WHITE PAPER

BUILDING BLOCKCHAIN ECOSYSTEM FOR MORTGAGE WITH ENHANCED BUSINESS VALUE

Abstract

Blockchain has been disrupting the mortgage industry with greater relevance, and there is an increasing business need for its timely adoption. This paper presents brief perspectives around Blockchain Transition Framework (BTM) and elaborates on potential use cases across mortgage origination and servicing space for faster development of blockchain solutions. These can enable financial institutions to leapfrog into the modern era of mortgage lending for market sustainability & profitability.

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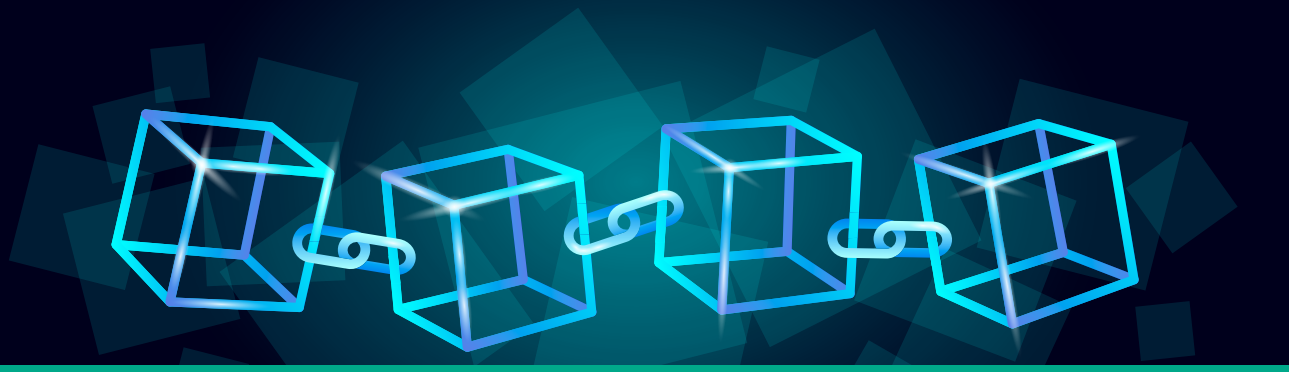

Blockchain - a major buzz

Blockchain has been a major buzz in the mortgage industry in the recent years, as several major lending institutions are in various stages of the journey in blockchain adoption, and the reasons are evident. Loan origination costs have been escalating around 30% Y-o-Y since 2015, and declining profitability of around 47% (major banks since 2012), severely denting lender margins. Increasing number of new lenders & rapid growth of their market share (around 54%) have added further catalyst to competitive race for customer retention & acquisitions[1]. Many banks have started adopting digital-first approach at an accelerated phase, to manage issues around rising competition amid increased cost of doing customer services.

Mortgage lending's lengthy and time-consuming process is no more a global phenomenon, as the blockchain technology aces top in digital-first category to disrupt industry with remarkable benefits such as, faster processing of loans, increased level of trust among stakeholders, and reduced instances of fraud.

A bird's eye view to blockchain

Blockchain is a technology that records transactions in the form of digital ledgers. It is a revolutionary way of implementing trust among participating stakeholders, as it makes the information difficult or impossible to change. With greater emphasis on trust and transparency, blockchain has gained larger attention in the mortgage space when industry reports have been showing a growing volume of applications containing frauds. Blockchain also offers a peer-to-peer network, that allows participants to exercise instant settlement of funds via robust layers of security which encourages lending institutions to explore unexplored areas of opportunities in the market.

