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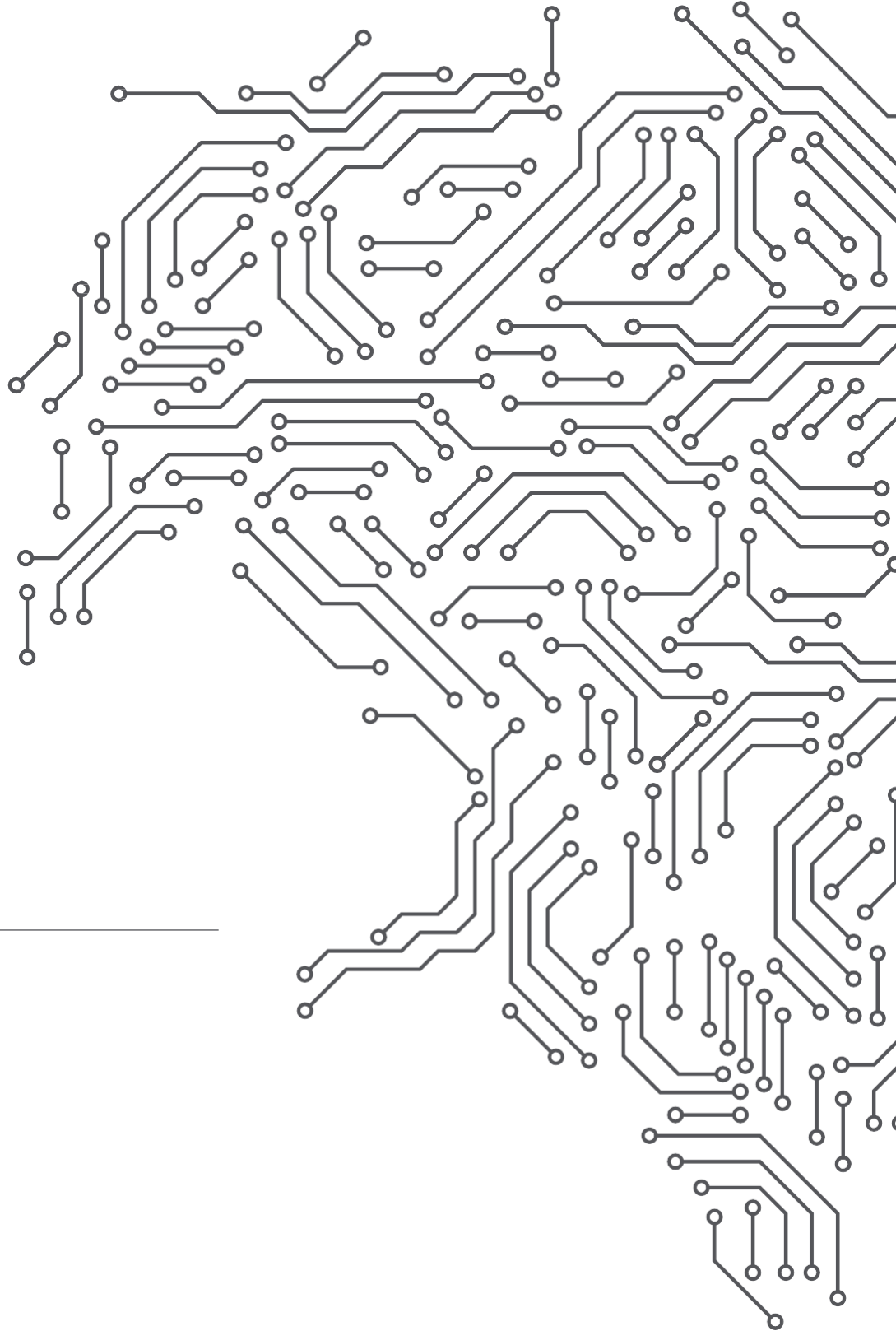
SHARIA ANALYSIS

Cardano



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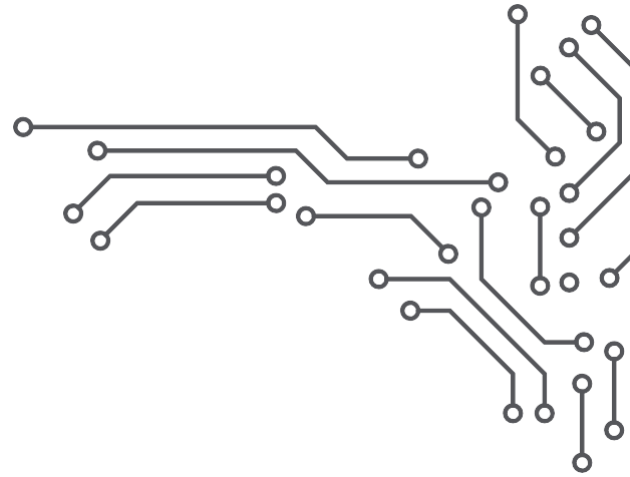
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INTRODUCTION

