GUIDE

Guide Blockchain & Post-Trade
What desintermediation ?

VERSION

DECEMBER 31, 2021

afti
La dynamique du post-marché

Summary

INTRODUCTION

Blockchain is one of the new technologies that have aroused very keen interest from companies and states, particularly in the financial sector. When we talk about new or emerging technology, we can't help but think of the famous **Gartner Hype Cycle** that describes the ups and downs that are supposed to accompany the emergence of these technologies. According to Gartner, a new technology generally starts with a phase of excessive enthusiasm, namely that most of the initial expectations are not always realistic, followed by a phase of deep disillusion before returning, when the technology is better mastered, to a phase of equilibrium refocused on only realistic tents.

So, what about precisely the **disintermediation** of financial services that has often been touted as the main benefit of this new technology ?

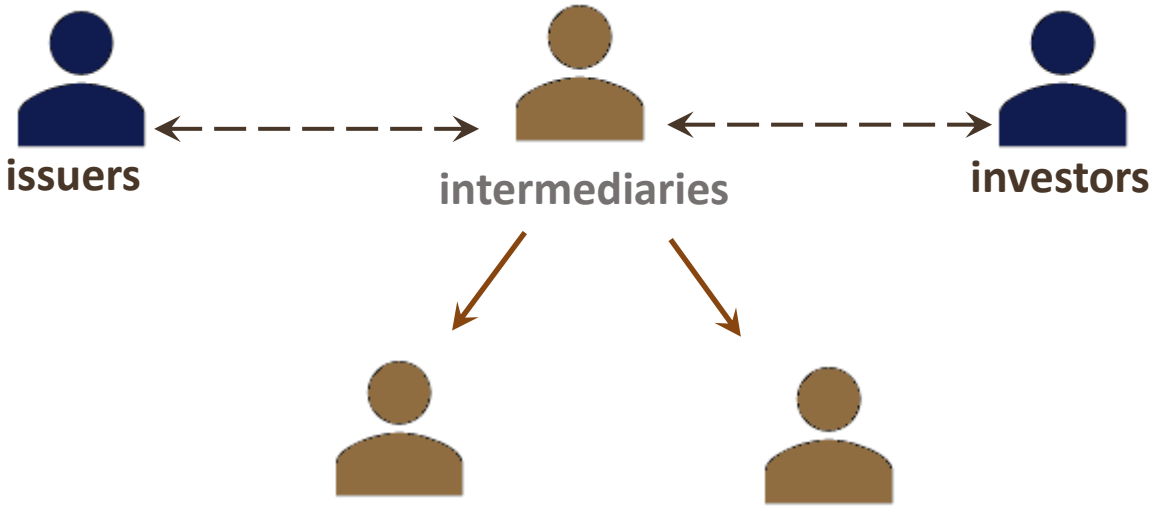
Existing two-tiers regulations (distinction between listed securities and unlisted securities)

Before talking about disintermediation, it is useful to recall what intermediation is in the post-trade business. Intermediary is generally understood to mean entities which put issuers in contact with investors or investors with each other. There are roughly two types of intermediation:

- **Optional Intermediation** , that it is the customer who decides whether to use intermediation (simple service)

- **Imposed Intermediation (**by regulations), case of listed securities for which European regulations require the issuer to deposit its securities with a CSD (Central Securities Depository), CSD operates a Securities Settlement System (SSS) to which the custodians are connected to settle their clients' transactions.

Existing two-tiers regulations (distinction between listed securities and unlisted securities)



listed securities

Imposed Intermediaries

notarial function

by trusted third parties

(CSD + Custodians)

Optional Intermediaries

services

listed & unlisted securities

A centralized transfer of ownership (2 options)

As we speak for the blockchain of **distributed ledger technology**, we could quite speak for the current system of **centralized ledger technology**. Indeed, the transfer of ownership which, let us remember, is the purpose of market operations, is currently still centralized.

