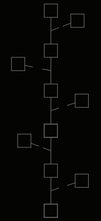
The Power of Public Distributed Ledgers

Trust between businesses, regulators, and individuals is a fundamental building block of trade. Be it trading assets, entering into contracts, asserting a claim to a good across a supply chain, or sharing information. Without trust, business breaks down. An entire industry of third-party intermediaries acting as payment processors, auditors, brokers, online marketplaces, and more has emerged from this need for trust. Despite good intentions, intermediaries are typically slow, costly, and manual.

Public distributed ledgers offer a powerful means to establish trust in an automated way. Transactions are sent to a public network of nodes responsible for verifying and ordering — they act together as a fast and inexpensive third-party, validating a transaction's authenticity. Distributed ledgers and their associated public networks unlock value through time and cost savings, while ensuring security and enabling trust. Hedera is the third-generation public distributed ledger, offering unmatched performance, security, stability, and governance.

Blockchain vs. Hashgraph



BLOCKCHAIN is designed to be slow, as a security measure

Proof-of-work puzzle adjusts to keep the system at a specific speed, as time is needed to determine which block of transactions to add to the chain

Efforts to speed up blockchain all make security sacrifices

Requires heavy electricity usage

HASHGRAPH is a distributed ledger, but not a blockchain

Combines a gossip protocol with virtual voting algorithm to efficiently and quickly achieve network consensus on transactions

Asynchronous Byzantine fault tolerant (highest level of security for distributed networks)

Does not require heavy electricity usage

The Hedera Advantage

Sustainable
The Hedera network offers the lowest energy consumption per transaction of any public blockchain.

High throughput
The Hedera network achieves 10,000 transactions per second (throttled), in a single shard and on-ledger, without compromising network security or stability.

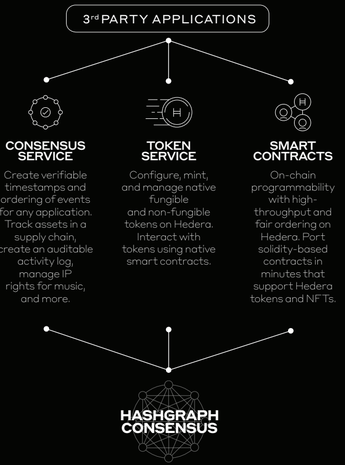
Fair ordering
Say 'goodbye' to bribing nodes for priority and 'hello' to a fairly ordered ledger of transactions. Transactions are ordered chronologically, based on the median timestamp generated by nodes which contributed to consensus.

Finality in seconds
Never wait for block confirmations again. Transactions on Hedera achieve consensus finality, on-ledger, within three to five seconds on average.

Low, Predictable Fees
Transactions on Hedera are a fraction of the cost of other public networks. Fees are fixed in USD but paid in HBAR to support sustainable business practices

The Hedera Network

The open-source platform is ready to scale and made for developers, offering three primary network services:



HBAR (ℏ)

Hedera's Native Cryptocurrency

HBAR is the native, energy-efficient cryptocurrency of the Hedera public network. Hbars are used to power decentralized applications and to protect the proof-of-stake network.

Network Fuel
Developers use hbars to pay for network services, such as transferring hbars, managing fungible and non-fungible tokens, and logging data. For each transaction submitted to the network, hbars are used to compensate network nodes for bandwidth, compute, and storage.

Network Protection
Hedera's proof-of-stake public network uses hbars staked to network nodes to weight votes on transactions when reaching consensus. Weighted voting with hbars makes it difficult and expensive for a bad actor to maliciously affect consensus — it would require them to own and stake over one-third of the network's total supply.

For a list of known HBAR-supported wallets, exchanges, and OTC desks, please visit:
hedera.com/buying-guide

Incredibly fast.
Predictably low fees.
Finality in seconds.
Good for the planet.

	1ST GENERATION **BITCOIN** BTC	2ND GENERATION **ETHEREUM** ETH	3RD GENERATION **HEDERA** HBAR
TRANSACTIONS PER SECOND	3+ TPS	12+ TPS	10,000+ TPS*
AVERAGE FEE	$22.57 USD**	$19.55 USD^	$0.0001 USD
TRANSACTION CONFIRMATION TIME	10-60 MINUTES	10-20 SECONDS	3-5 SECONDS (w/finality)
ENERGY USE PER TRANSACTION	2M+ WH^^	279+ WH^^	0.03 WH^^

*Cryptocurrency txns throttled at 10k tps and will increase in the future. Sharding to enable unlimited tps. For Hedera, the range is shown for transactions not requiring a transaction record but can receive a transaction receipt.

