CAISSE DES DEPOTS
Innovating in a public financial institution
through Blockchain technologies

Caisse des Dépôts Group

A diverse public group for the general interest

► Caisse des Dépôts and its subsidiaries are **a public group and a long-term investor dedicated to general interest and economic development of regions.**

► **Supporting strategic sectors,** Caisse des Dépôts is working for France's competitiveness. **A trusted third-party for more than 200 years**, Caisse des Dépôts is in charge of public and private mandates and managing assets on behalf of the State.

SUPPORT CENTRAL AND
- LOCAL GOVERNMENT POLICY -

ENVIRONMENT
The group has funded the renewable energy needs of
8 MILLION FRENCH PEOPLE

LOCAL GOVERNMENT
€1.9bn in
LOANS TO THE LOCAL PUBLIC SECTOR

TOURISM
22.9 MILLION VISITORS
to Compagnie des Alpes sites

HOUSING
1 IN 6 FRENCH PEOPLE lives in social housing built or financed by the Group

ENVIRONMENT
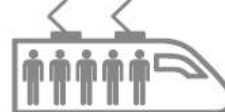**38,000 HOMES THERMALLY RENOVATED** through agreed eco-loans

DIGITAL
1.7 MILLION HOMES SERVED BY HSBB & BB

TRANSPORT
3.5 BILLION PASSENGERS carried by Transdev (buses, trams, etc.)

BUSINESS
85,000 BUSINESSES FINANCED by Bpifrance

Blockchain as an opportunity for our Group

Building the future infrastructures for trusted services

Forecasting a redefinition of trusted intermediaries and the growth of new economic leaders, Blockchain technologies are a strategic issue for Caisse des Dépôts, its business units, its clients and its mission to support the development of national ecosystems.

BLOCKCHAIN & DLT

► A transaction revolution
► New services for decentralized certification
► New trusted actors such as Oracles

CRYPTOASSETS & TOKENS

► Creation of a new class of financial assets
► New ways to raise money
► New economic models: tokenization, decentralized apps...

DEVELOPMENT OPPORTUNITIES

For our Group
Caisse des Dépôts

For our clients
local administrations

For our fellow
public institutions

Blockchain & Cryptoassets Programmes

Three main areas of action

Partnership with the ecosystems	BloCDChain internal Program for the Group	R&D

LaBChain   BANQUE DE FRANCE

- **LaBChain Consortium**

- **Assisting the French State and local administrations**

- **Specific partnerships for industrial services**

Financement Participatif France   LiquidShare

Premier ministre — COMMISSARIAT GÉNÉRAL À L'ÉGALITÉ DES TERRITOIRES   cget   MeRS

- **Learning and innovating together**

- **Advising and experimenting**

- **Developping new services for our business units**

- **Research partnership and fundings**

- **French and european working groups and associations**

- **Business intelligence and forecasting**

Systemx   EUBlockchain Observatory and Forum

INSTITUT Louis Bachelier   INATBA International Association for Trusted Blockchain Applications

Innovating for the general interest

A unique model of internal organisation

► **Sparkling innovation in an institution as old as Caisse des Dépôts can be a challenge.**

► **Since 2015, Caisse des Dépôts is working on Blockchain and now has:**

    ► **A functionnal expertise** on Blockchain technologies and cryptoassets and their usecases in the finance and banking industry and other sectors relevant to our group

    ► **A technological expertise** with a team of developers coding Blockchain infrastructures or services

    ► **A legal and compliance expertise** used to advise regulators and legislators on upcoming laws in France and Europe

    ► **A unique ability to build partnerships** with both public and private incumbents and startups

    ► **An agile and integrated multidisciplinary team**

Interne

LaBChain consortium

Innovating with corporate companies and startups

▶ Launched in December 2015

▶ **33 partners** from banks, insurers, asset managers, mutualists, startups and research institutions

▶ **A collaborative and agile approach** on DLT technologies to **support the ecosystem building its future infrastructures and services**