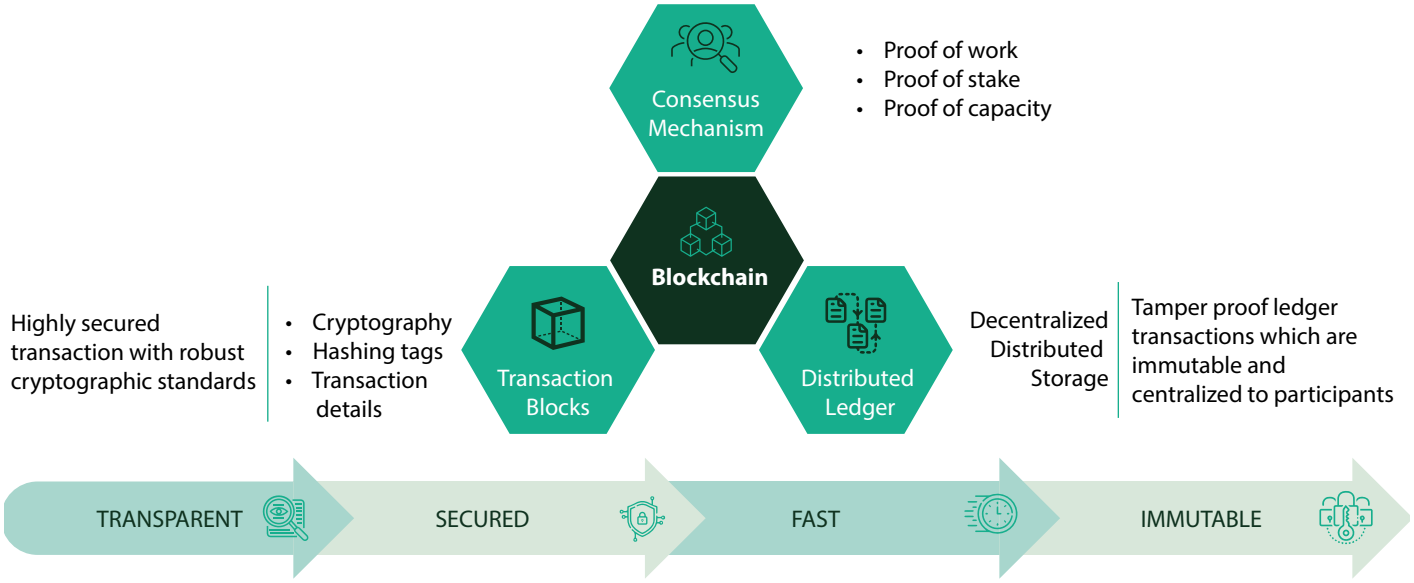

Figure 1: Blockchain in a nutshell

[1] https://www.infosys.com/about/knowledge-institute/insights/documents/mortgage-market-success.pdf

Blockchain - an irresistible change?

Blockchain by itself is not the core of a fiber. But when considered as part of an ecosystem to consume data on a blockchain and execute process-specific events using smart contracts, it becomes apparent that it could disrupt mortgage processes with greater business value. Many lenders strive to undergo such blockchain transformations, however the puzzle majorly prevails around how adoption & transitions could take place without inviting additional complications. Fortunately, blockchain technology offers rational solutions demystifying those apprehensions for lenders to harness its fullest potential.

