



TOKENIZATION FRAMEWORK

"Tokenization reduces middlemen, increases liquidity and reduces costs. Intelligent smart contracts on the blockchain comply with regulations and ensure ownership and interoperability."

UnitedCrowd Tokenization Framework

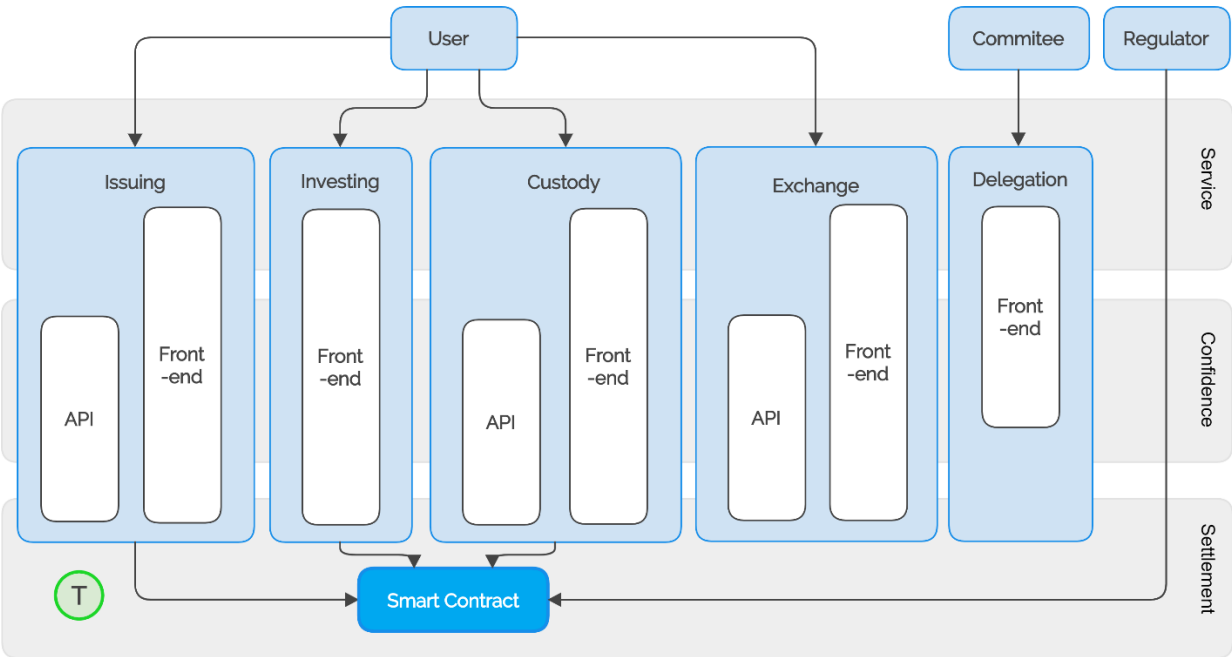
With the tokenization framework, digital financial products – for example for corporate financing – can be issued. Existing financial products such as securities, assets, investment funds, etc., as well as tangible assets and new financing models can be mapped.

The framework makes it possible to model financial products based on blockchain technology and to automate them using intelligent, template-based contract models, so-called smart contracts, and to map them in the form of tokens. In close cooperation with international regulatory authorities, all contracts are validated for compliance with country-specific regulations and are in compliance with regulations.

Different requirements of new issues are mapped within the framework using different components and organized in layers. In order for a token to fulfill its intended purpose and bring all stakeholders together, different processes have to interlock dynamically and grant different instances with their own access rights.

Framework Architecture

The 3-layer model on which the framework is based separates the sub-tasks of the network and the access options for rights holders to different instances. Access here is restricted to all role holders according to the exercise function, both via API and via the front end and to regulators via direct access.



Access by instances

Issuing

The initiation of contracts and the associated token issuance is the sole responsibility of the issuer and the administrator appointed by him, who is responsible for the technical implementation of the issue. The access authorization of the output is given in the settlement layer via the API access as well as via the frontend. The monitoring of the regulations and output conditions (compliance and validation) is carried out for the issuer and his administration via the front end, as is the data accumulation via the service layer.