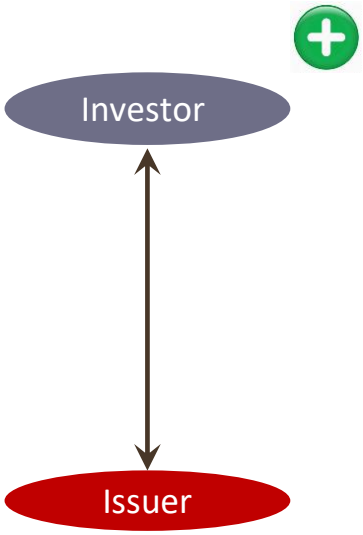
For unlisted securities, direct holding is the most frequent case ; centralization is deemed to be the responsibility of the issuer, while for listed securities, centralization occurs through trusted third parties, the CSD and the custodian. It is the latter who assume the responsibility of the **notarial function** vis-à-vis the supervisory authorities and vis-à-vis third parties.

But in 2009, this centralized model was challenged by a certain Satoshi Nakamoto who invented the now famous Bitcoin ...

A centralized transfer of ownership (2 options)

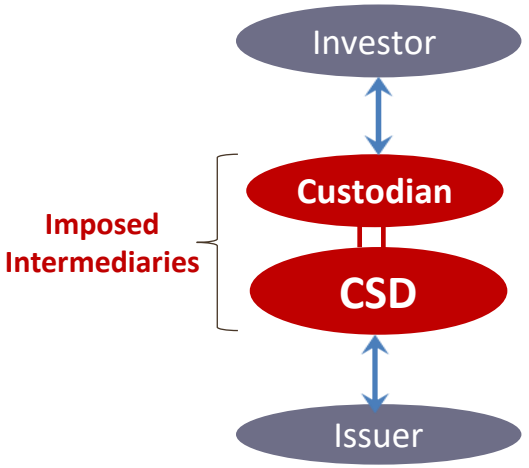
Centralization by Issuer

direct Holding



Centralization by Trusted Third Parties

Undirect Holding
(listed securities)



Imposed Intermediaries

CSD/Custodian Model

Notarial function centralized on trusted third parties: the CSD and the custodian(s)
- the CSD certifies the existence of securities "deposited" by issuers and facilitates exchanges of securities between custodians via its SSS.
- the custodian certifies the ownership of the securities “held” by its investor clients.

Trust Level

CSD: *Central Securities Depository*
SSS: *Securities Settlement System*

Entity(ies) responsible for the Transfer of Ownership

A new digital asset without issuer or trusted third party

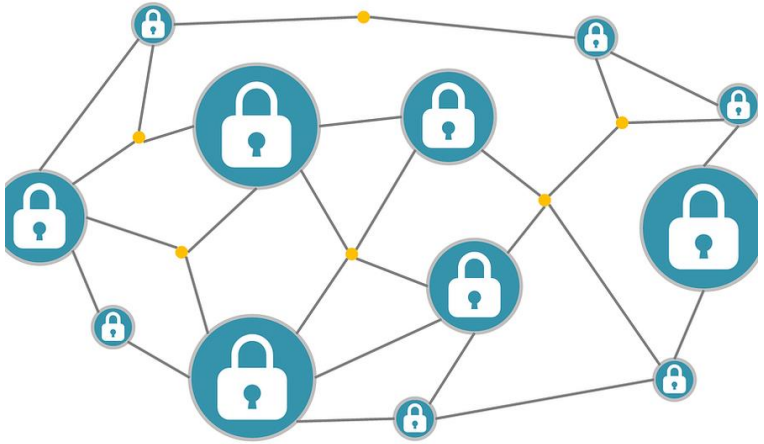
Bitcoin is a real UFO for the world of digital assets. For the first time, we have a digital asset that does not have an issuer and which can also do without intermediaries when transferring ownership of bitcoins. In the absence of an issuer and trusted third party, the existing centralization schemes are inapplicable since the only stakeholders are the bitcoin holders. **The Bitcoin Blockchain then relies on a subset of this population (the community of minors) which is called upon to collectively validate bitcoin exchanges.**