▶ **A place to share insight with peers and other actors of the ecosystem**

Allianz · AXA · BELEM · Blockchain Solutions · BNP PARIBAS · Caisse des Dépôts GROUPE · CNP assurances · commonaccord · CA CRÉDIT AGRICOLE · Finance Innovation · Groupama · GROUPE BPCE · INSTITUT Louis Bachelier · KEEEX · LA BANQUE POSTALE · Ledger · MAIF · MACIF · malakoff médéric · OCTO Technology · ODDO BHF · ofi Asset Management · PAYMIUM · PME FINANCE · PRO BTP · RCi BANK AND SERVICES · SCORECHAIN · SOCIETE GENERALE · stratumn · UTOCAT · woleet

Focus: Euro Tokenization

A LaBChain pilot project with BELEM

► **BELEM is a FinTech building blockchain based solutions for financial institutions**

► **Focus on a LaBChain project: issuance and management of a Euro Stable Coin**

► **Collaborations between Société Générale, Crédit Agricole, Caisse des Dépôts, and BELEM**

Objectives of the project

► Provide an overview on the stablecoin landscape: different types, regulation, existing solutions, etc.

► Create a Euro Token, a cash on-ledger, in the context of the Delivery-versus-Payment of financial securities

► Explore blockchain opportunities: simplify or avoid reconciliation between the Euro Token and the real world

► Design a governance model for token issuance by a central entity, which would be in charge of the KYC

Focus: Euro Tokenization

A LaBChain pilot project with BELEM

Pilot functionalities:

► Token issuance

    ► By a wallet operated by a centralisator

    ► Issuance of new tokens thanks to a transaction signed by the administrator

    ► Additional transaction to transfer funds

► Reconciliation between token and deposit accounts

► Burning tokens on-chain, by the centralisator, via a specific transaction

► Payment / collection of interests

► Token swaps by different actors on the on-chain whitelisting

► DvP on-chain and cross-chain

► Shared audit trail of all operations

Confirmer le Swap Cross Chain ✖

Holder A	0x00b0Fc64039278c82b9790D1ad7Bd71dB5B79053
Holder B	0x0072c2e3F15840D1A4DE2A77daBe15161D411082
Lei A	R0MUWSFPU8MPRO8K5P83
Lei B	969500R4PTCLMM8IF341
Amount A	1,000.00 TKNEUR
Amount B	10.00 LCTL
Token Contract A	0x4CC191a3154C9531Ec5293AD1e01CB0A64AA12b1
Token Contract B	0x0EbC585B6244e7eb91709F92D2e5Fd383f4dC166
Cross Chain Swap A	0xCb68428d2Cf2D0A0a12EAdAff9a067F5b8C8661F
Cross Chain Swap B	
Secret	
Secret Hash	0x2f98119097dafe88e7d7659466faf7e95b9d994a2e53a14ca38d40e110064323
Locked A	true
Locked B	false
Fund A Claimed	false
Fund B Claimed	false
Timestamp	22/01/2019 15:34:15
Bloc de création	795077
Délai d'expiration	100
Bloc d'expiration	795177
Bloc courant	795080

Envoyer

Interne

Focus: Euro Tokenization

A LaBChain pilot project with BELEM

Key takeways:

► Stablecoins are a current major topic, with some prominent initiatives underway such as the JPM Coin or Facebook Coin

► We have validated the representation of a cash on-ledger Euro Token to enable the Delivery-versus-Payments of securities on a blockchain

► The use of an ERC-20 token makes it possible to represent financial securities as simply as cash instruments

► Blockchain allows for real-time reconciliation of cash and securities positions

► Effective on-chain management of KYC and token conservation

► More than governance itself, it is the legal and accouting structure of the model that still raise questions

Focus: Euro Tokenization

A LaBChain pilot project with BELEM

Delivery VS Payment problems and challenges:

► In order to be fair with respect to trustless parties introduce a trusted middleman (i.e., escrow service)

► On-chain and cross-chain swap offer a method to cut out any middleman

► Atomic swap protocol have to be constructed and proper security analysis carried out

Swap protocols (both on-chain and cross-chain) have to deal with:

► Multi-agent situations

► Network failures (i.e., DoS attacks)

► Latency problems

► Asynchronous blockchain networks

► Crypto-assets high volatility