



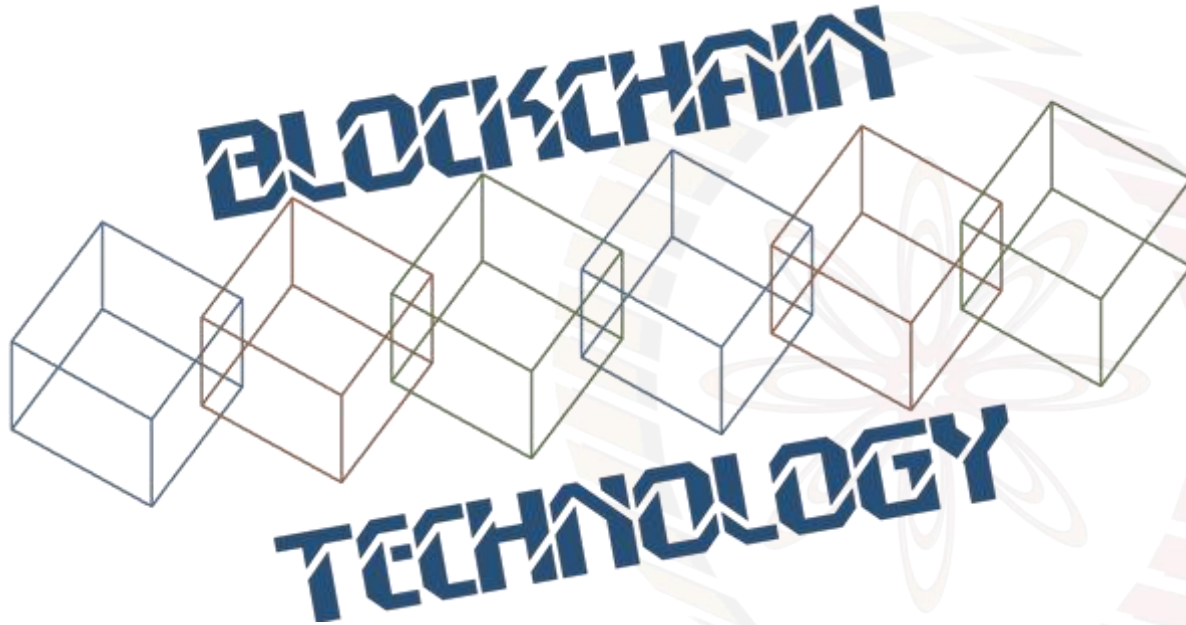
# **BLOCKCHAINS**

## **ARCHITECTURE, DESIGN AND USE CASES**

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## BLOCKCHAIN IN FINANCIAL SERVICES: COMPLIANCE AND MORTGAGE



# Compliance (KYC, AML)



- Problems and deficiencies:
  - Work done in collecting KYC information unnecessarily replicated by multiple institutions
  - Isolated view of customers and their transactions insufficient to detect money laundering
  - Uncertainty in knowing if implemented practices are sufficient (over-stringent policy hurtful for business)
  - AML processes are too fragmented and dependent on subjective human decision making

*\*CEBTowerGroup Technical Abstract*

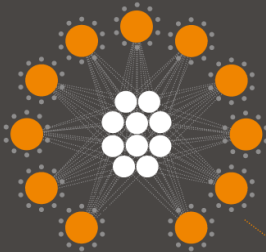
# Know Your Customer (KYC)

## DUPLICATION

An average of \$60m a year  
is spent by FIs on KYC procedures.

For corporations it's a  
repetitive process too.  
One hypothetical  
example could be...

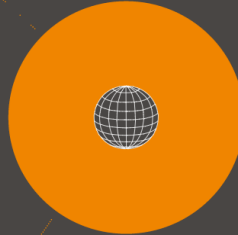
an average of  
**11 banking  
relationships globally**  
+  
**10 documents**  
to open one account  
=  
sending documents  
**110x to  
different banks**



A huge challenge for all FIs is to keep up  
to speed with ever-changing global KYC...

## REGULATION

**87% of banks** and 56% of investment managers  
think that a change in regulation and legislation is the most  
influential factor for their KYC processes.



**64%**  
identified reputational  
risk as likely to influence  
changes in their  
KYC processes.

For both sides of the table, the current  
due diligence process can be a major...

