable proof of loans, a.k.a NFT bonds.

Liquid



Liquid Labs' mission is to scale Cardano's adoption as a financial operating system through modular-built DAO and DeFi products. Our on-chain governance (Agora) and algorithmic money markets (Liquid) protocols are built by Liquid Labs and owned by the Liquid DAO.



Identity solutions

IAMX



IAMX is the world's-first Web3 solution to:

- Provide the most secure SSI solution at government level
- Utilize & manage pre-authenticated data
- Maximize interoperability through a true inter-chain solution with 43 ledgers
- Reward identity holders with revenue-generating opportunities (affiliate marketing)

RootsID



RootsID is an open-source development group building an ecosystem of SSI software for grassroots identity projects on Cardano and Atala PRISM. We are focused on using SSI standards that enable interoperability and on use cases that bring secure decentralized identity to individuals, communities, organizations, and businesses.

LearnerShape



We are piloting a Cardano community credential with a new open-source skills authentication protocol. In early June 2022, LearnerShape released a new open-source protocol for universal authentication of skills on the blockchain, based on Cardano's Atala PRISM framework. LearnerShape and PACE have teamed for this project to pilot the technology for a first credential, selected by a Cardano community team.

ProofSpace



ProofSpace is an identity hub, wrapped with no-code tools. We take care of identity protocol integrations, interoperability, and maintenance and offer a suite of plug-and-play tools for customers to go live in days, not months. Easy to adopt, interoperable, and futureproof.



More projects

There are many other projects building on Cardano. Here are just some of them:

L2 Scaling

Milkomeda



The only EVM sidechain for Cardano, bringing closer integration with the EVM ecosystem.

Why did you choose Cardano?

There are many users in Cardano that EVM projects would like to be able to access.

What have you got in the pipeline for the next 12 months?

Wrapped smart contracts, liquid staking, NFT bridge, easier token listing, and dynamic validator set.



Wanchain



Wanchain's cross-chain infrastructure comprises both a sustainable Layer 1 PoS blockchain and a decentralized wide-area network of blockchains. The Wanchain Layer 1 PoS blockchain is a full Ethereum-like environment that works with industry-standard Ethereum tools, DApps, and protocols. Wanchain uses a PoS consensus algorithm called Galaxy Consensus. Developed by world-class researchers, Galaxy Consensus is an extension of Cardano's Ouroboros. Wanchain's wide area network of blockchains is a decentralized system of direct, non-custodial cross-chain bridges that connect both EVM and non-EVM networks without requiring any centralized intermediaries.

Fourier Labs



Cardano native EVM solution

Fourier is to establish a high-performance, Ethereum-compatible, DApp development platform on Cardano. It helps accelerate the migration of EVM-based projects into the Cardano ecosystem, thereby strengthening user adoption through Cardano's lower transaction fees, higher scalability, and security.

“Before we began building the idea we had in mind, we asked ourselves ‘how will we know if we made the right decision on the chain that we chose in 10 years?’. We said we will be proud of our contributions to society if it was built on a chain that was immutable, had a community that valued a ‘measure twice, cut once’ philosophy, and most important: open discussions”

- *Lending Pond*

More projects

There are many other projects building on Cardano. Here are just some of them:

Cardashift



Launchpad/Incubator

Cardashift creates the ecosystem for great transitions to happen. Leveraging its citizen-led launchpad and its lab, Cardashift helps high-impact companies tokenize their value models, raise funds, and realize their social and/or environmental ambitions.



DripDropz



Token distribution

DripDropz streamlines access to the new financial operating system. We foster projects building on Cardano to distribute tokens efficiently every five days. This cultivates stronger relationships between projects and their communities.



Xerberus



Risk Management

We provide a public good in the form of risk ratings similar to those created by traditional rating agencies. In addition, we plan to launch a prediction market essential to feed more information into our risk model. We also already have realized an analysis API.

DApp360 Workforce



Career launchpad

DApp360 Workforce provides a uniquely structured curriculum for training Cardano DApp developers in blockchain, Haskell, Plutus, and Cardano DApp development. We built a program to mitigate three prevalent problems in DApp development: security, scalability, & optimization.

KubeCoin



DeFi

We streamline the adoption of the 3.0 economy for every type of user, from novice to professional, so that we can seamlessly integrate digital currencies into the daily lives of our users. At KubeCoin, we are strong believers in the potential of crypto to revolutionize our future and transform the economy as we know it.