If this is a real technological feat, it should nevertheless be remembered that the **initial objective of Bitcoin was to escape the supervision** of national or international regulators since in the absence of an issuer and an intermediary, there are no more entities to regulate, and it then becomes impossible for the regulators to supervise the system. Unfortunately, this inability to supervise Bitcoin by existing authorities initially constituted a huge attraction for perpetrators of illicit activity, which still means that today some people maintain a negative image of cryptocurrencies. However, even the detractors of Bitcoin and its clones readily recognize the exceptional nature of the technology underlying Bitcoin, namely the technology of distributed ledger and blockchain and therefore of the interest of finding other cases of uses but this time more in line with the general interest.

A new digital asset without issuer or trusted third party

Bitcoin => Impossibility of centralizing the transfer of ownership !!!

DLT/Blockchain



Solution:
a new technology making it possible to "**distribute**" and secure the transfer of ownership.

DLT/Blockchain = new ownership transfer protocol *(DLT)* **+ native audit trail** *(chain of blocks)*

validation of the ownership transfer of crypto -currencies is no longer "centralized" on an entity (issuer or trusted third party) but is "distributed" to all members of a consensus

The Blockchain turns out to be in fact a **package of technologies** whose core is based on a **new ownership transfer protocol for digital assets**. Instead of the notarial function being centralized as before, it is distributed here. This new protocol is cleverly coupled with a native audit trail through the chain of blocks (based on hasching and cryptography technologies).

The strong point of the Bitcoin Blockchain is clearly the **autonomy and automation of the transfer of ownership** of Bitcoins which in fact makes it possible to no longer resort to trusted third parties to perform the notarial function but paradoxically enough **this strong point is also its weakness**. Indeed, the counterpart of this total autonomy is the impossibility of recovering bitcoins in the event of fraud or hacking. This is a real concern in terms of investor protection and must be resolved if we are to ever be able to exploit this technology for financial securities.

DLT/Blockchain = new ownership transfer protocol *(DLT)*
+ native audit trail *(chain of blocks)*

validation of the ownership transfer of crypto -currencies is no longer "centralized" on an entity (issuer or trusted third party) but is "distributed" to all members of a consensus

Advantage: autonomy and automation of the transfer of ownership of digital assets
(no more need for intermediaries performing a notarial function)

Disadvantage: autonomy and automation of the transfer of ownership of digital assets
(problem of asset recovery in the event of fraud or hacking)

