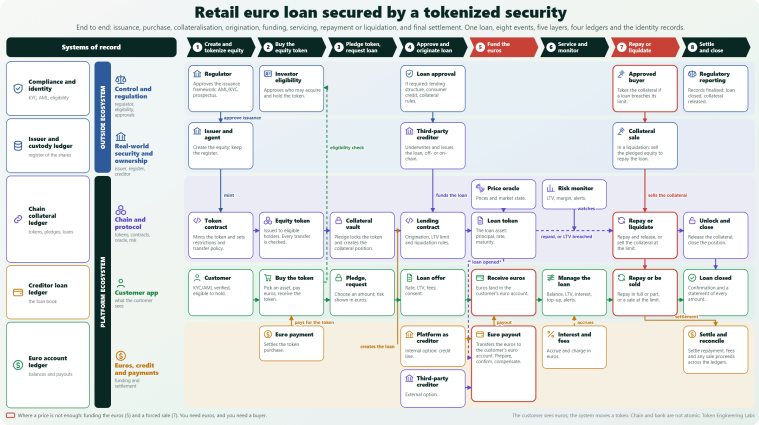
Safe first, then free: a staged route to borrowing EUR against tokenized shares

The hard part is not locking a token. A smart contract can enforce **who may receive** a share, but it cannot create **a buyer** when the market is closed.

SYSTEM MAP: ONE LOAN, EIGHT EVENTS, FOUR LAYERS



Approach: designed from requirements, then built end to end on a testnet (18 tests pass). Answers are **indicative**; wallet and token-standard choices stay open until Legal, Risk, Treasury, Engineering and partners join. Modular stages, each extending the last. The customer gets ordinary EUR, no visible stablecoin. **Four ledgers must reconcile:** issuer register, chain, creditor loan, euro account.

Q1 WHEN THE MARKET IS CLOSED

No new borrowing while the share is closed; repay and top-up always work; liquidate only against a firm bid from an approved buyer.

STATE	NEW LOANS	EXISTING LOANS	LIQUIDATION
Open	**Allowed** within limits	Normal monitoring	**Normal**
Closed, normal	**Paused**	Repay, top up, wider haircut	**Only vs a firm bid**
Closed, stressed	**Paused**	Early warnings, tighter limits	**Controlled, human-reviewed**
Stale price / halt	**Paused** for the asset	Keep servicing, verify price	**Auto-trigger off**

Built and tested: a zero overnight price breaks liquidation math, so the oracle keeps a discounted price and a funded overnight bid caps it; with no bid the sale reverts and the loan stays open. **Mark to what can be sold:** LTV = EUR debt ÷ executable value (reference price less closed-market haircut and execution cost). A price is not a buyer. **Illustration** (debt €4,000, collateral €10,000 at Friday close; 40/55/65% are placeholders for Risk):

40% Friday close, at the origination cap

62.5% Saturday, collateral worth €6,400 (bid −20%, execution −20%)

72.7% Gap stress, €5,500: liquidation level crossed, selling needs an approved buyer

- **Borrowers:** no weekend loans, always a way to repay or top up, a Friday pre-close alert, no forced sale at a thin weekend price. **Bad debt:** appears only if executable value falls below €4,000 (a loss above 60%); the low origination LTV is the buffer, then a funded reserve, then the creditor. Always liquidating lets one weekend buyer name the discount; never liquidating leaves the lender with the Monday gap.

Q2 WHO CAN BUY THE COLLATERAL

Holding is not the same as receiving in a liquidation: approve a separate, narrow liquidator set.

- **Hold:** every verified customer, through the KYC attestation.
- **Receive in liquidation:** market makers, securities intermediaries, the vault contract, a funded backstop; approved by the issuer or transfer agent after due diligence (not wallet by the regulator). Their attestation carries a liquidator role, expiry and revocation.
- **Enforcement sits in the token:** a purchase by a non-approved buyer fails, so the lending core stays unmodified. Tested: approved liquidator succeeds, refused one reverts.

Price and "nobody buys": permissioned RFQ or auction among approved buyers. If it fails:

Approved buyers RFQ / auction → **Backstop** contracted buyer → **Reserve** from spread → **Creditor loss** agreed waterfall

Surplus returns to the borrower. With no bid we record no liquidation and stop new lending. **Attestation expires:** block new credit, ask for renewal, keep repay and top-up open; no automatic foreclosure. **Revoked** (e.g. sanctions): Compliance-led hold; repayment still clears the debt.