## DISTRACTION

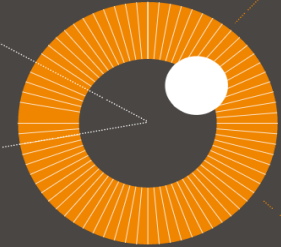
FIs can spend **24 days** to onboard a new client  
22% higher than in the previous 12 months.

Throughout the  
onboarding process,  
corporates reported  
they were contacted  
on average:

**8x**

...but interestingly  
banks contradicted  
this by saying they  
only made contact:

**4x**



FIs spend \$60m-\$500M annually on KYC/CDD  
Average cost per new KYC Request is \$616  
Anywhere between 5-100 documents for KYC  
request

Regulations critical and increasing  
In 2015 one regulatory alert every 12minutes  
Fines for non-compliance also increasing  
e.g. BSI Bank shutdown in Singapore

30% of corporates report > 2 months  
10% > 4months

Source: 2016 Know Your Customer (KYC) Independent Survey (Thomson Reuters)

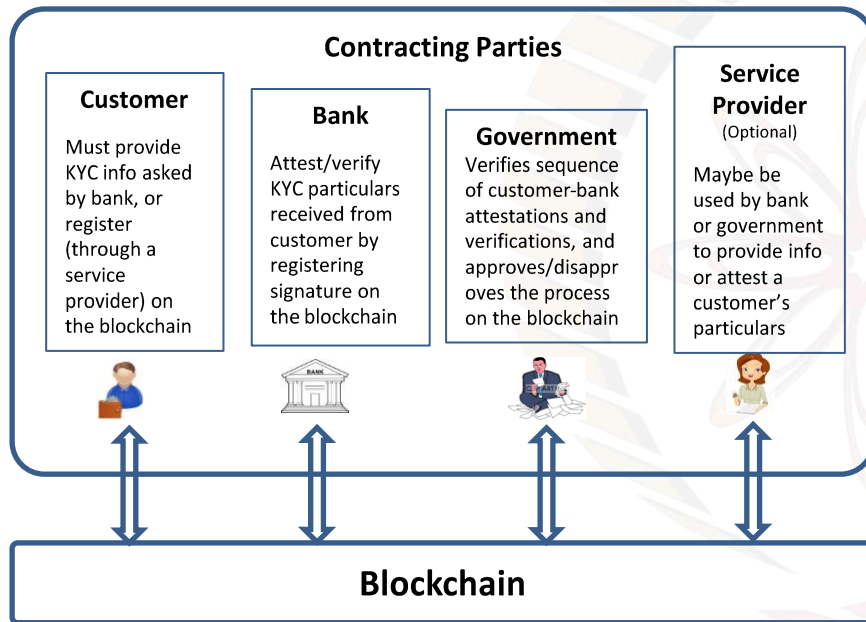
# Shared KYC Solution

- Know your customer (KYC) is a regulator governed process of performing due diligence for verifying the identity of clients. KYC is a manual, time consuming and redundant across institutions
- Sharing KYC information on Blockchain would enable financial institutions to deliver better compliance outcomes, increase efficiency and improve customer experience

## ***Key Pain Points and Solution Benefits***

Pain Point	Solution Benefit
<ul style="list-style-type: none"><li>• Redundancy: Most large FIs use similar data and processes to verify the same clients</li></ul>	<ul style="list-style-type: none"><li>• Eliminate redundancy: Documentation needs to be verified only once before the approval information is shared</li></ul>
<ul style="list-style-type: none"><li>• Inefficiency: Manual and time consuming process to gather and verify documentary evidence</li></ul>	<ul style="list-style-type: none"><li>• Increase automation: Documents and approvals are digitized and can be verified without manual intervention</li></ul>
<ul style="list-style-type: none"><li>• Lack of specificity: Requirements for due-diligence are often fuzzy, creating uncertainty on compliance to avoid legal sanction</li></ul>	<ul style="list-style-type: none"><li>• Standardize process: Standardized, automated KYC processes sanctioned by regulators</li></ul>

# Know Your Customer



## Value proposition

- Avoid replication of KYC effort
- History of changes in identity or address can easily be tracked
- Government as a participating entity in the network can simplify auditing and monitoring
- Regulator-approved smart contracts can auditably record entire history of changes to KYC information
- Transition from periodic monitoring to real-time monitoring (self executing smart contracts)
- KYC and AML can be supported as utilities provided by third parties that multiple banks can leverage

# Information Sharing

## Doc Collection and Verification

- Controlled and recorded Customer Due Diligence process (CDD)
- Blockchain storage of hash