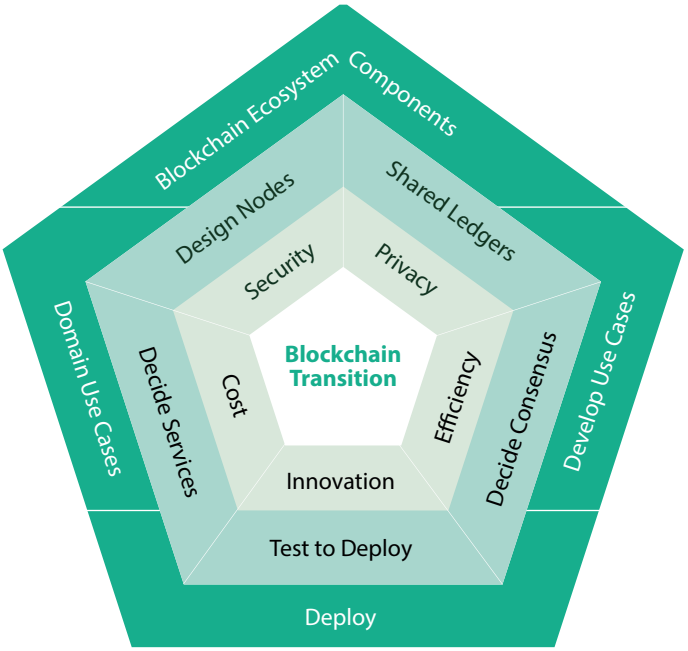

Figure 2: A framework view on BTM

The framework on blockchain transition model enables technology solution providers to:

- Identify opportunities via prebuilt use cases on blockchain in mortgage domain
- Leverage blockchain components meeting business needs

Blockchain Use Cases

The mortgage industry promises significant landscape of opportunities for blockchain solutions. Recent studies show that mortgage originations are largely contributed by millennial customer group (around 48%) with online loan originations accounting for a 30% growth every year[2]. That obviously brings the perspective of bringing digital first to harness positive business outcomes.

Origination	Underwriting	Fulfilment	Settlement	Servicing
Opportunity Space				
• Customer eKYC • Customer Identity verification • Employment verification • Income verification • Credit history maintenance and verification • Existing loans & lines	• Customer scoring & internal rating • Credit history management • Title history & verification • Property valuation & appraisal maintenance • Credit decision management	Smart contracts • Generate loan estimates • Exercise loan agreements • Transfer property title & ownerships	• Settlement agreement • Fund settlements • Loan disbursement • E-signature of agreements	• Escrow payments • Property tax maintenance • Insurance premiums maintenance • Regulatory reporting • customer delinquency and default tracking • Customer track on repayments history • Offer generation
Business Value				
Efficient gathering and processing of customer Data • Faster identification of customers • Quick verification & scrutinization of customer details	Accurate assessment & timely decisioning of credits • Faster assessment of customer creditworthiness • Increased transparency in credit decisioning	Timely fulfilment and consensus of agreements • Simplified process and reduced documentations • Easy maintenance of property titles and ownerships using smart contracts	Faster settlement of funds & deal execution • Faster transaction of funds & disbursements • Simplified process and reduced documentations using smart contracts	Efficient customer servicing and increased compliance • Timely servicing to customers based on loan & customer life events • Faster generation of offers and customer acceptance via e-signing it using private key provisions

Figure 3: Use cases of mortgage origination and servicing – an opportunity landscape for blockchain adoption

[2] https://www.infosys.com/about/knowledge-institute/insights/documents/mortgage-market-success.pdf

It is imperative to build solutions that specifically address pain points of mortgage industry, while also having the ability of deeper configurations and tailored customizations that could potentially untap a blue ocean market across below areas.

- **On identity management**

  Lending institutions globally spend around $48 million annually in KYC efforts. Digital identity has become an important leveraging tool for banks to improve processing speed of applications. Using blockchain, consumers can provide details in a traditional form which can be technically handled to get warehoused in digital ledgers. From lenders' perspective, blockchain offers a federated solution using third-party vendors (such as Facebook or Google) to deliver login services for customers to get identified. Due to this radical change in process, identity resolutions can happen in minutes rather than days.

- **On-record maintenance and verification**

  Mortgage lenders traditionally consume 2-3 weeks of time for verifying borrower records. This contributes to significant share when time to close a mortgage loan is around 51 days. Using digital ledgers and blockchain API services, faster verification checks can be extended using other blockchain networks from 3rd party or regulatory bodies. For instance, companies like Aversafe provides verification services on borrower employment details. Regulatory bodies from Dubai, Sweden etc., have started using Blockchain to store property title and sale transactions.[3]

- **Using Smart contracts & Settlement of funds:**

  A recent study suggests that smart contracts could save banks between $3 to $11 billion every year[4]. Smart contracts are envisioned to be a replacement of paper-based contracts, which are programmable, self-executing scripts, that can bind lenders and borrowers to agree on fair and feasible terms. Research is being undertaken currently, where existing business rules are logically transitioned to semantic web rules and further transformed into smart contract standards, so that agreements can be automatically executed on specific loan events without intermediate players like solicitors and agents.