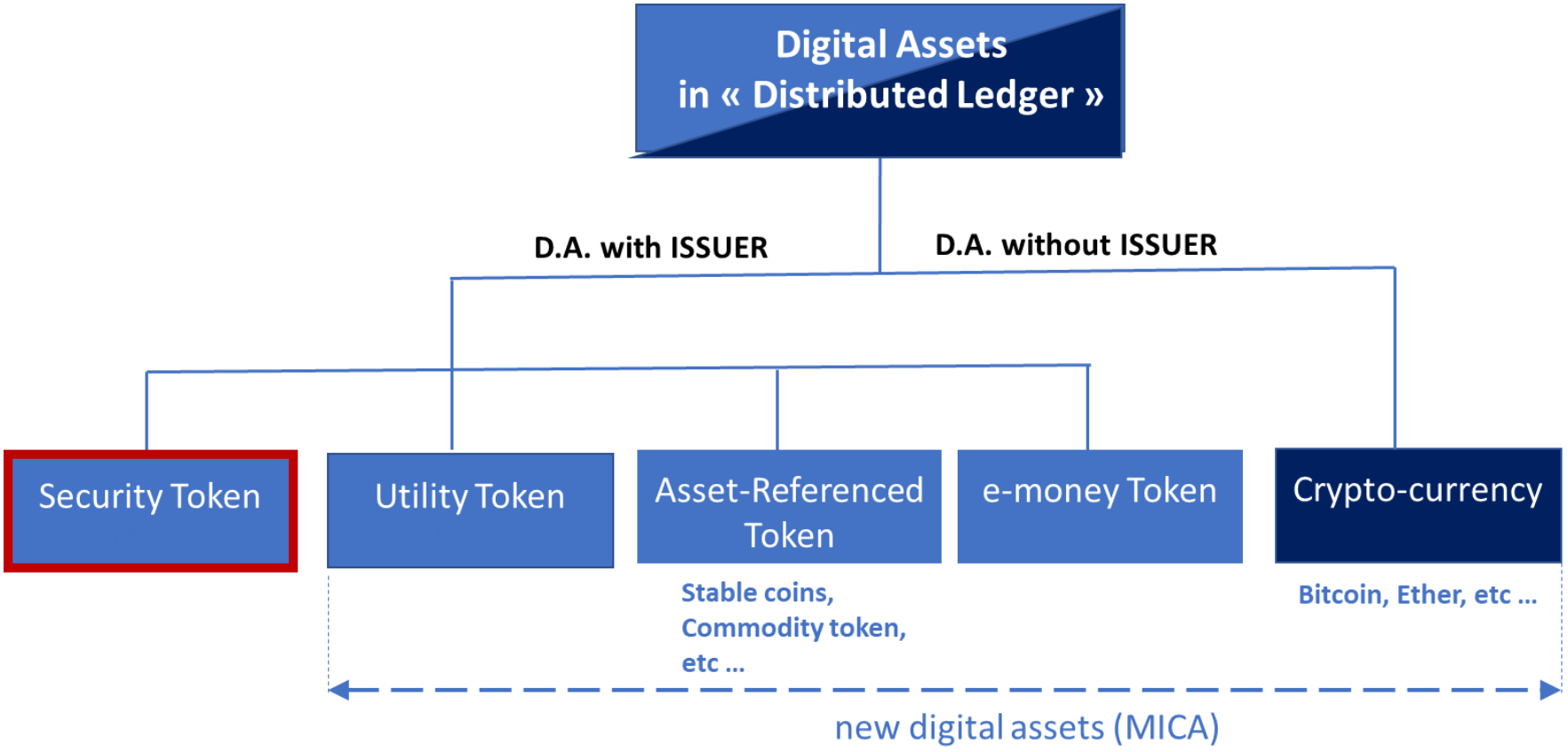
Towards the extension of distributed ledgers to assets with an issuer and in particular to financial securities

The question is therefore whether this new technology, tailor-made for Bitcoin, a digital asset without an issuer and without the obligation to use an intermediary, can be easily adapted to other types of digital assets, in particular those with an issuer.

For MICA (at least the first version), the question of the existence or not of an issuer does not seem to have really arisen. Rather basically, the legislator proposed to include in a single text all new digital assets that were not yet regulated. Assets as heterogeneous as crypto-currencies, stable coins or utility tokens are therefore supposed to be regulated in MICA.

On the other hand, the legislator has fully understood the case of security tokens by deciding to assimilate them to already existing financial securities and therefore supposed to comply a priori with the same regulations as the latter.

Towards the extension of distributed ledgers to assets with an issuer and in particular to financial securities



From « security » to « security token »

The objective of this slide is to illustrate the problem posed by the transition from security to security token. The upper part corresponds to current technology, that of centralized ledger and the lower part corresponds to the new technology that of distributed ledger. The top part has already been mentioned previously in my presentation (slide 3) except that we are now talking about custody and more like before centralization. To each type of centralization corresponds in fact a type of custody. It can be seen that custody is deemed to be the responsibility of the issuer when centralization is done by the issuer and that at the same time custody is deemed to be the responsibility of trusted third parties when centralization is done by these trusted third parties.