Trading Tent



NFT P2P Trading Platform

Tent allows two users to seamlessly trade any native Cardano asset (NFTs, tokens, and/or ada) live, instantly, and in a single transaction directly between them. This trade happens in a secure environment made possible by Cardano's EUTXO model and multi-signature transactions.

ENCOINS



DeFi

ENCOINS is a new privacy protocol on Cardano. A user sends ada into the protocol to mint a bundle of NFTs (aka ENCOINS). Each token contains an encrypted redeeming value known only to the user. ENCOINS can be used as any other native asset on Cardano: traded, gifted, or used in other DeFi projects that support them. They can also be used in ENCOINS Ledger, our upcoming shielded account system.

veritree



Nature-Based Solution

veritree is the first integrated platform designed to transform the restoration space through blockchain technology. Our toolkit allows our partners to collect / manage data and deliver it to stakeholders. We facilitate incorporating Nature-Based Solutions into business models.

Charli3



Oracle

Oracle Charli3 launched our live product on Cardano main net October 14th, 2022. We are a Native, Plutus-built oracle for Cardano, aiming to service Cardano's entire DeFi ecosystem. We had the first running project code on mainnet in Sept 2021 and continue to bring that innovation through our range of future products, continually ready to serve the ecosystem.

Digital Syndicate



Minting service & more

Digital Syndicate has worked with many eNFT Projects to help them produce both fungible and non fungible assets for their own initiatives. They offer full service minting for projects, with lots of functionality not traditionally found, including whitelisting, blacklisting, lottery style, fungible token delivery, and fungible token acceptance.

More projects

There are many other projects building on Cardano. Here are just some of them:

Profila



Decentralized data and marketing platform

The Profila platform is a Web5 data and relationships platform, delivering value to people and brands, through a private data and content channel. It allows people to build an accurate digital profile via gamified self-discovery quizzes and incentivizes them to keep their data updated („evergreen“) and share it with brands.



Iagon



Cloud computing

We are developing a one-stop solution for decentralized Cloud services on Cardano, so it will be open for all users, ranging from retail to highly-demanding corporate users. First, we foresee extensive use of the platform by data processing and AI companies due to the platforms' lower costs and capabilities.

Atomic Swap



P2P Escrow

Trade any number of tokens/NFTs for any other number of tokens/NFTs in a single transaction.

I'm working on a p2p local-first database. It can sync all your devices (mobile, tablet, desktop, etc) with no server interactions.

CertiK



Blockchain Security

CertiK provides end-to-end Web3, blockchain and smart contract security.

CertiK has audited thousands of projects, including ones running on Cardano. Our services include code auditing of projects, KYC verification, and 24/7 monitoring of on-chain threats.

SecurityBot



Scam Prevention Tool

SecurityBot is the premier scam prevention Discord bot to protect NFT and crypto communities in the Cardano ecosystem. SecurityBot automatically blocks scams ranging from impersonation to phishing links and almost everything in between. Used by more than 100 communities, SecurityBot is protecting more than 140,000 unique users daily and has prevented thousands of scams.

Genius X



Launchpad & Accelerator

Genius X is a Web3 business accelerator and launchpad for fully-vetted, early-stage startups. Its mission is to create a more decentralized and inclusive Web3 future built by the brightest minds utilizing blockchain technology. The program helps ambitious founders turn their vision into reality by building impactful and scalable solutions leveraging blockchain technology.

TestnetCoins.io



Utility Token

Incentivising participation in Cardano testnets.

There is no method today because tADA has no value - some projects incentivise their own testnet projects with their own tokens - we want to provide a community wide token reward program based on Proof of Participation by testers and operators.

Indigo



Synthetic Assets

Outside of being the only Synthetic Asset platform building on Cardano, and bringing the first native stablecoin solution to this ecosystem, The Indigo Community and the Indigo DAO are among the most active project communities in the space. Indigo's transparency and values have created an educated and involved community that cares about the future of the protocol.

“In addition to its secure, sustainable, peer-reviewed blockchain, Cardano inspires a community of innovators and changemakers, especially in Africa where it’s needed most”

- *Thrift*



Cardano and Africa

Africa is a continent bursting with possibilities, and a young population ready and willing to turn their novel and innovative ideas into reality. The African community welcomes revolutionary technologies, such as blockchain, with great curiosity and dedication. This is why IOG and a number of Cardano-native projects have chosen to invest in and build solutions for the African marketplace.

The projects building in Africa include:

 **World Mobile:** a licensed mobile network operator built on blockchain technology, renewable energy, and a sharing economy. World Mobile aims to connect everyone, everywhere, through an affordable network and digital identity solutions while advocating economic freedom and dignity.

