



IMPROVING THE MORTGAGE ORIGINATION EXPERIENCE: IS BLOCKCHAIN THE ANSWER?



Introduction

Buying a house is a once-in-a-lifetime experience for a majority of home buyers, and therefore, it becomes a sensitive and emotional exercise for many. It is not a daily experience where you go to a shop, buy something, and choose not to interact again with the seller. For a typical mortgage, the interaction between a buyer and a bank runs for a couple of weeks or

sometimes months before the mortgage is approved and the amount is disbursed. The interaction between a buyer and a bank is crucial, and technology has a critical role to play in improving that customer experience. While customer experience can be made excellent by imposing a high amount of fees for services, it needs to be in proportion with the cost being charged and time

being spent. Therefore, it is imperative that factors like cost, time, and customer experience be balanced out as a part of the overall mortgage origination journey. In this article, we will look at ways in which blockchain can impact the mortgage origination industry and how banks can start looking into blockchain and its potential usage as per their priorities.

Scope and benefits

Nowadays, there is a key emphasis on understanding the potential usage of blockchain in every segment of the finance industry. For any bank, the decision might not always be through sheer force of will but could come as a result of its competitors, where the primary driving force is the fact that most of the banks are investing in blockchain, and it is imperative that we should too. Although the current blockchain plan might not quantify the potential benefits, or provide a clear road map like a

software development methodology that highlights what will happen at a particular phase and how each phase's outputs are going to look like, it is expected that in the next few years, blockchain will evolve significantly. Blockchain can be understood not only in terms of a different platform to do business but also a method or a process that can improve operations, productivity, and revenue. It is like a tool that can help achieve goals of productivity improvement, minimize errors, control risks, and usher in

various other practices such as automation in a more distinguished way. Banks need to decide when is the right time for them to use blockchain for their lines of business. It could be possible that some cleaning will be required or certain robust business processes need to be in place before they decide to invest in blockchain. Also, it would be worthwhile to analyze if there can be a process in place to do the validation, reporting, and track the benefits post-implementation of the changes as banks move along on their blockchain journey.

Key focus areas

Before identifying the target-specific area across mortgage origination, the key area that needs to be looked into is end-to-end business processes. This is one of the areas for review across each stage within the mortgage life cycle for any organization that would like to reap benefits in the long run and stand out among its competitors. Without streamlining, the business processes would make it difficult for banks to fully enjoy the benefits of blockchain; it would be similar to putting efforts into stabilizing a falling object in a fluid environment before it attains terminal velocity. An initial focus on business processes could be a potential blockchain implementation area, particularly where the system behavior is consistent or changing behavior is predictable. In other words, where there are less frequent changes or changes expected in a predictable time frame or defined changes as part of business processes. It could be any stage of the mortgage life cycle, where the system, process, people, or a mix of these are involved; examples include lead generation, origination, processing, underwriting, closing, or servicing. Blockchain can be targeted initially for areas where the business process is clear though complex and not requiring much robotic intelligence. For example, if we look at the automation industry, it works best for those processes that are quite consistent in nature. Some of the key areas that can be targeted are highlighted below:

- **Mortgage leads:** A central system of records for all leads and prospects from various channels can help not only reduce the need for customers to visit multiple banks but also provide the best product(s) as per the customer's requirements. Once any party collects information about a customer, the data can be published to the common ledger and utilized by multiple banks to offer the best product as per the customer's needs. The required pricing models can be built within the common ledger published by the banks and it can also help reward those who originally created the lead and who eventually got the loan to originate and potentially serviced. The next level could be to tie up with other industries to understand the housing location preferences, such as near metro stations,

small towns, universities, clubs, and/or recreation centers before offering the product.