Cardano is a public, open source blockchain for building and running smart contracts and other decentralized protocols. The project was built from the ground-up by a team led by Charles Hoskinson, a co-founder of Ethereum. Cardano is part of the so-called third generation in blockchain technology, which includes platforms like Polkadot and Cosmos. Aside from scalability, third generation platforms like Cardano also seek to address interoperability and sustainability issues that plagued the earlier generations.

Blockchain interoperability means the ability to access and see the information across various other blockchain systems. For example, from the earlier generation blockchains, IOTA enhances payments on the Internet of Things, VeChain strengthens supply chain management while Stellar brings convenience to people when it comes to global payment network. But all these are limited and confined to their own blockchains. Therefore, the cross-chain technology feature of blockchains is deemed very important for long-term sustainability of decentralized systems – which was clearly absent in the earlier blockchain generations. Ethereum, released in 2015, embraces an open- source software platform that developers can use to create cryptocurrencies and other digital applications.



Ticker	ETH
Consensus mechanism	Proof of Stake
Network type	Decentralized Application platform powered by smart contracts.
Maximum Supply of Tokens	45,000,000,000 ADA
Platform Function	Advanced smart contract platform
Token Function	P2P Payment Governance
Use cases	Payment Building Decentralized Applications

ADA TOKEN

ADA is a digital exchange of value. Any user, located anywhere in the world, can use ADA as a secure exchange of value – without requiring a third party to mediate the exchange. Cardano network claims that every transaction is permanently, securely, and transparently recorded on the Cardano blockchain.

Every ADA holder also holds a stake in the Cardano network. ADA stored in a wallet can be delegated to a stake pool to earn rewards – to participate in the successful running of the network – or pledged to a stake pool to increase the pool's likelihood of receiving rewards. In time, ADA will also be usable for a variety of applications and services on the Cardano platform

TOKEN ISSUANCE

Circulating Supply: 32,040,000,000 ADA

Total Supply: 45,000,000,000 ADA

Issued by: IOHK

IOHK is the software engineering and technology company responsible for building Cardano. Charles Hoskinson is the founder of IOHK and began the development of Cardano.

Cardano's blockchain architecture: CSL and CCL

The Cardano blockchain is stratified into two layers, the Cardano Settlement Layer (CSL) and the Cardano Computational Layer (CCL), which separates Cardano from the regular smart contract platform. Ethereum runs a single-layer architecture, which has seen it experience network congestion, slow transaction speed and high gas fees.

Cardano seeks to address these issues through the CSL and CCL.

Its CSL layer facilitates peer-to-peer transactions such as tokens transfer between users. The CSL is Cardano's balance ledger. Using a proof-of-stake consensus algorithm (Ouroboros protocol) to generate new blocks and confirm transactions, Cardano seeks to improve Bitcoin's proof-of-work protocol.

The CCL layer is where Cardano claims to distinguish itself. The CCL powers the computational needs of the blockchain, enabling the execution of smart contracts.

This layer is operated separately from the settlement layer to afford flexibility if the need for changes arises. It's off-chain protocol allows it to offer greater data storage flexibility and an access model that lets users create customized rules when validating transactions.

Developments

IOHK, has been slowly adding features to the network after testing and peer review. According to the CEO Charles Hoskinson announcement, Cardano will be rolling out its Alanzo testnet, which will allow the cryptocurrency to do smart contracts opening the blockchain to development of Dapps. This will bring it in line with the likes of Ethereum and other projects which are competing for developers attention. This (at the time of writing) is expected by end of August 2021. The final stages of the development will be focused on scaling and on-chain governance issues, the timeline of which is yet to be announced.

Cardano Staking

When you stake your ADA, you are actually staking your Cardano address. This means you can't choose how much to delegate to the pool. It is all of your Cardano balance or nothing since you are staking your address to the pool. You can still perform normal transactions whilst your ADA is staked. When it is time to receive your rewards, a snapshot will be taken and your current balance at that time will be used to calculate your reward.

