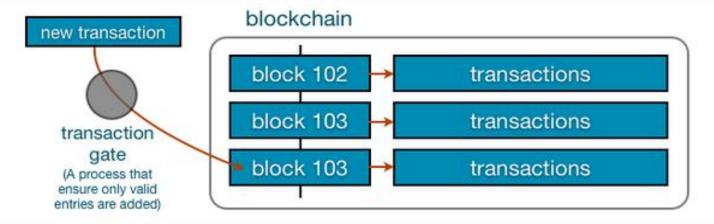# How Does Blockchain Work?

A blockchain is a database shared by every participant in a given system. The blockchain stores the complete transaction history of a cryptocurrency or other record keeping system.

Transactions aren't recognized until they are added to the blockchain. Tampering is immediately evident, and the blockchain is safe as record because everyone has a copy. The source of discrepancies is also immediately obvious.

From http://zdnet.com/blog/hinchcliffe on ZDNet. by Dion Hinchcliffe

What are Blockchain and Distributed Ledgers?

	Blockchain	Permissionless Distributed Ledger	Permissioned Distributed Ledger (Private Blockchain)
Features	Public key cryptography, cryptographic signatures and hash functions, resilient peer-to-peer networks, information communicated to all participants at the same time, no intermediaries, irreversible.		
Digital token example	Bitcoin	Ripple's token (XRP)	Not necessarily needed; bespoke tokens
Agreement	Proof-of-work, mining	Pseudonymous/anonymous consensus	Consensus via known/trusted validators
Open Source?	Yes	Yes	No
Support off-chain assets?	No	Sometimes	Yes
Examples	Bitcoin, Ethereum, Blockstream	Ripple, Stellar	Ripple, SETL, Symbiont, Digital Asset Holdings, itBit

Risks to Blockchain Adoption

- Technology does NOT live up to the potential promise

  o Scalability issues

  o Use cases do not generate efficient processes and cost savings

  o Security concerns

  o Transaction anonymity and privacy

- Industry standards and harmonization attempts fail

- Exogenous technology threats (e.g. quantum computing or new technology overtakes blockchain)

- Regulatory contradictions or ambiguity