Investing

The investing instance declares its contract ownership and the associated token emission via the front end on the contract level. The compliance and validation rules on which the contract is based can be viewed via the front end, as can contract and progress data via the service layer.

Custody

Access to the settlement layer is required to ensure that the custody is transactable. Compliance with the high security standards and rule conformity on the part of the regulatory authorities can be met by accessing the confidence layer. Access takes place via the API as well as via the front end.

Exchange

External exchange providers need access to the settlement layer for transaction purposes. In order to meet market requirements for real-time transactions, access is made possible via API interfaces. Access for external exchanges is mandatory and, like the tracking of historical data for purposes of data accumulation and statistics, is solved via API interfaces.

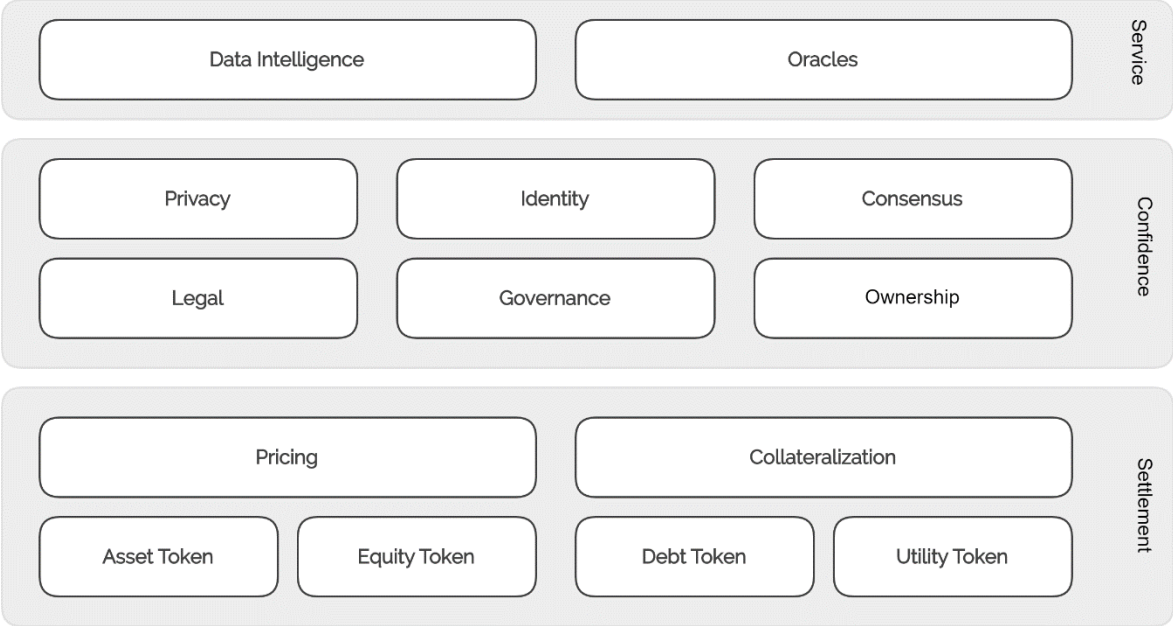
Delegation

Delegation refers to the partial and additional relinquishment of governance in order to adjust compliance by contracting parties. The committee designated for delegation is democratically elected via the smart contract level, has a control function transferred through the network and, in its function, read access to the settlement layer and access to the confidence layer.

Regulation

Regulators can access the real world contracts directly. This is essential due to the regulatory release requirement.

Layers and components



Settlement layer

The settlement layer contains all on-chain elements of the framework. There, assets are automated via smart contracts and initialized as tokens. Different financial instruments each have their own requirements for the token and are divided into different token classes depending on the product. The settlement layer continues to form the basis of price calculations, which take into account risk, dividend payment, market conditions and other elements that are unique to each token. In addition, risk reduction mechanisms are provided via security protocols, which are necessary for various models against the risk of failure.