Unlike bitcoin and dogecoin, Cardano uses a Proof-of-Stake (PoS) algorithm rather than Proof-of-Work to verify transactions. Cardano holders can stake their ADA into nodes, or pools, that may be selected to produce a block for the Cardano blockchain. The more ADA a pool has staked, the more likely this is.

When this happens, stakers are rewarded with ADA depending on how much they delegated to the pool. It's also worth noting that when ADA is staked, it doesn't leave your wallet, nor is it locked up in the pool. By allowing ordinary participants to lock their stake and the protocol to use these holdings to randomly validate blocks as opposed to miners using high energy cost hardware to compete for them, a higher level of scalability can be achieved, while keeping the blockchain decentralized. Instead of relying on the hash rate produced by individual miners to determine who validates a block, PoS determines it by the number of tokens a participant is staking .

EXPOSURE TO ADA

Buying/Owning/Investing in ADA

Direct Buying/Selling: Tokens and cryptocurrencies such as ADA can be bought, sold or held on Trading platforms.

Owning: Once ADA tokens are bought from exchanges, they can either be left on the exchange in your account or transferred to a digital wallet.

Crypto-Funds

Investment companies like Greyscale provide digital currency exposure to investors through its Trusts and Funds. One can have exposure to Cardano by buying units of Greyscale Trust funds which recently added ADA, the native token of Cardano to its Digital Large Cap Fund.

Earning ADA by staking ADA

Staking involves validators who pool their ADA so they can be randomly selected by the protocol at specific intervals to create a block. Since you have to stake your ADA in order to validate transactions and create new blocks, one can lose it if they try to cheat the system.

CONCEPT OF GAS

Gas is the unit of measurement used to represent the cost of running operations on Ethereum. To understand gas, it requires introducing the Ethereum Virtual Machine (EVM). At a high level, the EVM is the environment in which smart contracts are executed on the blockchain. Each node in the Ethereum network runs the Ethereum blockchain, and together they collectively form the EVM — or, the Turing-complete world computer. Within the EVM, smart contracts are executed through a series of operations. Stated another way, a transaction on the Ethereum blockchain can initiate a smart contract, which is comprised of a series of sequential operations — all of which occurs within the EVM.

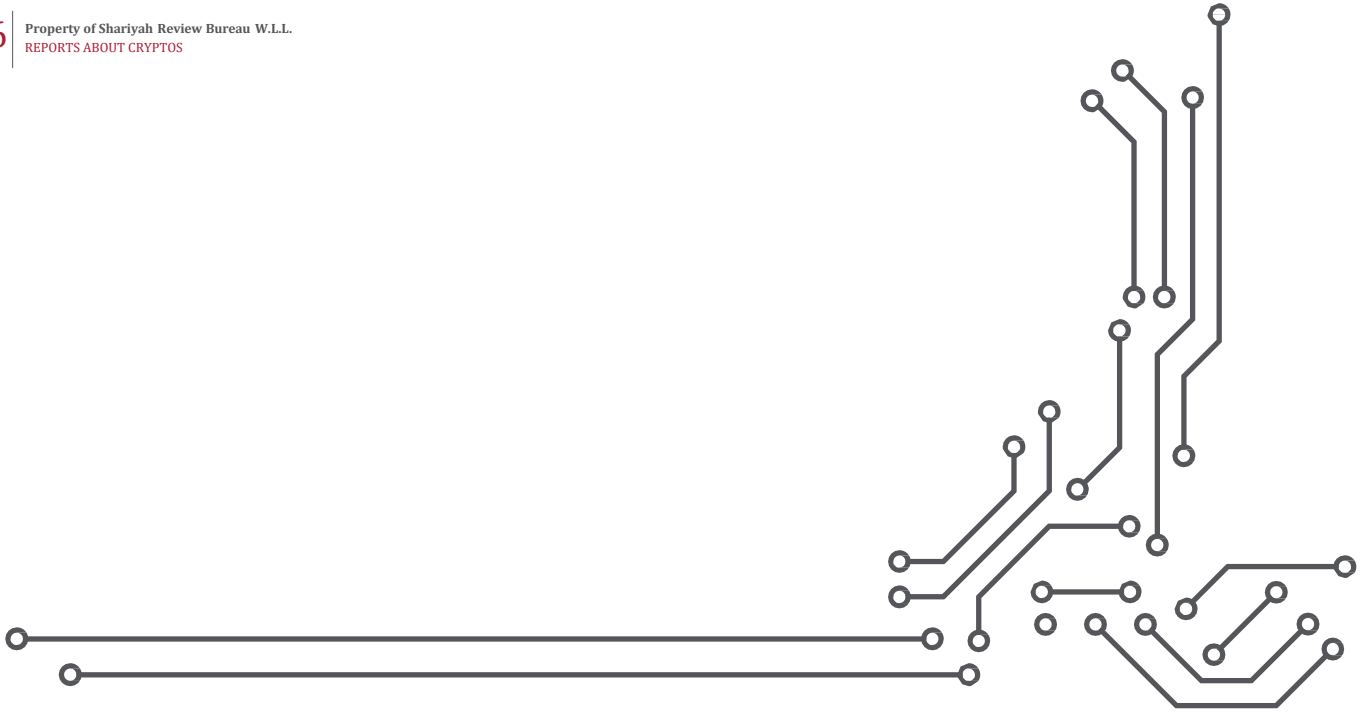
On the Ethereum blockchain, each operation (many of which can be combined to create a single unique smart contract or transaction) requires a certain amount of computing energy, or work, to perform. Because miners must use energy to complete these operations, a unit of measurement was created to monitor and compensate miners for the work they spend running transactions and smart contracts. This unit of measurement is called gas. Gas is a unit of measurement unique to the Ethereum blockchain that measures the computational work required to run transactions or smart contracts within the EVM. The more energy required to run an operation (i.e. a more complex piece of code), the more gas is required.

