

Learning Objectives

After engaging with this reference sheet and the companion lecture, you will be able to:

- **Identify** six durable trustless business-model archetypes used in 2026 practice [Understand]
- **Compare** each archetype to its closest centralised counterpart on cost, speed, and risk [Analyze]
- **Compute** simple unit economics (protocol revenue, liquidation bonus, fee capture) [Apply]
- **Evaluate** which archetype is most credible for a given product brief [Evaluate]

1. Key Definitions

- **DeFi lending** — collateralised credit via smart-contract pools (Aave, Compound, Sky).
- **Tokenised real-world assets (RWA)** — on-chain claims on off-chain assets (Treasuries, real estate, private credit).
- **DAO** (Decentralised Autonomous Organisation) — on-chain governance of a shared treasury via token-weighted or quadratic voting.
- **Supply-chain attestation** — product provenance recorded on a shared ledger (IBM Food Trust, TradeLens-successor networks).
- **Self-sovereign identity (SSI)** — user-held credentials with selective disclosure (EU Digital Identity Wallet 2026).
- **Programmable money** — payments that trigger, route, or revert based on on-chain conditions.
- **Protocol-owned liquidity** — the protocol itself holds the capital rather than renting it from LPs.
- **Fee switch** — governance toggle that diverts a share of protocol revenue to token-holders.

2. Six Archetypes at a Glance

Archetype	Centralised analogue	2026 reference player
DeFi lending	Secured bank lending	Aave v3, Morpho
Tokenised RWAs	Mutual fund, REIT	BlackRock BUIDL, Ondo, Maple
DAOs	Corporation, NGO	Uniswap DAO, Optimism Collective
Supply-chain prov.	ERP audit	IBM Food Trust, MineHub
SSI wallets	National ID, bank KYC	EU Digital Identity Wallet
Programmable money	ACH with business rules	Stripe Pay, Circle APIs on USDC

3. Core Concept: Where Trustlessness Actually Pays

The fitness test

A business model is a credible candidate for a trustless implementation when *all three* of these hold:

1. **Verifiable state.** The facts that matter are on-chain or can be attested on-chain by a small number of oracles (prices, token balances, smart-contract events).
2. **Disputable states have rule-based resolution.** Liquidations, expiries, and strike-price triggers can be encoded; human judgement is not on the critical path.
3. **Counterparty identity does not add value.** The product is commoditised; users do not pay extra for the brand of the intermediary.

Fails the test: small-business lending (soft information), dispute-heavy insurance (adjudication), and concentrated-risk derivatives (margin judgement).

4. Key Figures & Data

- **\$15–25 billion** of tokenised RWAs on-chain at end-Q1 2026 (rwa.xyz). BlackRock's BUIDL alone crossed \$1 billion AUM in March 2024 within 40 days of launch.
- **\$50 billion** DeFi TVL (DeFi Llama, April 2026); Aave and Sky (ex-MakerDAO) together hold ~40% of the total.
- **Uniswap** returned over \$100 million to its treasury in 2024 without ever activating the fee switch; the debate over switching it on is the canonical DAO-governance case study.
- **EU Digital Identity Wallet** regulation (eIDAS2) in force 2024, with member-state rollouts mandated by 2026.
- **DAO treasuries** hold ~\$20 billion combined (DeepDAO, 2026); Optimism Collective, Arbitrum DAO and Uniswap DAO are the three largest.

5. Worked Example

Unit economics of a DeFi lending protocol

Inputs. Protocol TVL \$5B, utilisation 60%, borrower APR 7%, supplier APR 4%, protocol fee 10% of spread.

Borrowed principal = $0.60 \times \$5,000\text{M} = \$3,000\text{M}$.

Gross spread = $(7\% - 4\%) \times \$3,000\text{M} = \90M per year.

Protocol revenue (fee switch ON) = $10\% \times \$90\text{M} = \mathbf{\$9\text{M}}$ per year.

At a \$900M token FDV, that is a $100\times$ price-to-sales multiple – high vs. banks (5–10 \times) but low vs. early SaaS (20–50 \times). The multiple collapses if a governance vote removes the fee switch, which is the *political* risk unique to trustless business models.

6. Self-Check Questions

1. Rank the six archetypes by how dependent each is on off-chain judgement (most to least).
2. A lender wants to launch on-chain mortgages for European residential property. Identify the two biggest trustlessness failures in this brief.
3. Compute the protocol revenue if TVL is \$2B, utilisation 50%, gross spread 2%, fee 15%.

[Answers hidden in student version.]

7. Further Reading

- Harvey, C. R., Ramachandran, A. & Santoro, J. (2021). *DeFi and the Future of Finance*. Wiley.
- Malinova, K. & Park, A. (2023). “Tokenomics: When Tokens Beat Equity.” *Management Science*, 69(11).

- rwa.xyz — live dashboard of tokenised real-world assets.
- deepdao.io — DAO treasury, governance, and participation data.
- BIS Working Paper No. 1102 (2023). “Tokenisation: A Brave New World for Payments and Settlements.”

Content sheet for standalone lecture `lecture_trustless_business_models.tex`.