

Real-World Assets & Tokenization: A Visual Introduction

Standalone Mini-Lecture

"Tokenization of real-world assets is the killer app for blockchain" – Larry Fink, BlackRock CEO

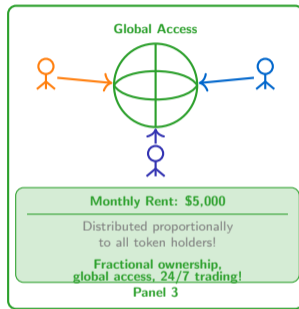
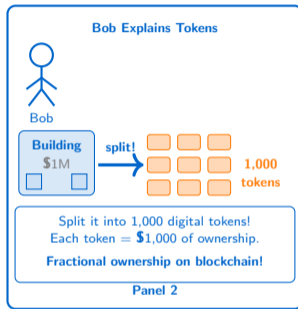
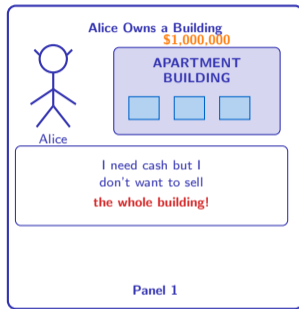
Prof. Dr. Joerg Osterrieder

University Lecture Series

February 28, 2026

This mini-lecture covers tokenization of real-world assets: what it is, asset types, token standards, stablecoins, the Terra collapse, security vs utility tokens, institutional adoption, and the RWA market opportunity.

What is Tokenization?



Tokenization converts real-world assets into digital blockchain tokens. A \$1M building becomes 1,000 tokens at \$1,000 each – enabling fractional ownership, global access, and 24/7 trading with automatic income distribution.

Six Major Asset Classes Ready for Tokenization

Real Estate



Buildings, land, REITs

Fractional ownership

\$330T global market – largest asset class

Bonds & Treasuries



Gov't & corporate debt

Instant settlement

BlackRock BUIDL: \$500M+ on-chain

Commodities



Gold, oil, carbon credits

Verifiable supply chain

Paxos Gold (PAXG): tokenized gold bars

Art & Collectibles



Fine art, luxury goods

Democratized access

Own a fraction of a \$50M Picasso

Private Credit



Loans, invoices, trade finance

Transparent risk

Maple Finance: \$2B+ on-chain lending

Intellectual Property



Royalties, patents, music

Automated payments

Royal.io: tokenized music royalties

Six major asset classes are being tokenized: real estate (\$330T market), bonds (instant settlement), commodities (verifiable), art (democratized), private credit (transparent), and IP (automated royalties).

Token Standards Explained

ERC-20: Fungible Tokens

\$1 **\$1** **\$1** **\$1**

All identical!

Every token is the same,
like dollar bills.

1 USDC = 1 USDC

Great for shares,
stablecoins, commodity tokens

Examples

USDC, USDT, PAXG
Tokenized fund shares

Panel 1

ERC-721: Unique Tokens

#42 **#43** **#44**
Apt 5B Apt 7A Land 9C

Each one is different!

Every token is unique,
like property deeds.

Token #42 = Apt 5B Manhattan
Unique ID with unique properties

Examples

Property deeds, art NFTs
Unique asset certificates

Panel 2

ERC-1155 & ERC-3643

One Smart Contract

ID 1: Gold grams **ID 2: Artwork**

ERC-1155: Multiple types
in one contract – both
fungible AND unique!

ERC-3643 adds compliance:
KYC/AML rules for securities!

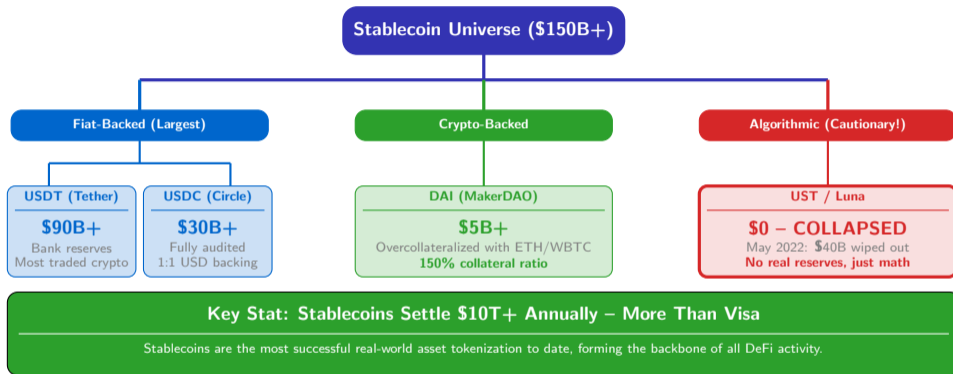
Best of Both Worlds

Gaming items, mixed portfolios
Regulated security tokens

Panel 3

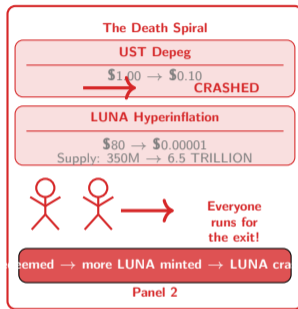
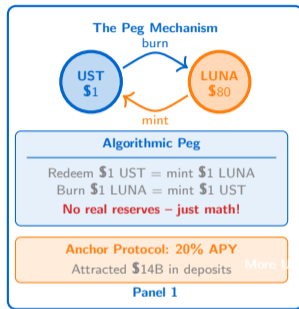
ERC-20: fungible tokens (stablecoins, shares). ERC-721: unique tokens (deeds, art). ERC-1155: multi-type (fungible + unique in one contract). ERC-3643: adds compliance rules for regulated security tokens.