 **Wada:** Wada is an impact-driven resourcing network for unlocking the potential of Africa & Diaspora with distributed ledger technology, Artificial Intelligence, and automation.

 **Empowa:** Empowa is a RealFi property platform combining blockchain, sustainable building, and DeFi inclusion, enabling the building of affordable and greener houses in Africa, by offering developers access to affordable funding.

 **EMURGO Africa:** has a vision to position Cardano as the standard tech infrastructure platform for Africa's emerging innovation and support 100 local start-ups to bring financial empowerment. Its mission is to:

- o establish a sustainable growth model for African start-ups to balance commercial viability and social impact
- o build financial infrastructure to promote innovation and bridge traditional finance with blockchain
- o connect African industries to share business resources.



Adanian Labs: a venture-building studio on a mission to form 300 impact-driven start-ups in Africa. Founded in January 2020, Adanian Labs is driven by impact, youth, women, and wealth creation. We use smart technologies to build tech-powered start-ups and service small and medium-sized enterprises (SMEs), corporates, and governments. We nurture start-ups into successful and scalable data-driven commercial businesses.



Adaverse: a Cardano ecosystem accelerator that connects entrepreneurs, strategists, and mentors building a robust foundation in Africa and Asia. It's a collaborative initiative between EMURGO and Everest Ventures Group that supports blockchain founders with funds, mentorship, and tech infrastructure to scale solution-driven products in Africa and the globe.



Atala PRISM: an SSI platform and service suite for verifiable data and digital identity. The core infrastructure issues decentralized identifiers (DIDs) and verifiable credentials. IOG is working with Ethiopia's Ministry of Education to implement a national student and teacher identity, and attainment recording system based on Cardano. This enables the authorities to create tamper-proof education credentials for 3,500 schools, five million students, and 750,000 teachers.



Pezesha: an enabler platform and marketplace that connects SMEs to working capital. Pezesha achieves this through an automated lending infrastructure and a collaborative approach with banks and other financial institutions. Pezesha seeks to reduce the inequalities in accessing formal financial services.



Iceaddis: Ethiopia's first innovation hub and tech start-up incubator. Start-up founders use Iceaddis facilities to find the talent, skills, and capital they need to kickstart their ventures.



The Ariob Incubator: a five-month, cohort-based, support program designed to boost the growth of high-potential start-ups through business consulting, training, market linkage opportunities, and seed investments.



Thrift: a Web3 wallet that maps real needs to technology, built to improve user financial health through built-in savings, investment, and payment features. It is a suite of products for decentralized, trustless, smart-contract-powered thrift savings, RealFi and DeFi systems built on a non-custodial RealFi wallet to create a more accessible and efficient financial system in Africa.

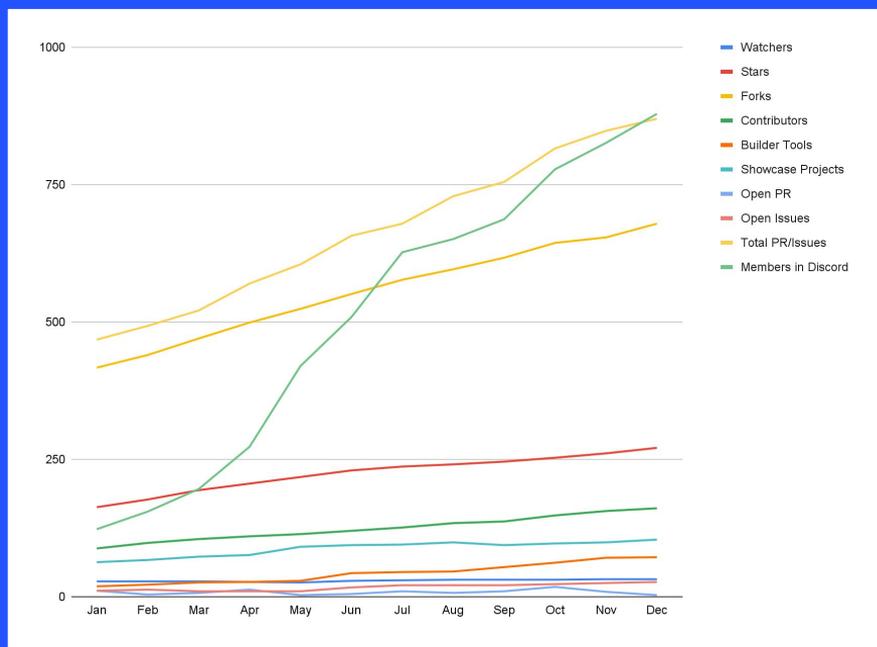
The strength of the Cardano community

Community is a unique state of collectiveness that cannot be coded or copied, and Cardano has one of the strongest communities of developers, stakeholders, creators, contributors, and validators (SPOs) in the blockchain space.

