How Can Collateral Management Benefit from DLT?

Enabling the transfer of tokens also includes the handling of queries regarding current holdings and selecting tokens for spending. To use a token as collateral, a token transfer from the collateral giver to the collateral taker has to be processed. In the specific case of a pledge model, an additional functionality is required: the tokens must be locked so that neither the collateral giver nor the taker can make use of them. If the exposure ends, the token will be released to the collateral giver; if the exposure defaults, the locked token has to be released to the collateral taker.

When securities are safekept for the TTP, corporate actions can occur. To handle these events, there need to be either mechanisms in place which handle them off-ledger or the respective functionalities must be implemented through smart contracts as well.

Finally, to move tokens out of the system, like in the issuing process, the TTP needs to be able to redeem the tokens by either burning or archiving them in a way that renders them incapable of being reused.

In the analyzed system, two types of tokens are considered:

- The "ISIN Token" represents a one-to-one tokenization of a specific security position. Each of these tokens is redeemable against a specified amount or nominal value of a specified security. These tokens need to include an ISIN or an equivalent identifier of the underlying security and an amount or nominal value defining the quantity of the underlying security. The collateral valuation of the token – as defined by the collateral taker – varies according to changes in the value of the underlying.

- The "Basket Token" is redeemable against securities which are included in a specified basket and corresponds to the value specified in the token. These tokens need to include the definition of the tokenized basket and the tokenized value. As is the case with the existing triparty services, the TTP Layer is responsible for the valuation and allocation of the underlying securities. Additionally, the underlying securities can be substituted by other securities included in the basket definition. A distinction can be made between standardized and individually agreed baskets. In contrast to traditional triparty services, which are offered within one custodian, DLT-based basket tokens allow the combination of securities from various custodians where the TTP and the collateral giver have an account.

The underlying DLT network records token creation, transfer and redemption. Both types of tokens need to contain information identifying the owner of the underlying security. Additionally, to achieve fungibility, users need to be able to split and merge tokens. To merge ISIN tokens, the original tokens need to have the same underlying ISIN and the same legal status in regard to ownership. The new merged token would inherit these properties from the original tokens. When splitting tokens, consideration should be given to a "Minimum Settlement Unit," which sets a lower bound on the size of the new tokens.

4.4.2   Additional Design Considerations

To decide about the specific technical implementation for the analyzed model, the business requirements for scalability, privacy, security, accessibility for users and compliance with existing regulations have to be considered. Additionally, the governance of the platform is an important issue.