Confidence layer

The confidence layer organizes rule conformity and data validation and defines structures and processes to ensure what legally binding and ethical rules can fall under. The validation of compliance with legal and financial regulations is the central requirement, which aims both to be able to react flexibly and to protect rights holders. Consistent identity protocols for the collection of personal data of issuers, investors and companies are essential and required by law. Ensuring ownership rights to tokens and their eventual transfer, as well as adapting new legal regulations is possible both in a centralized form by the issuer and in the form of "distributed governance" by the stakeholders. Consensus protocols are the key to the assignment of rights, the transfer of which is made possible by authorization mechanisms and enables the coordination and control dynamics and the representative transfer of rights resulting from voting.

Service layer

The service layer provides interfaces for off-chain communication. The data exchange takes place via oracles and DAPPs, which ensure communication via the front end and only distribute read rights for all role owners or receive control functions in communicative functions. As a key component for the provision of off-chain values, the "data intelligence component" provides an interface for analysis and information. In addition to KYC / AML regulations, various off-chain data can be provided for various assets.

Issuance of token

Compliance with the legal framework and regulatory mechanisms are guaranteed both off-chain and on-chain.

Examination of the issuer

Before UnitedCrowd creates a digital financial product, we check the issuer using fixed parameters that are queried and evaluated. This includes, for example, due diligence, governance and security of the company, but also management, which, among other things, goes through a standard check and a background check of integrity and reputational risk.

Choice of type of financing

If the requirements are met and we are convinced of the viability of the project, the second step is to decide on the type of financing. With the tokenization framework, various values can be digitized with all the rights and obligations they contain. Depending on the requirements and goals of a company, the different variants can be differently suitable.

The following classifications are relevant:

• *Asset token (assets)*

Both liquid and illiquid values can be mapped as tokenized securities in asset tokens. In this way, they can be converted into digital and proportionate fractional ownership (partnership) and made accessible to an international market. The spectrum includes everything from cash, cash equivalents, savings accounts, real estate, precious metals or art objects to intangible assets such as patents, copyrights or trademarks.

• *Equity token (participation rights)*

Rights to participations can be mapped with the allocation of shares in a company and voting rights in equity tokens. According to the same principle, tokens can represent shares in funds.

• *Debt token (claims rights)*

Debt tokens are tokens that represent the debt capital requirement for repayment of the invested amount with or without interest. The range includes forms of bonds, loans and debentures.

• *Utility tokens (services and usage rights)*

Utility tokens represent usage rights and can, for example, be used as community tokens to grant access to a network or to receive the goods or services offered by the issuer of the token.

Regulation and contractual arrangements

When choosing the type of financing, a decision is made about the "real world contract", which is digitally mapped onto the blockchain using a token. This contract defines the rights and obligations. In doing so, individual regulatory provisions must be observed and the legal classification goes hand in hand with this. In this step, based on regulation-compliant standard contracts, the individual contract on which the token is based is modeled by entering specific parameters. Parameters are, for example, the name of the token, its nominal and net value, denomination, any interest payments and the due date. But also the business purpose, annual financial statements, market risk, level of indebtedness, name, address and entry in the commercial register of the issuer.

In particular:

- *VermAnlG (Asset Investment Act)*
- *KWG (Banking Act)*
- *WpPG (Securities Prospectus Act)*
- *KAGB (Capital Investment Code)*

Issue and entitlements

Once all parameters of the contract have been set and clearly defined, the token can be issued. The token must take into account the authorization to purchase either via an off-chain validator or in the smart contract via relevant compliance provisions. The token may only be transferred to validated or whitelisted authorized addresses that are linked to an entity. While users accredited via UnitedCrowd do not have to be accredited, the token must take into account investor accreditation for new users. Since international customers are allowed, authorizations must be included that relate to the location where the user is located. Furthermore, the token must indicate the number of owners, if this is relevant for the financial instrument.