Developers

Cardano developers are at the forefront of discussing and innovating solutions to improve the blockchain experience for all its users.

- **11,000+ developers** in IOG's [technical Discord channel](#)
- **18,000+ developers** registered for IOG email updates
- Monthly developer digest
- [Weekly development update](#)
- 7,800 total registered for IOG's educational programs such as Plutus Pioneers Program and Marlowe Pioneers Program
- [Documentation hub](#) for developers
- [Cardano Developer Portal](#)
- [Weekly tech updates](#) from IOG's core team
- A hub for [cardano-node-test's documentation](#)
- [Plutus resources](#) for developers to access
- **62 builder tools** in Cardano Developer Portal, a 226% increase this year
- **900+ members** in Cardano Developer Portal Discord server



Growth of Cardano Developer Portal in 2022. Source: Cardano Foundation, GitHub

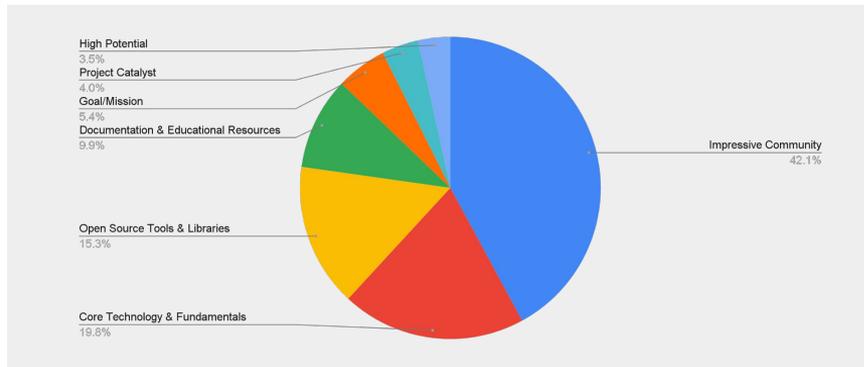
Developers

In September 2022, the Cardano Foundation conducted the first annual survey of developers in the Cardano ecosystem ([full results here](#)) to capture the opinions of Cardano's developer community.

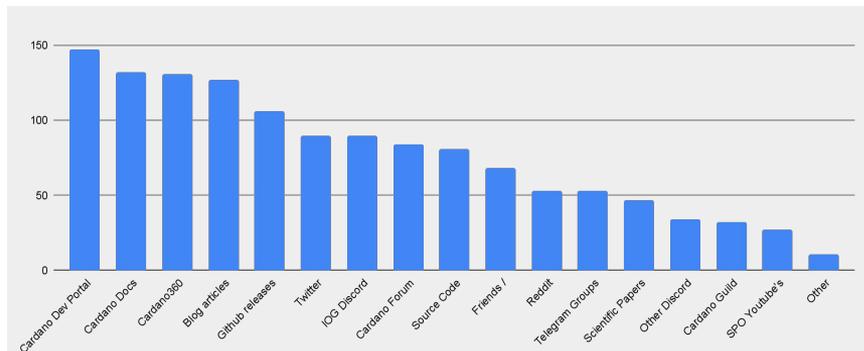
Source: Cardano Foundation



Keywords used by developers to describe Cardano's community



What do you think is Cardano's developer ecosystem's greatest asset?