Q3 LIQUIDITY

Two capacities limit every loan: euros to lend and approved buyers to take the collateral, also at night.

$$\text{New loans} \le \min(\ \text{EUR funded},\ \text{stressed buyer capacity} \times \alpha,\ \text{risk budget}\ )$$

- **EUR to lend:** a committed, authorized third-party creditor facility, with the payout path to the euro account proven. Treasury can seed early volume. An on-chain EUR token alone does not create a spendable balance.
- **Buyers out of hours:** at least two independent approved buyers where feasible; weekend bids count only if firm and funded.
- **Pay for:** qualified availability, firm bid size and speed, risk actually absorbed; penalize failed fills. **Don't pay for:** quoted volume, turnover or emissions that leave with the incentive.
- **Watch:** funding coverage, executable bid depth, weekend spreads, realized slippage, completion rate, reserve use. Start with one or two liquid shares.

Q4 THE CUSTOMER APP EXPERIENCE (SCREENS FROM THE TESTNET PROTOTYPE BELOW)

One familiar EUR loan journey: wallet and attestation stay in the background, the risk stays in front.

1 Hold
Token shows as a normal holding. Signs: nothing.

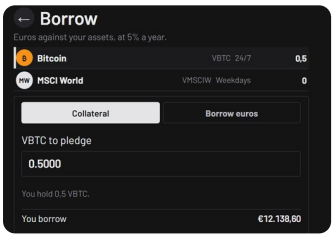
2 Quote
Amount, APR, fees, and the price in euros at which shares would be sold. Signs: nothing.

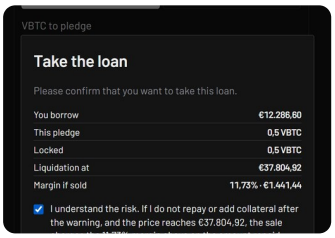
3 Consent
Loan agreement and exact pledge, recorded separately. Signs: passkey.

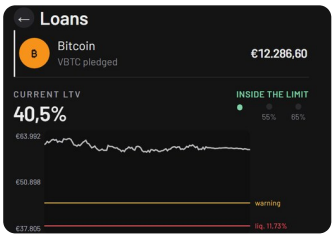
4 EUR live
Spendable EUR in the euro account; loan active only after payout confirms.

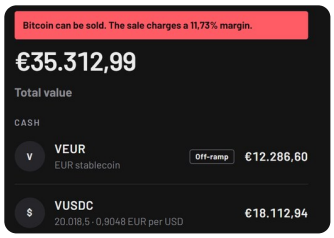
5 Service
Debt, interest, buffer to sale, alerts. Signs: repay or top up.

6 Close
Statement of every amount; shares released, or sale price, costs, remaining debt.









Honest about risk: the sale level is shown before signing, with what changes at weekends. Blockchain and bank ledgers are not atomic, so settlement runs prepare, confirm, compensate: a pending payout is never shown as an active loan and a failed one cancels the pledge. Gas, batching and calldata limits are invisible to the customer.

Q5 GETTING IT TO MARKET

A gated path to production, with working hypotheses that harden as partners join.

GATE 0 · WK 0–3
Feasibility
Token rights, lender of record, exit partners. Go: Legal and creditor viable.

GATE 1 · WK 4–8
Testnet slice
Attestation, pledge, EUR simulation, repay, failure, refused buyer.

GATE 2 · WK 9+
Restricted launch
1–2 shares, low LTV, weekday draws, funded exit. Joint sign-off.

GATE 3 · LATER
Extend
More assets, weekend lending, providers, only on evidence.

- **Lending protocol: Morpho Blue, unmodified (built).** Pinned commit, two isolated markets, 65% LLTV; policy in a gateway and the token. Compound III was not tested. Open: a direct borrow bypasses the gateway, and the protocol sets the seizure bonus.
- **Wallet: open.** The prototype uses a labelled local wallet, or Privy when configured. Compare Turnkey, Privy, Dynamic for EU hosting, recovery, account binding. Restricted token: attester registry in the build; ERC-3643 style only if the issuer supports it.
- **Rules in scope:** securities, banking and consumer-credit rules, payments, AML, data protection, operational resilience, market abuse; crypto-asset rules only for a euro token. All to be confirmed with counsel.
- **Who says yes, in order:** Product and Partnerships (scope, issuer, creditor) → Legal, Compliance, Risk (rights, permissions, limits) → Treasury and creditor (funding, reserve) → Engineering and the app team (build, audit) → Support, Marketing, regulated entity (launch).
- **What we cut:** weekend borrowing, long-tail equities, an open external lender market, a visible loan stablecoin or loan NFT, unattended weekend liquidation.
- **What we don't know, and how we find out:** token entitlement and lender of record (issuer terms, Legal); EUR settlement finality (Payments, bank partner); weekend bid depth (test RFQ with 2–3 market makers, gap data); revocation path (issuer, transfer agent); protocol fit (testnet slice built; audit and hardening open).

AI use. An AI coding assistant wrote the prototype contracts and app; the 18 tests were run locally. Tools also helped structure requirements, draft diagrams and list failure modes. Legal and regulatory points are flagged for validation with Legal, not treated as settled. Discarded: unlimited weekend liquidation, permissionless sale of restricted shares, regulator approval per wallet, a bespoke lending engine.