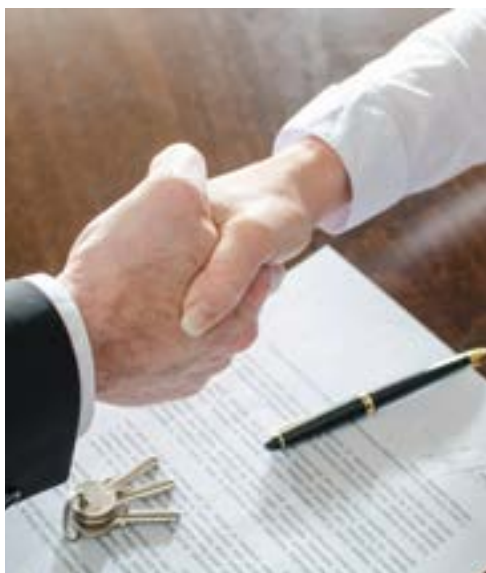
- **Fees:** There are certain fees that are fully based on lenders' choice such as the application fee, underwriting fee, discount points, or prepayment penalty. These are internal to the bank and driven primarily as per the bank's policies. When different banks are in a blockchain network where the leads' or prospects' information is available on the network, a combination of these fees and suitable products can help convert leads or pre-approved loans to the next stage, and by being part of the blockchain network, a bank needs to look into only those leads or pre-approved leads that are not converted into loans. This feature can be built in real time with the mortgage leads area discussed above.
 - **Appraisals:** Appraisals of property can turn out to be a huge disruptor in the mortgage process in case the appraisal shows lower than the desired amount, requiring mortgage insurer engagement. The appraiser vendors need to connect with multiple parties such as the local listing service, private and public records, county data, etc., that are inputs to the appraisal report, including the uniform residential appraisal report (URAR). The appraisal value might vary from one appraiser to another for the same property. What if there are more than one systems of record for the same property? Building a system in which all these parties are engaged and can validate the authenticity of data can not only avoid ordering the re-appraisal but also possibly removes the need of any other quality tool that any third party or agency offers.
 - **Title:** Title search becomes essential to check the legal history, particularly when there are multiple title providers holding records of different properties. By building an ecosystem where providers can authenticate that there are no other claims on a particular property can move this area to blockchain smoothly.
 - **Flood:** Lenders are keen to know if the property is in a flood zone, and the service for such identification can add more cost along with flood insurance.
- Sometimes flood identification requires hiring a special third party to do this specific evaluation of the property. There are multiple sites that can provide information on whether the given property is in a flood zone. Assimilating all the information and bringing all the parties together can help reduce the cost. Multiple third parties offering insurance services can be part of the network, validate the flood risks, and offer competitive prices for this service. It could be a combination of identifying flood risks and offering insurance quotes to the bank and customers.
- **Insurance:** Though there are fees associated to identify the need for various insurances to mitigate mortgage risks, the actual insurance cost will further add to the cost for the borrower. It could be any insurance like mortgage insurance, title, or flood. The need for a particular insurance can be confirmed by the validity and accuracy of the title, appraisal, and flood reports, and all these records can be authenticated using a single source of record distributed across the mortgage value chain, and different stakeholders can be part of this ecosystem. For example, when the title and appraisal are confirmed, multiple insurance providers who are part of the system can see the request and try to offer quotes, and in case the lender / customer decides to go with the offered quote, the request can be closed by accepting the transaction and putting them in the ledger so that the insurance can be requested as per the product and borrowers' risk profile.
 - **Brokers / correspondents:** This could be utilizing the system of records by the brokers or correspondents. Brokers can look at the prospects' data and reach out to customers as per their individual capacity to make an impact in mortgage purchase. With more digital focus, more loans are expected to be originated using e-channels, and therefore, the role of brokers cannot be ignored completely. They play a vital role since the customers see a point of contact for them or a face or liaison whenever they need more information. Banks within the blockchain network can see every broker's progress

and how much they have done in terms of applications for a given time frame to reward those who can help understand the regional preferences well for customers and get more loans to the bank.