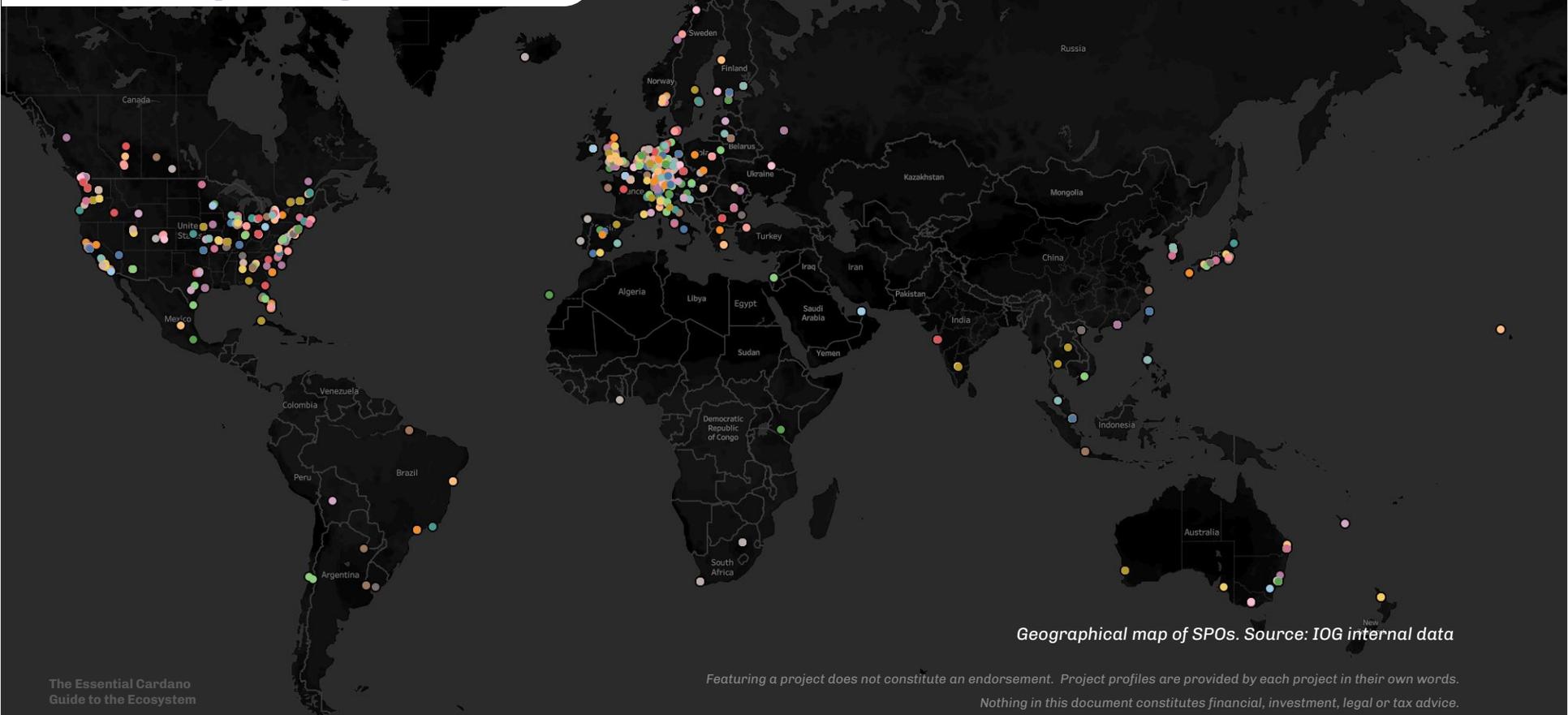


Where do you look for technical information/updates?

“Why did we choose Cardano?
The philosophy is that we can change
the world together. Decentralization and
just the vision of what Cardano can and
will be”

