

Smart Contracts and Decentralized Applications (DApps)

Smart contracts are self-executing programs stored on a blockchain that automatically enforce agreements when predefined conditions are met. They remove the need for intermediaries by enabling secure, transparent, and tamper-proof transactions. For example, a smart contract can automatically release payment once goods are delivered and verified. Decentralized Applications (DApps) are software applications that run on blockchain networks, using smart contracts for their core logic. Unlike traditional apps that rely on centralized servers, DApps operate on decentralized infrastructure, providing greater transparency, security, and resilience against censorship. Key features of smart contracts and DApps: - Automation: Processes execute without manual intervention. - Transparency: Code and transactions are visible on the blockchain. - Security: Immutable blockchain records reduce fraud risk. - Decentralization: No single point of failure or control. Use cases include decentralized finance (DeFi), supply chain tracking, voting systems, gaming, and digital identity management. Together, smart contracts and DApps form the backbone of the decentralized internet (Web3), transforming how digital services are built and used.