Gas itself does not “exist.” In other words, it cannot be owned; one cannot have a “gas token.” Rather, the value of each unit of gas is expressed in ETH. For instance, an operation might cost 3 gas, which could be equivalent to 0.00004 ETH. The computational energy needed to perform a specific transaction, however, remains constant. The gas cost of running an “addition” operation on Ethereum. The concept of gas, therefore, exists to separate the computational cost of running an operation from the market value of ether.

Using smart contracts and using Ethereum apps requires money in the form of ether, Ethereum’s native token. Ether is needed for doing just about anything on Ethereum, and when it’s used to execute smart contracts on the network it’s often referred to as “gas.” The ether can be used to call smart contracts: For example, a contract could trigger a post on Twitter (or an alternative), or it could trigger an account to begin borrowing coins on an Ethereum-based lending platform. Ethereum uses accounts to store the ether, analogous to bank accounts. There are two types of accounts:

- Externally owned accounts (EOAs): The accounts that normal users use for holding and sending ether.
- Contract accounts: These separate accounts are the ones that hold smart contracts, which can be triggered by ether transactions from EOAs or other events.

Calling smart contracts isn’t free. Each transaction costs some ether, which increases depending on how much computation the transaction is using.



CONCLUSION

Cardano (ADA) is a public, open source blockchain for building, running smart contracts and other decentralized protocols. ADA is a digital exchange of value allowing users, located anywhere in the world, use ADA as a secure exchange of value – without requiring a third party to mediate the exchange. Cardano network claims that every transaction is permanent, secure, and transparent recorded on the Cardano blockchain. Every ADA holder also holds a stake in the Cardano network. ADA stored in a wallet can be delegated to a stake pool to earn rewards – to participate in the successful running of the network – or pledged to a stake pool to increase the pool's likelihood of receiving rewards. Considering this, ADA serves a valid utility in the Cardano network to transfer value and facilitate voting for the protocol. These utilities are Shariah compliant and as such, ADA can be deemed Shariah compliant.

RESOURCES

Website: <https://cardano.org>

Purpose: <https://cardano.org/discover-cardano#purpose>

ADA: <https://cardano.org/what-is-ada/>

Cardano Documentation: <https://docs.cardano.org>

Cardano Development: <https://decrypt.co/76114/what-is-cardanos-alonzo-rollout-and-what-does-it-mean-for-ethereum>

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Since our humble beginnings 17 years ago in the Kingdom of Saudi Arabia we've grown to include +100 companies across a host of industries, 5,000 transactional programs, 5 interdisciplinary teams and a combined scholarly workforce of 31 Sharia Scholars from 16 countries. And we're not done yet: our Sharia Audit and Sharia Advisory services will continue to improve—serving local and international businesses to help them maintain and manage Shari'a compliance.

Our combination of international and local market knowledge and multi-disciplinary perspective of Sharia give us an edge in the professional Sharia Advisory and Sharia Audit services industry in the GCC. The scope and value of our services, and the help they offer in building a thriving economy, keeps us excited.

The future of Sharia Advisory and Audit is exciting, and we are very lucky to be a part of this business!

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