

ERC-20 Token Creation

A Visual Introduction

Standalone Mini-Lecture

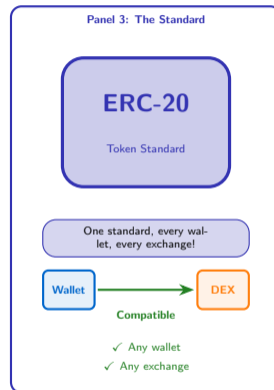
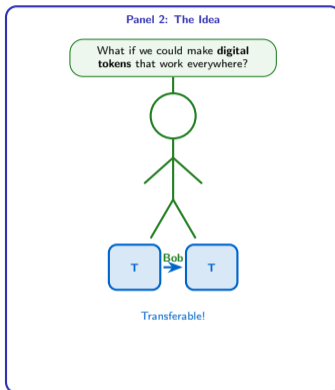
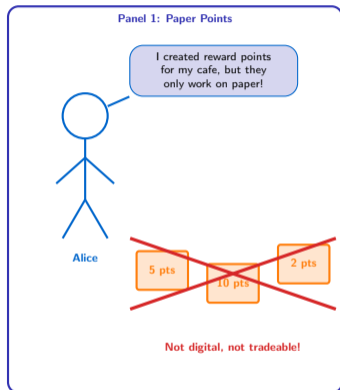
“Your own money — with rules you write”

Prof. Dr. Joerg Osterrieder

University Lecture Series

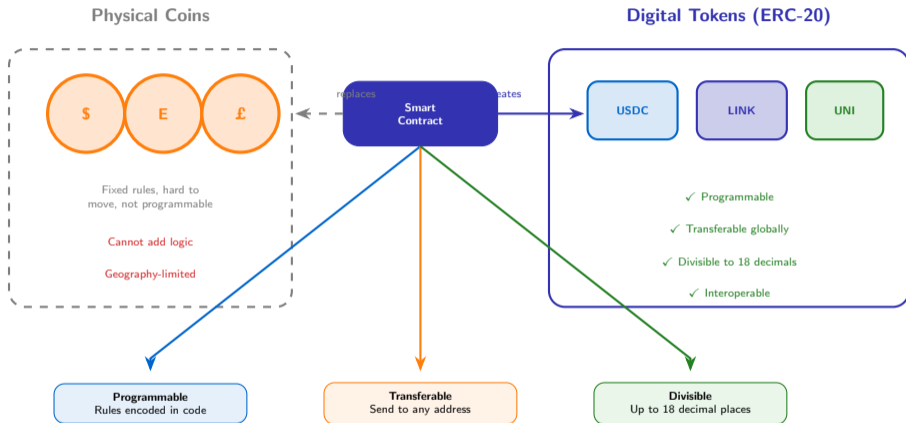
February 21, 2026

The Custom Currency Problem



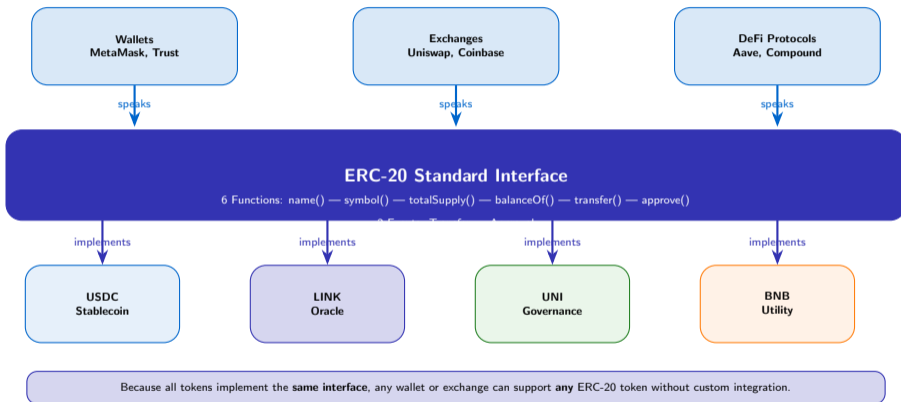
Tokens are programmable money — but without a standard, each token is an island.

What Makes a Token?



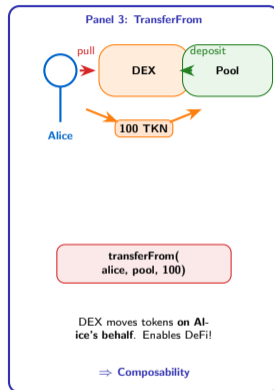
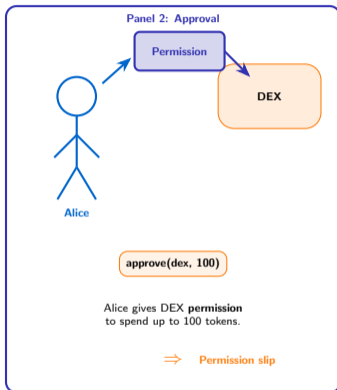
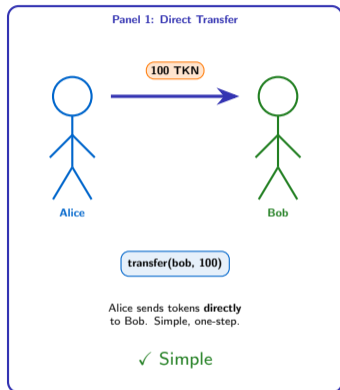
Tokens are smart contracts that track balances — they are programmable money.