In the left part of the bottom line is the Bitcoin model where, remember, there is no issuer or trusted third party. In this model of distributed ledger without possible centralization, some speak of self-custody since it is certain holders of bitcoins (members of the consensus) who are deemed to collectively attest to the holding of bitcoins.

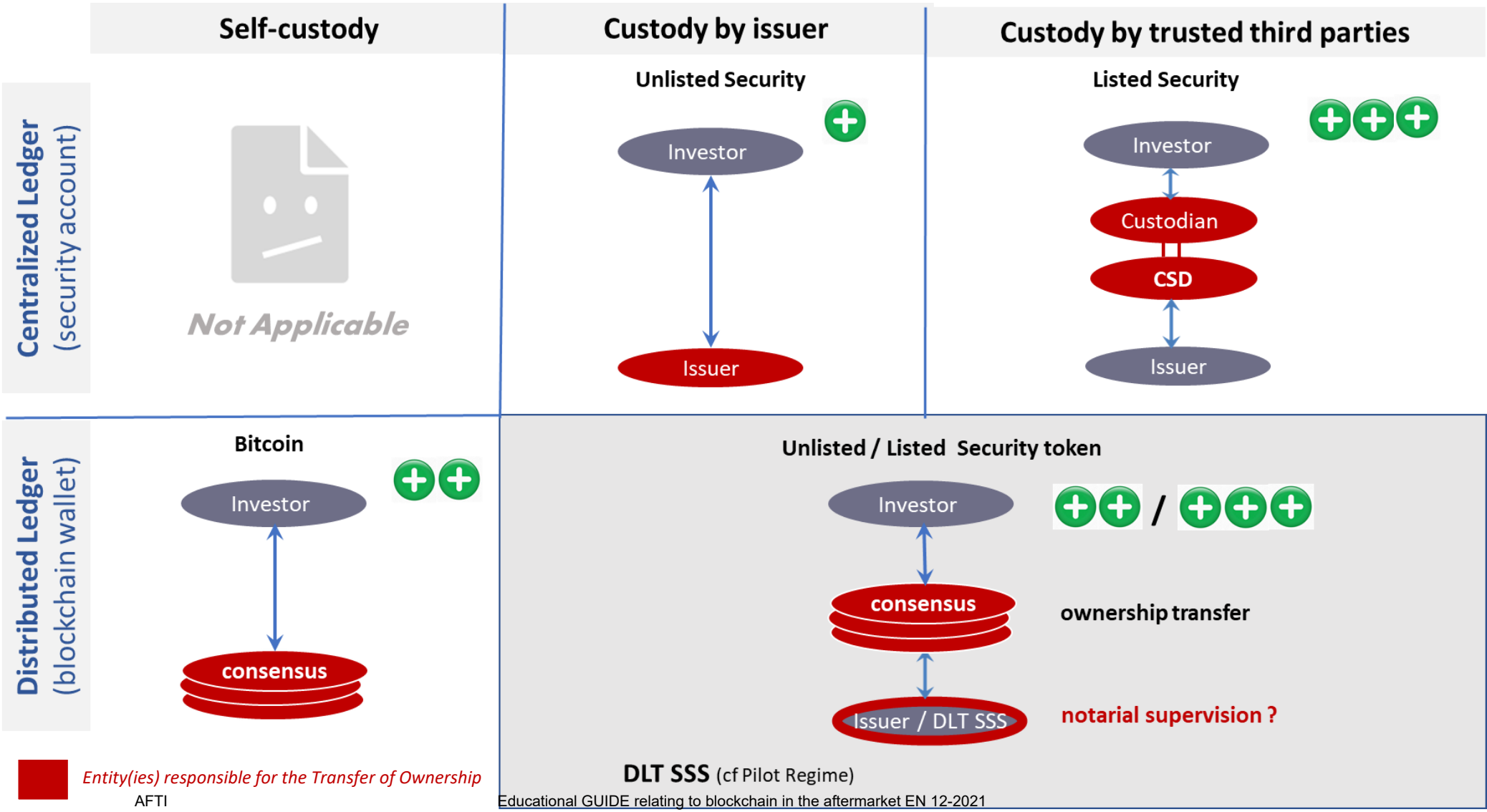
So when we compare the two lines, we have the impression of having a priori incompatible models and then arises in the Blockchain model the problem of tokenization of securities with 2 main points of attention, one on issuers of security tokens, the other on investors of security tokens

1. Regarding security token issuers, what should be their place in a system originally designed for assets without an issuer?