- *Brian, HERO pool*

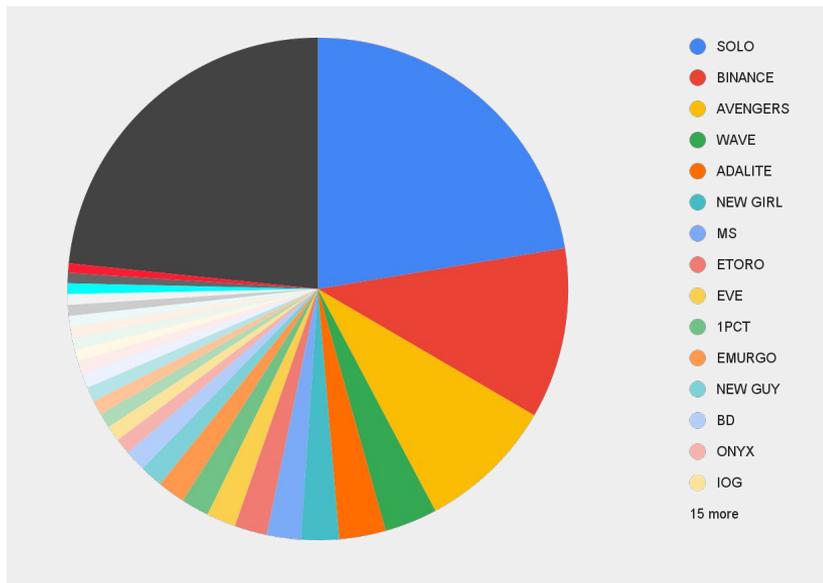
Stake pool operators



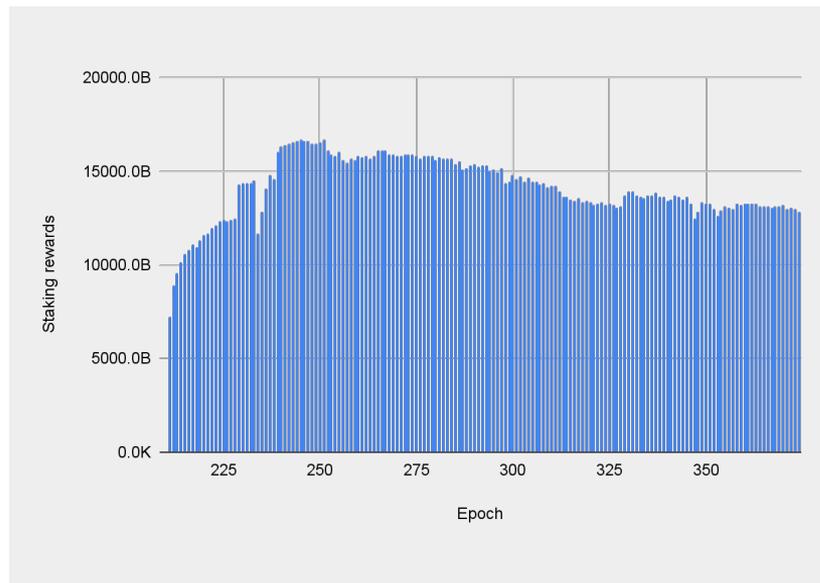
Geographical map of SPOs. Source: IOG internal data



Stake pool operators



Cardano has a Nakamoto coefficient of 25, making it more decentralized than most blockchains. Source: IOG internal data



Stake pool operators (SPOs)

The [staking experience](#) forms the bedrock of Cardano. [Stake pools](#) run a [node](#) to secure and progress the Cardano blockchain by validating transactions and producing [blocks](#). Operators take responsibility for setting up and keeping their stake pools running. Features include:

- by delegating ada, users help secure the network and earn rewards every five days
- 3,000+ distributed, community-operated stake pools create and validate all blocks and transactions
- Liquid staking with no lock-ups or slashing penalties
- [Lightweight hardware requirements](#) to set up a Cardano node compared to other blockchains
- Over 71% of all ada is delegated
- Monthly operator calls in Discord
- 1,500 subscribers to the SPO digest
- 7+ stake pool alliances
- [A Nakamoto coefficient of 25](#), making Cardano more decentralized than most blockchains
- Predictable declining staking rewards over time to ensure continuous ada reserves

The Cardano network is supported by a myriad of stake pool operators, each playing their part in running the network we are building on. There are far too many to mention, but here's a small sample:

CLIO1



Markus Gufler, SPO, Ambassador, guild member, cnTools founder and developer, TopologyUpdater service provider, etc.

Currently working on network monitoring concepts, and some concepts for a more engaging testnet environment

HERO



My name is Brian and I am a volunteer fireman and single pool operator. I raise funds for first responders through the first responders' children emergency fund. I have been involved with the Cardano community since early 2018 and have watched Cardano grow to be a best-in-class blockchain.

SHA



My name is Paddy, owner and operator of the Shamrock Pool. Shamrock pool has been running for just over 2 years, and the main goal of the pool and myself is to help the Cardano community, whether that is via [poolpeek.com](#) or [buildingoncardano.com](#), both are completely different tools but both aim to promote, promote, promote.

TOPO



I'm a passionate Peruvian IT professional that wants to make a difference in our communities by giving them access to the same tools and opportunities as someone anywhere else in the world. Our motto is "Bringing Cardano to LATAM" and we try to live by it.

The goals and values of the Cardano ecosystem resonate strongly with me.

CHEF



My name is Theodore/Chef and my mission is to create a community around my pool with our delegators and help them all grow as the pool grows. We've created the first DAO based on a stake pool by using decentralized tools built by the community, such as a multi-sig wallet for the treasury (built by ADAO), voting tokens, and voting polls (built by Summon Platform).

LEAD



LEAD Stake Pool is an OG pool operation running on the mainnet since the Shelley launch (even minting a block in the first ever epoch) and has a proven record of block production and for earning great rewards for delegators. LEAD promises to be a single pool operation only, we believe in decentralization and want to see Cardano succeed no matter what.

POOLS



Our pool is one of the important ways we are able to provide maintenance, development, and further development of our OG explorer [cexplorer.io](#) (former [adapools.org](#) :))

I like the way you (Cardano) think and drive. Most projects do it the other way around. Not to mention EUTXO, which is worth a lot more than most people realize.