- **E-signing of documents**

  A typical mortgage process requires 300 pages of documentation at pre-processing stage and it roughly requires 800 pages of documentation at the closure stage, which is overwhelming for customers[5]. Blockchain solutions provide e-signing capabilities to customer for faster processing of loan agreements with ease of administration. E-signing involves various parameters such as device ID, IP address, time stamp, and transaction hash which let the fraud attempts arduous to happen.

[3] https://www.aversafe.com/

[4] https://blockchain.gov.in/landrecords.html

[5] https://assurancemortgage.com/how-blockchain-technology-impacts-mortgage-industry/

Blockchain can be greatly empowering when it is viewed with the perspective of use cases aligned with strategic themes of customer needs.

Strategic Themes	Use Cases
Speed up Processing time	• Digital identity verification • Property Verification • Employment verifications
Accurate records	• Property Title history • Title Transfers
Faster settlement of funds	• Origination fees • Disbursement of funds • Settlement of funds
Agreement & execution	• Loan Agreements • Mortgage Insurance

Use case identification aligned with strategic business themes

Figure 4: Use case identification aligned with strategic business themes

IT vendor as a gamechanger?

Another recent study reveals that, the growth of blockchain industry is anticipated to be between 2018 till 2024 and then to mature from 2025[6]. Industry analysts predict significant volumes of projects on blockchain initiatives for several IT vendors. However, there is still a need for product that anchors a one-stop solution for mortgage industry which can pursue pre-built domain use cases to carry out business operations in a highly secured environment. Rapid development of blockchain uses cases around the principle of agile standards forms a critical factor to quickly scale up and deliver unique & differentiated solutions to lending institutions. Blockchain open-source community offers a variety of ready-made programs that help to customize and fast-track application development in progressive sprints without losing focus on business objectives.

Component Type	Tools	Business Outcome
Open-Source Frameworks	Ethereum, Hyperledger, Quorum, Multi-Chain, Open-chain, Hydra-Chain	• Establish software component for blockchain n/w • Customize business rules and programs • Build consensus and DLT principles
Blockchain Test Networks	Ropsten Kovan Rinkeby	• Validate & test blockchain use cases
Blockchain APIs	Blockchain Data API Blockchain Wallet API etc.	• 3rd party integration • Inbound & outbound communication

Figure 5: Blockchain Components & Business Outcome

[6] https://www.marketsandmarkets.com/Market-Reports/blockchain-technology-market-90100890.html

Harnessing business value from blockchain capabilities

Blockchain technology carries significant scope of transformations into existing processes of mortgage origination space and brings out effective initiatives.

Pursuing Blockchain transition model (BTM) in mortgage space clearly enables lending institutions to harness greater business value from process, cost, security, customer experience and satisfaction standpoint.

Conclusion

The evolution of blockchain has been rapid in recent years and has brought great deal of disruption to market. While the focus on upgrade is highly imperative for mortgage industry, the blockchain community keeps recognizing its technology constraints and must progressively address them with necessary refinements to increase the business adoption.

The push towards blockchain transformation in mortgage business will bring a breath of fresh air to sustain, especially when the industry is inclined towards process digitization with ease-of-use use cases. For many lending institutions, blockchain transformation is still an uphill climb. However, it can be systematically developed and fast-tracked via modern tools and latest frameworks. With the viewpoints pursued from BTM, timely development of blockchain solutions and its capabilities can be harnessed by the mortgage institutions at a rapid scale. It's time for lending institutions to leapfrog into modern era of mortgage business or miss the bus in the race for market sustainability & customer profitability.

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