- **Credit report:** Pulling the credit report for the same customer multiple times can be avoided for same or different products by different banks. Credit agencies can also offer better pricing models to share the customer report if there are not many changes in the old report in a reasonable time period and provide the updated information for a much lesser cost. This will also help credit agencies to come up with newer pricing models in which they currently operate or better possible ways to report changes in the customer risk profile. This will help reduce charges to the banks, eventually lowering the origination charges in disclosures for customers. For example, the same credit report can be potentially reutilized for the main mortgage application during underwriting that has been used for pre-approval, in case the customer decides to go ahead with the pre-approved rates in a defined time frame.
- **Underwriting:** Automation of the underwriting process for good loans, based on certain parameters such as the credit score, loan amount sought, collateral value, loan-to-value (LTV) ratio, etc., can be easily part of blockchain initiatives. The business processes are expected to be stable, and calculations can be done easily and do not require much correspondence with the customer for such loans. Additionally, the time difference between the origination and closing can be heavily reduced for such loans.
- **Reporting:** The reporting data needs to be accurate to take key decisions for departments that are consuming the reports such as servicing, secondary market, risk and compliance, etc. For example, the upcoming American mortgage Home Mortgage Disclosure Act (HMDA) rules, mandated by the Consumer Financial Protection Bureau (CFPB), are going to be implemented in a phased manner till 2020. With the increased focus on reporting, many more reporting requirements are expected

to come in the mortgage ecosystem. There are new data elements that can impact the loan application report (LAR). The accuracy of reports can be further strengthened by the fact that it is going to be utilizing data from the blockchain network of mortgage companies. The reports can be generated, and a comparative analysis can be done. Initiatives such as uniform collateral data portal (UCDP) for the electronic delivery of appraisals will accelerate blockchain goals in a defined time frame as banks will be forced to take necessary measures to be compliant with these and set the environment ready to meet the goals of blockchain initiatives.

- **Customer engagement:** A borrower's



needs are important and need to be understood before proposing the right product; however, the journey does not end there. It is crucial to build tools to understand the changing priorities of customers by building communication channels. This will help not only in the mortgage servicing stage but also manage risks with the mortgage. For example, it is helpful for an existing mortgage customer to understand whether they will need to move to a bigger house if there is a new member arriving into their family, or whether it is the right time to recommend refinance or continue with purchase if the children are going to school / college. Having a review meeting on the phone or in person yearly, based on their credit reports during the

servicing period, can help build trust between the bank and the customer. This applies to leads or prospects as well. If continuous engagement is not there, the customer might want to try a different bank to experiment. A possible way to take this forward is to build an analytics tool to recommend products as per changing customers' needs. This will also help in cross-selling other products the bank offers.

- **Cross-selling:** All the areas discussed above can supply fuel to this area. This will not be limited to the bank that is offering the origination or servicing but available to anyone who is part of the network. For example, one bank can use the existing customer information posted on a common network and offer non-mortgage products as per the customer's preferences. Also, if other industries are part of the current network or have tied up with banks, they can also offer other products such as travel card, health insurance, home insurance, etc., as per the customer's choice. This can be done by bringing all the current loyalty networks under a single ecosystem where the customer requirements can be accommodated for various other needs linked to mortgages or the immediate needs arising post approval of the mortgage.
- **Others:** Many other services like document delivery or e-signing can be offered with a fee charged to the borrower and can be priced better in a closed network of providers which will eventually lower the loan cost for the borrower. Additionally, maintaining standards for communication among systems like the Mortgage Industry Standards Maintenance Organization (MISMO) that have an impact on multiple stages within the mortgage life cycle like products and pricing, loan delivery, loan serving, and investor reporting, is important for blockchain initiatives. These are already accepted data standards in the US mortgage market, and therefore, all changes recommended as part of blockchain initiatives need to be aligned with this standard extensible markup language (XML) approach. In fact, this gives a good platform for any blockchain initiative to assume the data sharing standards among parties.