APEX



I am an IT professional with more than 24 years of experience in IT Security and best practices. The mission of the APEX stake pool is to help and educate the Cardano community, to bring more people into the Cardano ecosystem, and contribute to the development and decentralization of Cardano.



Cardano's content creators

Cardano is blessed with content creators focused on educating and informing people about the blockchain and its ecosystem. These creators use platforms such as:

- **[Cardano Docs](#)**: An educational platform for anyone who is new to Cardano and would like to learn more about the blockchain's basics. Cardano Docs has a range of explainers on the components of blockchain and how Cardano stands out from other solutions. From explanations on cryptocurrency and consensus to deeper dives into the types of wallets and delegation instructions, Cardano Docs aims to make introduction to Cardano seamless and comprehensive.
- **[Essential Cardano](#)**: a crowd-sourced, open source platform built to showcase the ecosystem. The community is welcome to contribute content and help increase the available wealth of knowledge on Cardano.
- **[Cardano360](#)**: a monthly update show about the work being done on Cardano.

Cardano Docs

Most read page: [Installing the Cardano node](#)
Most traffic comes from direct visits (around 40%) and organic search (around 30%)
Over **250,000** visits in 2022

Source: Google Analytics

Essential Cardano

Most shared post: [What is Cardano?](#)
Most read post: [Your Cardano onboarding guide](#)
Over 45% of visits come from Twitter
Over **90,000** visits since launch

Source: Google Analytics and BuzzSumo

YouTube

135,000 IO YouTube subscribers
Most watched video: [Charles Hoskinson Cardano Whiteboard](#) - **1.8 million** views
Over **4.2 billion** minutes of IO video watched

Source: Youtube

Cardano's content creators

- [The Cardano Foundation's Stake Pool School](#): a course designed to (re)introduce users to Cardano, with guidance on how to set up a stake pool, and managing and maintaining one to ensure optimal performance.
- [The EMURGO Academy](#): EMURGO's education arm, a global learning solutions company focusing on incubation, training, and evangelizing Blockchain technology, with a focus on Cardano.
- [Cardano Spot](#): a social content platform by EMURGO developed with the Cardano community at its core. A place where Cardano enthusiasts can stay up-to-date and grow through market insights and community interaction.
- [Cardano Forum](#): a platform for Cardano enthusiasts to discuss a wide range of Cardano topics in different languages, including English, French, Mandarin, Italian, Korean, German, Portuguese, Russian, Greek, Spanish, Indonesian, and Vietnamese.
- [The Cardano Community Discord](#): a Discord channel for community members and developers to discuss all things Cardano.
- [Cardano ambassador program](#): established by the Cardano Foundation. The program sets out to promote awareness and educate the community, thus driving the adoption of Cardano.

YouTube and Twitter creators: the list of Cardano content creators is too long to fit in this report, and it includes:

- [Army of Spies](#)
- [Cardano with Paul](#)
- [jack friks](#)
- [Soorai](#)
- [ADA whale](#)
- [Doctor A](#)
- [KtorZ](#)
- [Cardano Ergonaut](#)
- [Flantoshi](#)
- [Learn Cardano](#)
- [Kaizen Crypto](#)

Bullish Dumpling



I'm Dumpling, a community builder + educator. I help projects gain the trust of the community by following the knowing-liking-trusting model. I've helped Cardano projects achieve results in their token sale, community building, and trust creation. My vision is to onboard web2 and non-Cardano companies to Cardano and grow the entire ecosystem. Why Cardano? The most community there is: inquisitive, inclusive, lenient, at the same time allergic to centralization and bullshit.

Andrew Westberg



NerdOut is a technical show about various details on Cardano. We focus on the useful as well as the useless but fascinating intricacies of how things work. As a developer, Cardano was the most interesting to me from a technical perspective. The 'measure thrice and cut once' approach was attractive to me after a career of 'move fast and break things' in the corporate world.

CNFT Hub



The CNFT Hub was brought to fruition during the early Mary era days. We've been covering all major happenings since and added a community-led events calendar. The site has received Catalyst funding to provide content in all major languages around the world. We've not only built a home for helping new people in the community, but we've also helped improve the community through the introduction of CIP-0027. In that vein, we have introduced Gordious Moab, which provides utilities within Discord and Twitter that cater to their CNFT Projects.

Adapulse



Adapulse was founded by two stake pool operators from the Swag and Zod pools. We identified a gap between community-built projects and the broader community. Many didn't know about some of the smaller innovative projects simply due to no social presence. We decided to call upon community members already providing insights on these topics to support our effort to help disseminate information to our community members.