**Avg. Bitcoin tx fee from 2/20/21 - 5/21/21 from https://blockchair.com/bitcoin/charts/average-transaction-fee-usd?interval=3m.

^Avg. Ethereum tx fee from 2/20/21 - 5/21/21 from https://blockchair.com/ethereum/charts/average-transaction-fee-usd?inter-val=3m.

^^From http://blockchain.cs.ucl.ac.uk/blockchain-energy-consumption

The Global Governing Council

Hedera offers a unique and robust form of decentralized governance — maintained by a council of known and reputable global organizations. The Council is committed to the support and evolution of the public ledger infrastructure with millions of public nodes.

abrdn · eftpos · servicenow · Avery Dennison · FIS · Shinhan Bank · Boeing · Google · Standard Bank · Chainlink · IBM · Swirlds · DBS · IIT Madras · TATA · Dentons · LG · Ubisoft · Deutsche Telekom · LSE · UCL · DLA Piper · magalu · wipro · EDF · NOMURA · zain

Fully Decentralized Governance

Geographically distributed
Up to **39** global organizations, spanning **6** continents

Equal influence
2.6% influence per member (equal vote)

Diverse industries
18 unique industries across **5** continents, touching all major markets

Disciplined committees
Membership, Corporate, Finance, Audit, Technical Steering/Product Pricing, Legal & Regulatory and Coin Economics

Network contributions
Every member is required to run a Hedera mainnet node

Term limited
3-year maximum term, with up to **2** consecutive terms

Ethical incentives
Members not compensated beyond network node payments

Fair selection
First **38** additional members selected by the Hedera Council Membership Committee

Hedera Use Cases

Regenerative Finance
Enable fair carbon markets with industry leading trust and transparency

Payments
Enable secure, instant, and cost-effective peer-to-peer payments with HBAR, stablecoins, or your own token.

CBDC
Architect central bank digital currencies (CBDCs) for national or international remittance.

Content Authenticity
Manage and make publicly verifiable the authenticity of sensitive documents and other media.

Decentralized Finance
Remove costly intermediaries and build financial markets, lending protocols, oracles, and more with Solidity-based smart contracts.

Audit Log
Inexpensively create a publicly auditable log of data, including payable events, IoT sensor data, and more.

Decentralized Identity
Manage decentralized identity through a secure, standards-based, and privacy-respecting manner.

NFTs
Build NFT marketplaces that mint and issue unique tokens representing digital media, physical assets, and more.

Permissioned Blockchain
Make private transactions on permissioned blockchains, such as Hyperledger Fabric or Corda, publicly verifiable.

DLT Interoperability
Build an interoperable bridge spanning across public and private networks. Transact value, data, and identity.

Enterprise Applications

Enterprise applications using Hedera to improve business processes and procedures.

DLA Piper · AdsDaX · servicenow · acoer · Avery Dennison · atma.io · SAFE · AllianceBlock · Unibright · Coupon Bureau · theom · Everyware · Maalexi · Meeco · Manetu · EVEC · Neuron · docStribute

View more Enterprise applications on Hedera:
hedera.com/users

Permissionless Applications

Participate in DeFi protocols, staking, NFT marketplaces, payments, creator economy, and more.

DOVU · Infinite powered by SOMO · dropp · Calaxy · stader · tune.fm · Taskbar · Head Starter · HashAxis · SaucerSwap

View more permissionless applications on Hedera:
hedera.com/dapps

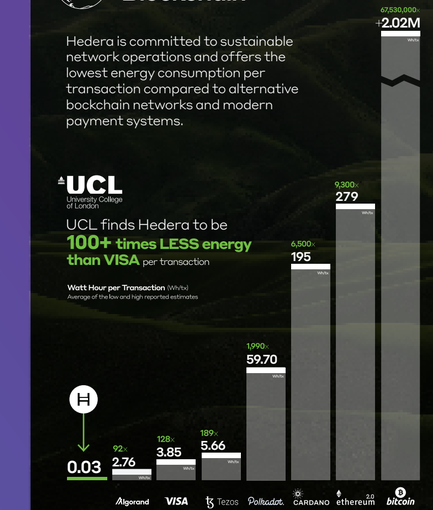
The Greenest Blockchain

Hedera is committed to sustainable network operations and offers the lowest energy consumption per transaction compared to alternative bockchain networks and modern payment systems.

UCL University College of London

UCL finds Hedera to be **100+ times LESS energy than VISA** per transaction

Watt Hour per Transaction (Wh/tx)
Average of the low and high reported estimates



Read the full report: **hedera.com/ucl-blockchain-energy**

Hedera™

The sustainable blockchain

DAVOS WORLD ECONOMIC FORUM 2023

hello future

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