Challenges

Firstly, the biggest obstacle a bank can face, particularly its technology division, is to get the funding to run such initiatives. It becomes difficult to make such initiatives as the priority when the current focus for business is something different like regulatory change. For example, the TILA-RESPA Integrated Disclosure (TRID) implementation in 2015 did put multiple priorities aside for mortgage line-of-business (LOB) as it was a huge change in the mortgage industry post Dodd-Frank. Some key questions like what blockchain could offer for my business, how much of benefit can be expected, what is the continuous investment after we adopt it, are crucial for starting these initiatives.

Secondly, a clear view about where and how to start and which areas to target even if there is a go-ahead from the top management needs to be in place. Key points like who needs to be engaged from various groups, areas that could be targeted, and ways to evaluate outputs are some of the points that any executive would think of before implementing such initiatives. It's been said that there will be a very minimal cost for using blockchain as compared to today's transaction cost paid to middlemen. It would be worrisome for those who have more chances of becoming obsolete once blockchain comes into the market. For example, mortgages that are originated using correspondent channels might not

require these middlemen, and the customer can directly work with the bank in case banks build ways to connect with the customer using digital channels.

Thirdly, though we all agree that business and technology need to be aligned, it is important not to ignore two areas that need to be involved in this game — the customer who will eventually spend the money to enjoy the services and the vendor (including the third party) who will provide the required services to run the operations. Though the customer takes a passive role in the process of building such an ecosystem from a technology perspective, customer preferences cannot be overlooked. Consider this like a plane where the business, technology, and end customers are the aero company, technology partners, and passengers respectively, and you need vendors for basic amenities, food, entertainment, etc., to create a satisfying customer experience. Initiatives like blockchain need to be run by keeping the objective in mind that it will have to benefit the customer eventually. It could be started by having a broad view of improving customer experience, reducing cost to the customer, or improving processing time. While it is observed that sometimes there is less control of a bank over a vendor to align with business and technology priorities, the selection of a vendor who can fulfill the banks' short-term and long-term goals can

become a selection criterion for banks in the near future.

Finally, blockchain runs on the principle of acceptability of data and is primarily driven based on the minors (special nodes holding key positions in blockchain). Blockchain entries are irrevocable, and therefore, the ability to correct the data in special circumstances needs to be built else it can make banks apprehensive about using blockchain in areas that require frequent corrections. It is worthwhile to look at the risk perspective that this brings such as if there are scenarios in which these minors can go wrong. For example, how are we going to fix a closing disclosure to a customer in which the customer or settlement agent seeks correction when the transaction is irrevocable? While blockchain capability can definitely provide the benefit of correct data, the fact that multiple versions of document exchange occur between the lender and applicant during the mortgage life cycle, cannot be ignored. Sometimes, the change in data is quite significant between the loan estimate and closing disclosure. These issues have emerged significantly in the US mortgage industry, ranging from discount points impacting fees, last-minute appraisal reviews leading to re-disclosure, delay in closing process leading to changing interest rates eventually delaying the loan closing for the customer.



Structured approach

Blockchain initiatives can be started by coming up with a proof of concept or a small pilot project highlighting the business impact, technology impact, investments, business value, expected benefits, and a plan to run this initiative in parallel as an investment. Some of the key points that need to be looked into are:

- **Alignment with technology:** Banks need to engage with a technology partner who can understand the bank's business processes well. Technology partners have an important role to play in meeting the business goals for any bank. They can also bring in a new technology partner to have an assessment done around the current state and advise on how their system can be revamped. Neither do business groups get these inputs from their technology partners all the time, nor do banks work with their vendor partners to align with their long-term goals. Signing on a technology partner who has both the short-term and long-term goals in view can accelerate the blockchain goal.
- **Key themes:** Identification of key themes for transformation including business value, IT simplification, or industrialization, and value levers such as cost reduction, operational efficiency, automation, and standardization are essential to blockchain initiatives. Each value lever can be linked to the key performance indicators (KPIs) that each bank decides.
- **Target areas / sub-areas:** Banks can come up with their prioritized list areas in which they see the biggest challenges or the biggest opportunities. It is a good idea to focus on a particular area where the expected business benefits can be observed and measured. It is preferable to choose areas where there could be fewer concerns from regulatory bodies as per the geography and not those that need to be delivered by a certain date.