“We chose Cardano because it’s a blockchain that optimizes and balances the trilemma of high security, scalability, and decentralization and has a great community”

- DApp360 Workforce

Cardano is scaling

Cardano's hard fork combinator (HFC) technology ensures smooth protocol transitions and ledger upgrades. Unlike hard forks in other blockchains, the combinator saves the previous chain history and allows nodes to upgrade gradually while supporting old and new protocol rules.

Successful HFC events rely on the support and participation of crypto exchanges, stake pools, and major Cardano DApps. This means that Cardano upgrades are decentralized and in the hands of its community.

The Vasil upgrade was deployed to the Cardano mainnet on September 22, 2022. Vasil introduced enhancements that enable DApp developers to create exciting user experiences and features for greater throughput and network capacity, as well as decrease average transaction size and fees. These include Cardano improvement proposals (CIPs) for Plutus script enhancements:

Plutus script enhancements:

- [Reference inputs \(CIP-31\)](#)
- [Inline datums \(CIP-32\)](#)
- [Reference scripts \(CIP-33\)](#)
- [Datums and redeemers](#)
- [Data serialization primitive \(CIP-42\)](#)

Other enhancements:

- [Explicit collateral output \(CIP-40\)](#)
- [Diffusion pipelining](#)
- [Removal of the decentralization parameter](#)

Find out more: [When is a hard fork not a hard fork?](#)

Vasil upgrades explained

The Vasil upgrade went live in September 2022, and it brought with it significant performance and capability enhancements to Cardano. Vasil is part of Cardano's Basho development phase, that focuses on optimization, scalability, and interoperability.

Diffusion pipelining

Enables higher throughput and improves block propagation times.

Plutus Core changes

Enables reduced transaction costs and improvements in time and memory usage for smart contract scripts.

Plutus V2 script enhancements

Provides greater script efficiency, improved throughput, reduced transaction size, and lower script execution costs.

Collateral change address

Developers can now specify an address to receive the collateral change. Even if the transaction fails validation, only the collateral amount is taken, the remaining funds are sent to the specified change address.

Transaction redeemer changes

Developers can see redeemers for all inputs rather than just the one passed to script, improving developer experience.

Single Verifiable Random Function (VRF) call for block validation

Faster block validation improves system performance without compromising security.

Decentralized governance

Decentralization is one of Cardano's core tenets and is set to be further realized in the Voltaire era, which will provide the final pieces required for the Cardano network to become a fully self-sustaining system. With the introduction of a voting and treasury infrastructure, network participants will be able to present CIPs that stakeholders can vote on to influence the future development of the network.

To further decentralize Cardano, a member-based organization (MBO) will be set up, and include community members and core developers.

Project Catalyst

To explore real-world testing and experimentation while promoting decentralization, IOG created Project Catalyst.

Catalyst facilitates on-chain governance and allows ada holders to directly propose ideas/initiatives, vote on them, and allocate funds from the Cardano treasury to kickstart these projects, applications, experiences, toolsets, products, and services in the ecosystem.

For the Cardano network to become truly decentralized, it will require not only the distributed infrastructure introduced during the Shelley era, but also the capacity to be maintained and improved over time in a decentralized way. To that end, the Voltaire era will add the ability for network participants to present CIPs that can be voted on by ada holders, leveraging the staking and delegation process.

Here are some of the highlights from the 9 funding rounds so far.

Source: Project Catalyst data

PROPOSALS FUNDED

1,155

TOTAL AWARDED

\$38.4m

58,000

Registered voters in 168 countries

1.76 million

Votes cast

6,177

Submitted proposals

TOTAL BUDGET PER FUND



Follow the ecosystem growth

Thank you for reading this report and, more importantly, choosing to be part of the Cardano community. Have you enjoyed reading this report? What can we add next time to make it even better?

[We'd love your input.](#)

Cardano is all about its community and ecosystem of innovative projects. IOG is committed to building tools together; tools that give everyone the freedom to pursue their best lives.

[Sign up here](#) to receive updates on the Cardano ecosystem's state, and to be first to hear about future reports.

This report is delivered by IOG's Community & Ecosystem team, which is focused on increasing understanding about Cardano, supporting the community, and keeping everyone informed on the ever-growing ecosystem.

“Thank you all for being part of this community. Thank you all for the contributions you've made. And thank you so much for being part of the Cardano family. This truly is a labor of love, and we love what we do. And we love working with all of you. It's been a long five years. It's been a good five years. And I look forward to the next five. Cheers.”

- *Charles Hoskinson*