## KYC Process

- Customer Due Diligence process info shared with anonymization

## Proof of Authenticity

- Hash verification
- Continuous and automated auditing

## Customer Provided & Owned Information

- Proof of Identity
- Proof of Address
- Other

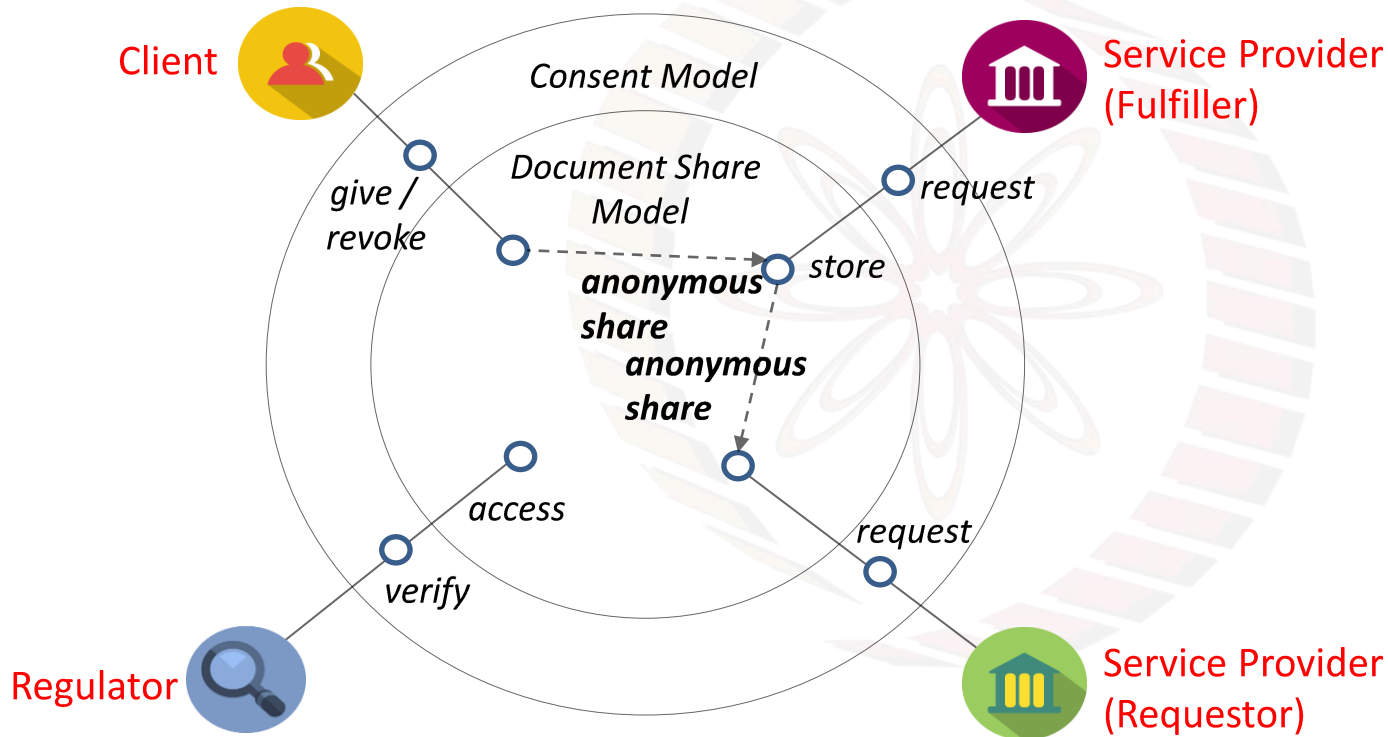
## FI compiled information on customer

- Transaction Behavior

## 3<sup>rd</sup> Party provided customer information

- Credit Score

# Privacy and Consent



## Consent Model

Defines how access to profile and sensitive information is managed and granted or revoked by preserving the confidentiality of the relationship.

## Document Share Model

Allows for anonymous but verifiable share of documents based upon consent.



# Mortgage Processes

## 1 Mortgage Origination

- Mortgage Originators work with homeowners to generate mortgage loans
- Borrowers, appraisers, title companies, lenders provide data to originate the mortgage

**Mortgage Originators**

~30-90 days



### Pain Points

- Time and Paper intensive process
- Too much back and forth between lender and homeowner; not streamlined
- No standardized formats for data
- 3<sup>rd</sup> Party (eg, Appraisers, title search) data ingestion is inefficient

## 2 Loan Servicing

- Loan servicers will engage with homeowners for the duration of the loan
- Serving institution will collect payments for the loans and distribute to investors
- Servicers will also negotiate loan modifications, conduct foreclosures, provide tax & insurance payments, etc.