For example, the changes as part of Dodd-Frank and TRID required months of preparation and had strict timelines and challenges in terms of implementing the changes.

- **Business process change and use cases:** Preparing banks for utilizing blockchain as a service (BaaS) gives them an opportunity to manage their applications in a cleaner way. Prioritized areas for system changes can be further detailed out by building detailed flows, use cases, and user acceptance criteria.
- **KPI matrix:** Building a KPI matrix by identifying the target areas, impacting parameters like pull-through rate, loan-to-value (LTV), debt income (DTI) ratio, or auto decision rate, early payoff, etc., can help evaluate and track the improvement results.
- **Agile team:** Having the right set of resources is crucial. This should preferably be done in parallel with other mortgage initiatives. Based on short-term and long-term goals, a team comprising members of different groups such as platforms, applications, middleware, services, application programming interfaces (APIs), smart contracts, etc., with niche skills can be formed who can specifically focus on achieving the objectives. Alternatively, engaging a fintech company or a blockchain startup which has built something in this area or which can help achieve this goal can be another strategy to take this forward for those banks who have not done much investment in technology but would still like to experiment with blockchain for their future growth.
- **Implementation plan:** A small pilot project in a Waterfall or Agile approach to test and review the changes can give a view at the end, about whether to continue with the initiative or approach it differently.





The road ahead

While it has been agreed that blockchain can be used in every segment of the finance industry, it also needs to be understood how much and to what extent it can be applied to mortgage or if it needs to be used as a product with a set of features, or as a service offering to improve mortgage operations, or possibly a methodology that can deliver long-term benefits. The extent to which blockchain is going to improve operations or benefit the end users will vary from bank to bank, and any small steps taken to yield benefits such as improving business processes, building automation, reducing the processing time, or improving customer experience will build more confidence to invest in blockchain initiatives. It is possible that there might not be a great financial benefit observed initially but qualitative benefits such as customer experience will play a vital role in investment decisions. The best decision can be taken with a holistic view of customer preferences, the bank's current limitations, and its priorities. Moreover, the benefit of maintaining a single version of the truth and providing the same data to all requesters at a given point in time can make a particular area align to the banks' future objectives. Banks can work together to create a mortgage ecosystem of buyers, sellers, brokers, and third parties, where they can use services from a similar set of vendors and start looking into using blockchain for their business and share the cost. Additionally, development of standards across the blockchain value chain is something that needs to be looked into further and in detail. Technology has a key role to play in achieving these goals. As companies think about offering blockchain in the coming years, it is expected that blockchain will become a yardstick to evaluate new and innovative ways to do banking.

About the Author



Amit Lohani

Principal Consultant, Financial Services, Infosys

Amit has over 15 years of industry experience in leading complex consulting programs, business engagements, and transformation initiatives across the banking value chain. He has expertise in driving technology transformation initiatives including the current state technology assessment, competitive analysis, defining the future business-IT ecosystem, IT road map, application rationalization, regulatory impact identification, business process optimization, and vendor selection to drive large-scale technology changes.

For more information, contact askus@infosys.com



© 2018 Infosys Limited, Bengaluru, India. All Rights Reserved. Infosys believes the information in this document is accurate as of its publication date; such information is subject to change without notice. Infosys acknowledges the proprietary rights of other companies to the trademarks, product names and such other intellectual property rights mentioned in this document. Except as expressly permitted, neither this documentation nor any part of it may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, printing, photocopying, recording or otherwise, without the prior permission of Infosys Limited and/ or any named intellectual property rights holders under this document.