2. Regarding investors in security tokens, how can we guarantee that they are better protected than investors in Bitcoins and benefit at least from a level of protection comparable to that currently provided by CSDs and custodians?

At AFTI, it is proposed to tackle these two issues together, namely that the security token issuer could play the role of guarantor of last resort vis-à-vis its investors. In normal times, the piloting would remain ensured by the consensus but the issuer (or the DLT SSS of the Pilot Regime) would have the possibility in the event of problem to take again the control (destruction of the stolen tokens and recreation of new tokens), which supposes obviously to be able to make ad hoc developments in the Blockchain.

from « security » to « security token »



Comments & Conclusion

A listed security token is ultimately a listed security like any other except that it is deposited in a blockchain or instead of being deposited with a CSD. **Blockchain is not supposed to change the economic and legal nature of already existing digital assets**. More generally, we can consider that any digital asset with an issuer is "tokenizable" as soon as its issuer is deemed to have the choice of its place of deposit.

What fundamentally differentiates the Blockchain from the CSD is essentially the mode of circulation of digital assets and more precisely the underlying protocol for the transfer of ownership, a protocol based on centralized ledger for the CSD and based on distributed ledger for the Blockchain. Obviously, all these possible places of deposit will have to be interoperable in the long term.

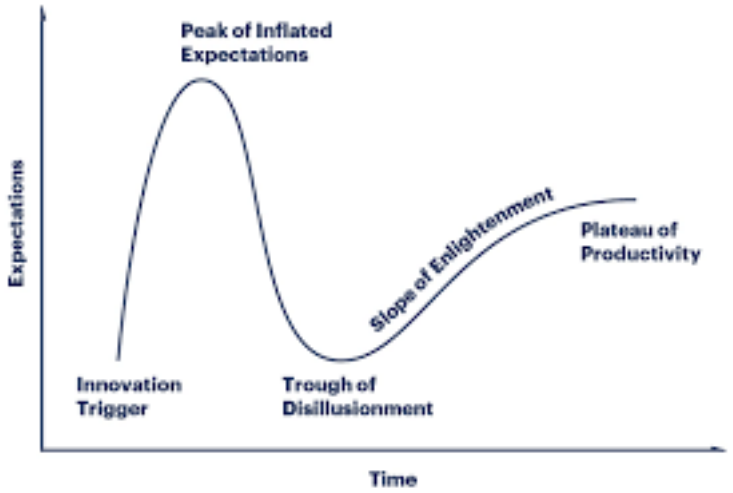
Compared to the famous Gartner curve discussed earlier, we do not currently all have the same feeling that some think the chasm of disillusionment has already been crossed while others do not. The future will tell us what it really is. In the meantime, it seems desirable to us to have as serious an analysis as possible of the subject and of the previously mentioned issues so as to limit the amplitude upwards or downwards of this curve. Blockchain is a real technological revolution, but to make it a business success, you must not be mistaken in the way it is used.