**Loan Servicers**



### Pain Points

- No standardized process & data formats
- Documents can be misplaced during default management process
- Some documents are still physically held
- Disparate IT systems (eg, default management, borrower engagement, payoff processes) increase number of manual process

## 3 Mortgage Securitization

- Vast majority of loans are sold to Government Sponsored Entities (GSEs) to be pooled to generate Agency MBS (Mortgage backed Securities)

**GSEs**



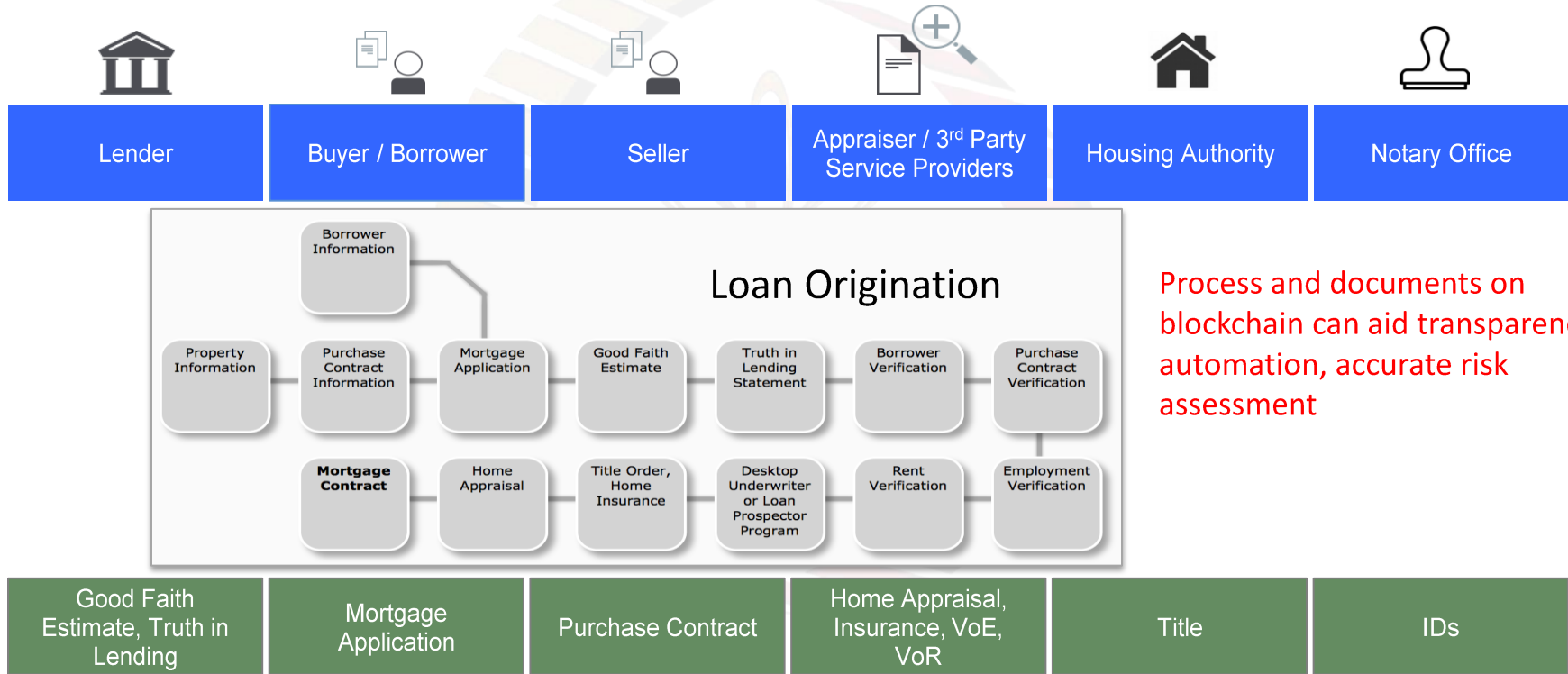
**Investors**



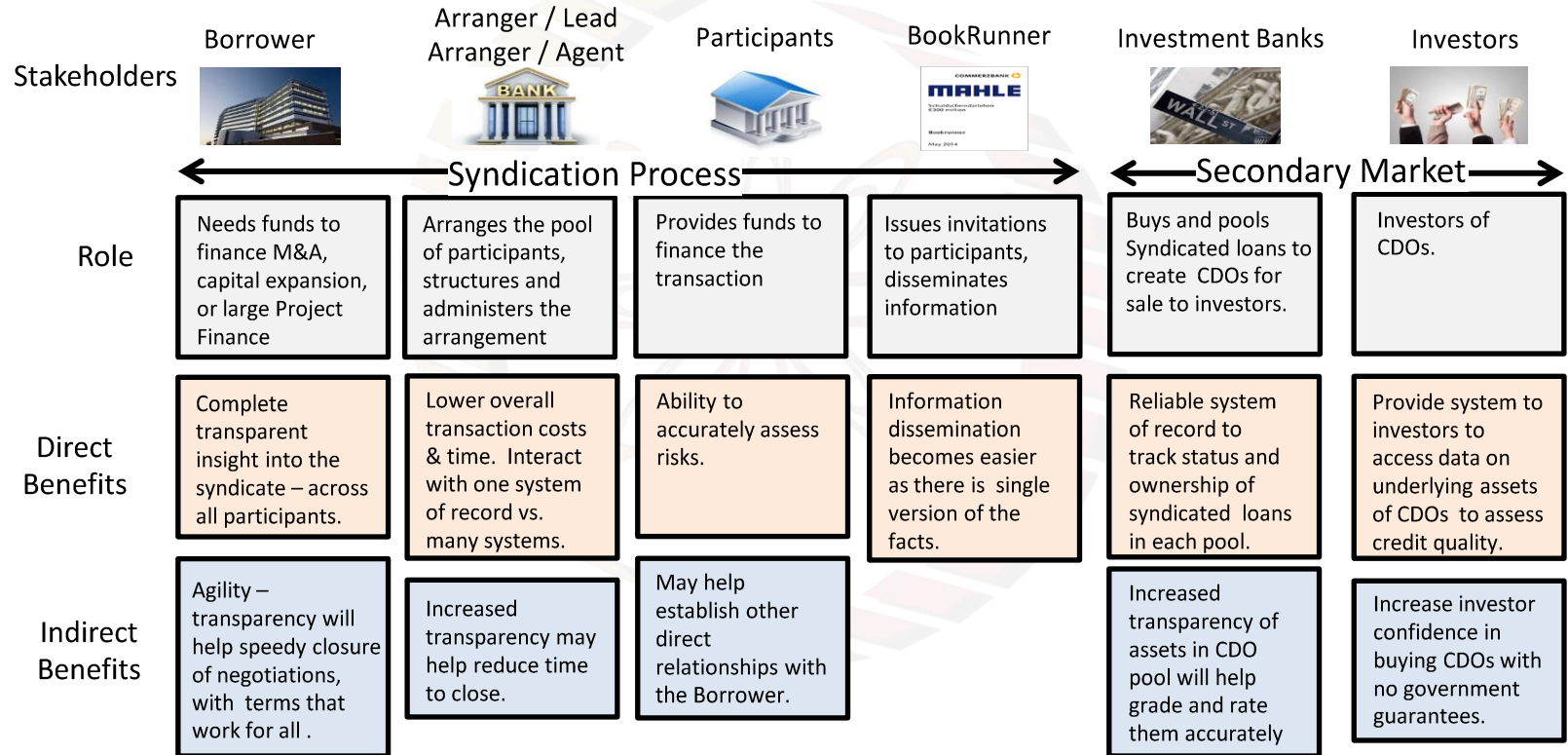
### Pain Points

- Takes too much time for investor to conduct due diligence
- Investors not confident in the data provided from present system to take credit risks of buying non-agency MBS
- Lack of transparency on which assets are backing each tranche of the MBS

# Example Mortgage Origination Process



# Syndicated Loans



# Fun Reading

- Know Your Customer, Wikipedia article: [https://en.wikipedia.org/wiki/Know\\_your\\_customer](https://en.wikipedia.org/wiki/Know_your_customer)
- “Why is KYC Mandatory Now?”, Reddit article: <http://business.rediff.com/report/2010/oct/18/perfin-why-kyc-is-mandatory-now.htm>
- Syndicated Loan, Wikipedia article: [https://en.wikipedia.org/wiki/Syndicated\\_loan](https://en.wikipedia.org/wiki/Syndicated_loan)



thank you!