Why Standards Matter: Universal Interoperability



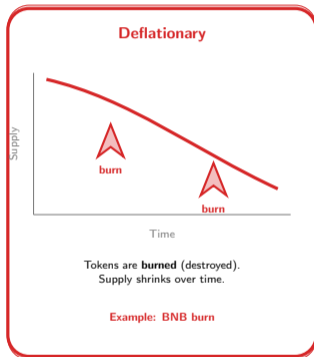
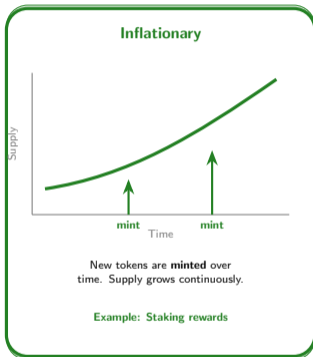
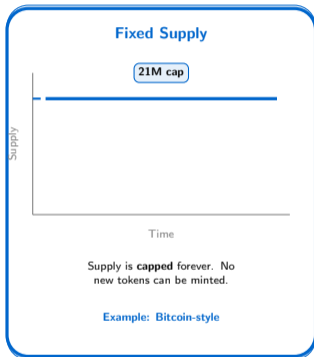
ERC-20 defines 6 functions and 2 events that every fungible token must implement.

Transfer vs Approve: Two Ways to Move Tokens



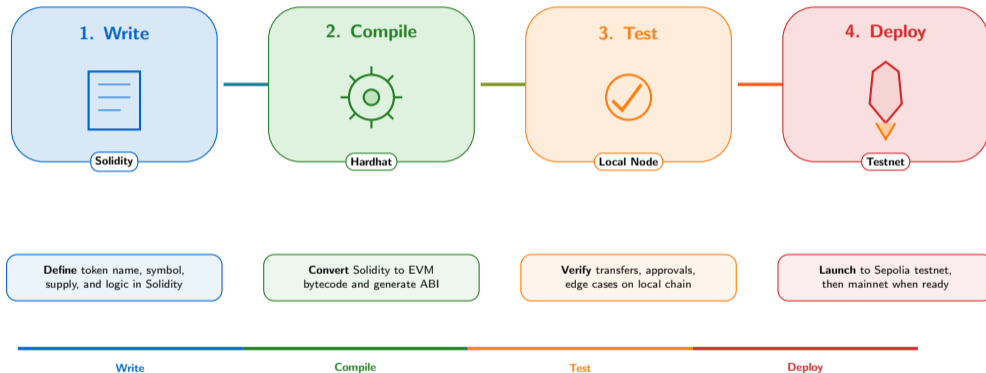
`transfer()` is for direct sends; `approve()+transferFrom()` enables DeFi composability.

Three Tokenomics Models







Token economics (tokenomics) determine long-term value and sustainability.

The Development Workflow



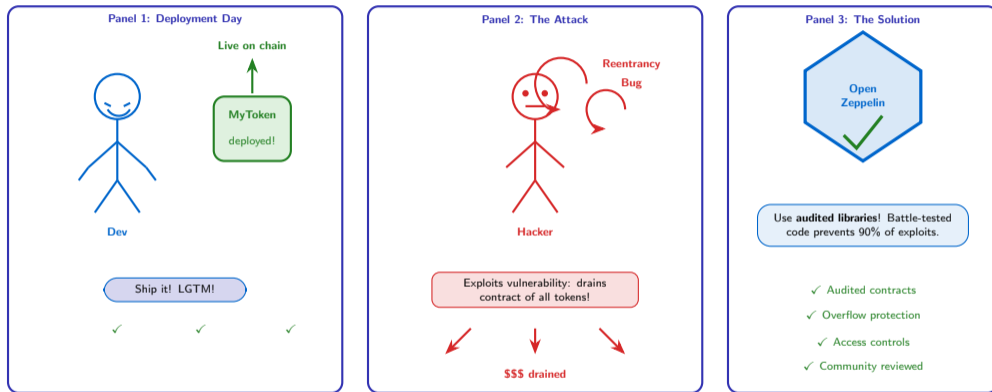
The development workflow follows: write, compile, test locally, deploy to testnet.

ERC-20 Tokens: A Data Snapshot

Token	Type	Supply Model	Market Cap
 USDC	Stablecoin Pegged to USD	Managed supply Mint/burn on demand	\$25B+
 LINK	Oracle utility Data feeds for DeFi	Fixed: 1B tokens No new minting	\$8B+
 UNI	Governance Vote on protocol	Inflationary 2% annual after 4yr	\$4B+
 BNB	Exchange utility Fee discounts	Deflationary Quarterly burns	\$40B+

Each token implements the **same** ERC-20 interface but with very different **tokenomics**, purposes, and supply models.

Over 500,000 ERC-20 tokens exist on Ethereum alone.



Smart contract bugs are permanent — use OpenZeppelin and get audits before mainnet.

ERC-20 Token Creation: Summary

1

Tokens = smart contracts tracking balances. A token is not a coin — it is a ledger inside a contract that maps addresses to amounts.

2

ERC-20 = universal standard (6 functions, 2 events). Every wallet and exchange speaks this interface — build once, integrate everywhere.

3

OpenZeppelin = security foundation. Never write token logic from scratch — use audited, battle-tested libraries.

4

Tokenomics = design matters. Fixed, inflationary, or deflationary supply — and distribution model — determine long-term value.

5

Test everything before mainnet. Smart contract bugs are permanent. Test locally, deploy to testnet, get audited, then go live.

Next: Deep dive into ERC-20 functions, building MyToken, and token economics.

Next: Deep dive into ERC-20 functions, building MyToken, and token economics.