Comments & Conclusion

- **New place of deposit and circulation of digital assets** associated with a **new ownership transfer protocol**
- Need to articulate the responsibility of the Issuer (or DLT SSS) in relation to that of the consensus members

- **Any digital asset with an issuer is "tokenizable"** (the issuer must have the choice of the place of deposit)
- Need for interoperability between blockchains and traditional central depositories

GARTNER HYPE CYCLE FOR EMERGING TECHNOLOGIES

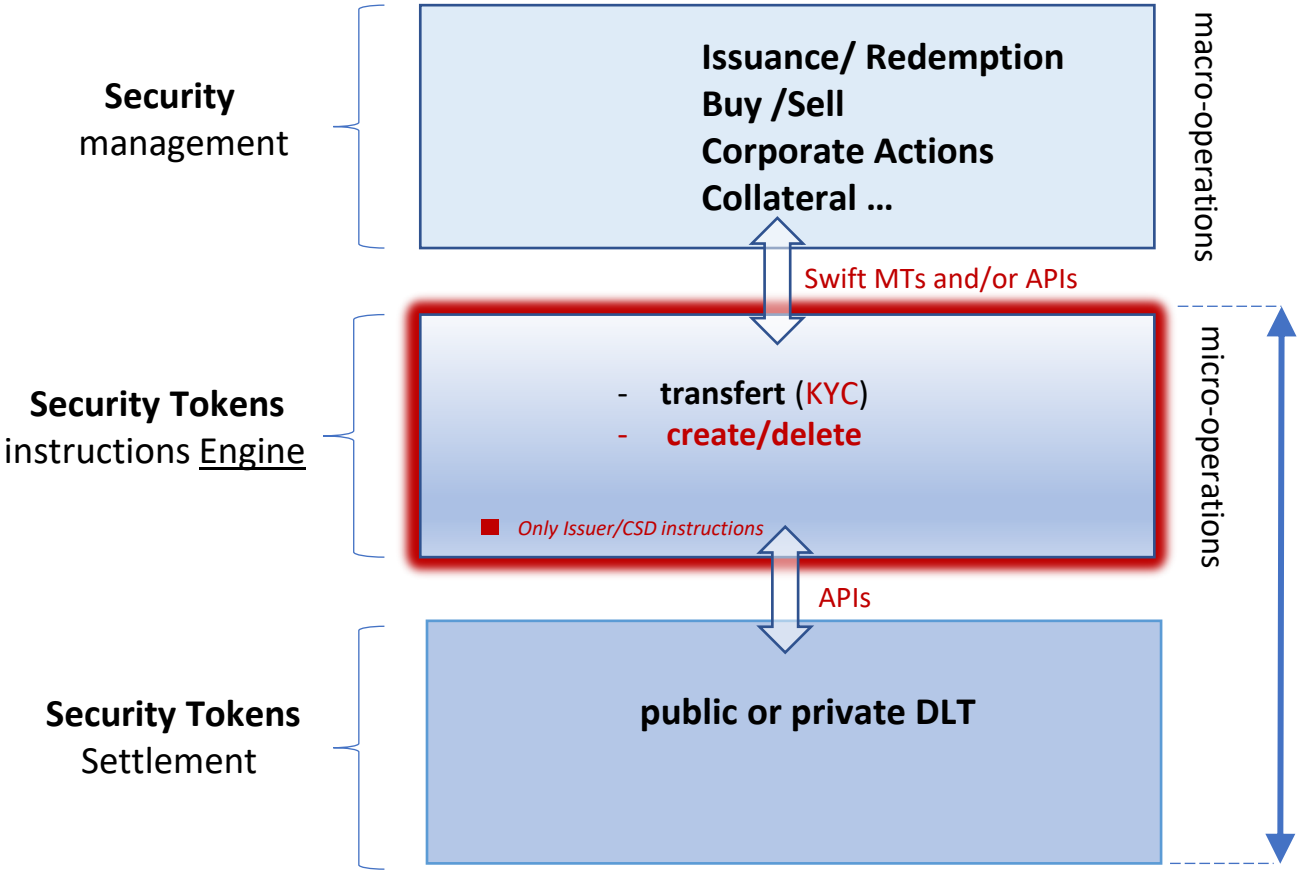


Innovation Trigger: A potential technology breakthrough kicks things off. Early proof-of-concept stories and media interest trigger significant publicity. Often no usable products exist and commercial viability is unproven.
Peak of Inflated Expectations: Early publicity produces a number of success stories — often accompanied by scores of failures. Some companies take action; many do not.