Stablecoins: The First Killer App



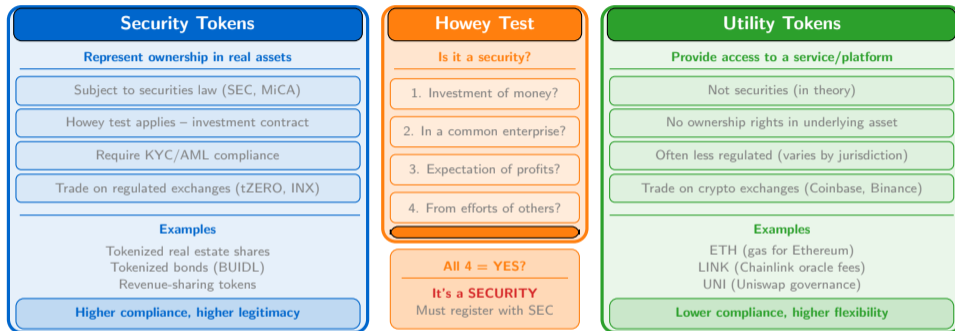
Stablecoins (\$150B+ market cap) are the first killer app of tokenization. Fiat-backed (USDT, USDC) dominate. Crypto-backed (DAI) use overcollateralization. Algorithmic (UST) collapsed spectacularly. Stablecoins settle more value annually than Visa.

The Terra/Luna Collapse



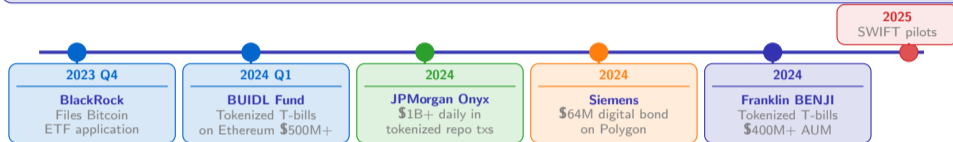
The Terra/Luna collapse (May 2022) destroyed \$40B in 72 hours. UST's algorithmic peg failed in a death spiral: mass redemptions hyperinflated LUNA from \$80 to near zero. This was the largest crypto collapse in history.

Security Tokens vs. Utility Tokens



Security tokens represent ownership and must comply with securities law (Howey test, KYC/AML). Utility tokens provide platform access and face less regulation. The Howey test determines classification: investment + common enterprise + expected profits + from others' efforts = security.

TradFi Giants Enter Tokenization: Key Milestones 2023–2025



“In five years, every financial asset will be tokenized”

– Larry Fink, CEO of BlackRock (\$10 Trillion AUM)

BlackRock
\$10T AUM, biggest asset manager

JPMorgan
\$1B+/day tokenized repo transactions

Franklin Templeton
\$400M+ tokenized T-bill fund (BENJI)

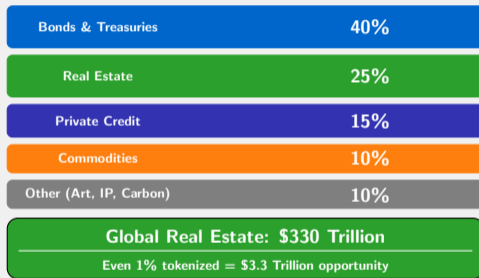
The world's largest financial institutions are actively tokenizing assets. BlackRock's BUIDL fund, JPMorgan Onyx, Siemens digital bonds, and Franklin Templeton BENJI demonstrate that tokenization has moved from concept to institutional reality.

From \$5 Billion to \$16 Trillion: The Tokenization Growth Trajectory

Market Projections



Projected Breakdown by Asset Class (2030)



The RWA tokenization market is projected to grow from \$5B (2024) to \$10-16T by 2030 (BCG/McKinsey). Bonds and treasuries lead adoption (40%), followed by real estate (25%). Global real estate alone is \$330T – just 1% tokenized equals \$3.3T.

1 **Tokenization enables fractional ownership** Real-world assets become blockchain tokens:
fractional ownership, 24/7 global trading, automated income distribution.
A \$1M building becomes 1,000 tradeable tokens.

2 **Stablecoins are the first killer app (\$150B+)** settling trillions annually. But algorithmic
designs can fail catastrophically (Terra/Luna: \$40B lost in 72 hours).

3 **Security tokens need Howey test compliance** KYC/AML, regulated exchanges, securities law.
Utility tokens provide platform access with less regulation.

4 **Institutions are building**
BlackRock, JPMorgan, Franklin Templeton

5 **\$10–16T by 2030**
The bridge between TradFi and DeFi.

Coming Next: DeFi Protocols – Lending, Borrowing, and Yield in the Tokenized World

How tokenized assets unlock new DeFi primitives and composable financial products

Tokenization is not a speculative promise – it is actively being built by the world's largest institutions. The RWA market could reach \$10–16 trillion by 2030, forming the bridge between traditional finance and decentralized finance.