Trough of Disillusionment: Interest wanes as experiments and implementations fail to deliver. Producers of the technology shake out or fail. Investments continue only if the surviving providers improve their products to the satisfaction of early adopters.
Slope of Enlightenment: More instances of how the technology can benefit the enterprise start to crystallize and become more widely understood. Second- and third-generation products appear from technology providers. More enterprises fund pilots; conservative companies remain cautious.
Plateau of Productivity: Mainstream adoption starts to take off. Criteria for assessing provider viability are more clearly defined. The technology's broad market applicability and relevance are clearly paying off.

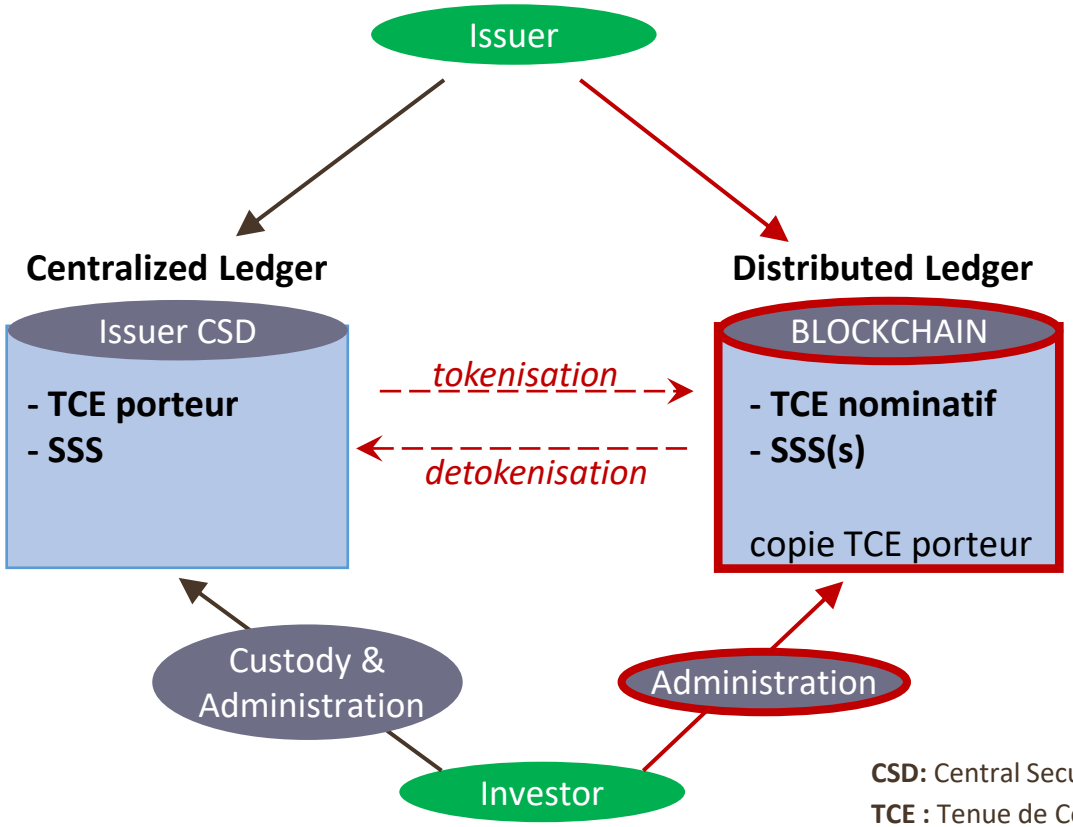
ANNEX Target software architecture proposal

ANNEX

Target software architecture proposal



Digital Asset Bi-Ledger Model



CSD: Central Securities Depository
TCE : Tenue de Compte Emission
SSS : Security Settlement System

La dynamique du post-marché

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