# Mortgage Lender Sentiment Survey®
# Special Topics Report

## How Will Blockchain Shape Mortgage Lending?

Fourth Quarter 2021

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# Executive Summary

Blockchain currently has a low to moderate level of engagement within the mortgage industry. Few lenders are familiar with the technology, and many think that it will take several years to adopt. Few are optimistic that mortgage companies will start accepting cryptocurrency from consumers as mortgage payments. The most appealing application ideas to lenders are a digital wallet containing all borrower information to enable "direct to source" validation and a title/property registry for search and validation to complete transfers.

## Blockchain Landscape

**25%** say **they are at least somewhat familiar with blockchain**
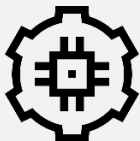
### Adoption Status of Blockchain

*Currently:* **20%** say **they have looked into or started using Blockchain at their firms**

**68%** say **they have not looked into blockchain**

*In the Future:* **47%** say **they don't know or do not expect to use blockchain applications broadly**

**41%** say **their firm will adopt** within **3-5+ years**

## Blockchain Ideas for the Industry

### Most Appealing Application Ideas

**1** **Digital wallet containing all borrower information (e.g., income, employment, & credit history) to enable "direct to source" validation**

**2** **Title registry for digital title/property transfers**

### Least Appealing Application

**Use cryptocurrency /private coins/stablecoins for deposits, payments, or collateral**

## Potential for DeFi* & Cryptocurrency

*(Combined % moderately + very high potential)*

**44%** say **DeFi (decentralized finance) has potential to disrupt the incumbent financial institutions**

### Acceptance of Cryptocurrency

Only **31%** believe **mortgage companies will accept cryptocurrency from consumers as mortgage payments over the next 3 years**

*\*De-centralized finance, or **DeFi**, refers to financial services that are provided on a public blockchain, allowing consumers to borrow, lend, or trade with a digital currency, without going through a central authority or intermediary like a traditional bank or brokerage.*

# Business Context

# Business Context and Research Questions

## Business Context

Blockchain[1] and its applications - like cryptocurrencies, decentralized finance (DeFi)[2], and smart contracts – have gained some traction over the past year in the financial services industry as it allows users to send, receive, and record information with a higher level of security and without going through a third party or central authority (decentralized). Any industry or process that is complex and collaborative with high prices or risks, like the real estate industry, has the potential to benefit from blockchain.

Fannie Mae's Economic & Strategic Research (ESR) Group surveyed senior mortgage executives in November 2021 through its quarterly Mortgage Lender Sentiment Survey® to better understand lenders' views about blockchain technology and its potential, including decentralized finance and accepting cryptocurrency from consumers as mortgage payments, and to gauge their interests in various blockchain application ideas for mortgage business.

## Research Questions

1. How familiar are lenders with blockchain technology? What's their current adoption status? How long do they think it will take for them to adopt this technology?

2. What blockchain ideas are most appealing to lenders to improve or expand their mortgage business?

3. How do lenders view de-centralized finance (DeFi)? To what extent do they think DeFi has the potential to disrupt incumbent financial institutions?

4. How likely do lenders believe that mortgage companies will start accepting cryptocurrency from consumers as a mortgage payment method over the next three years?
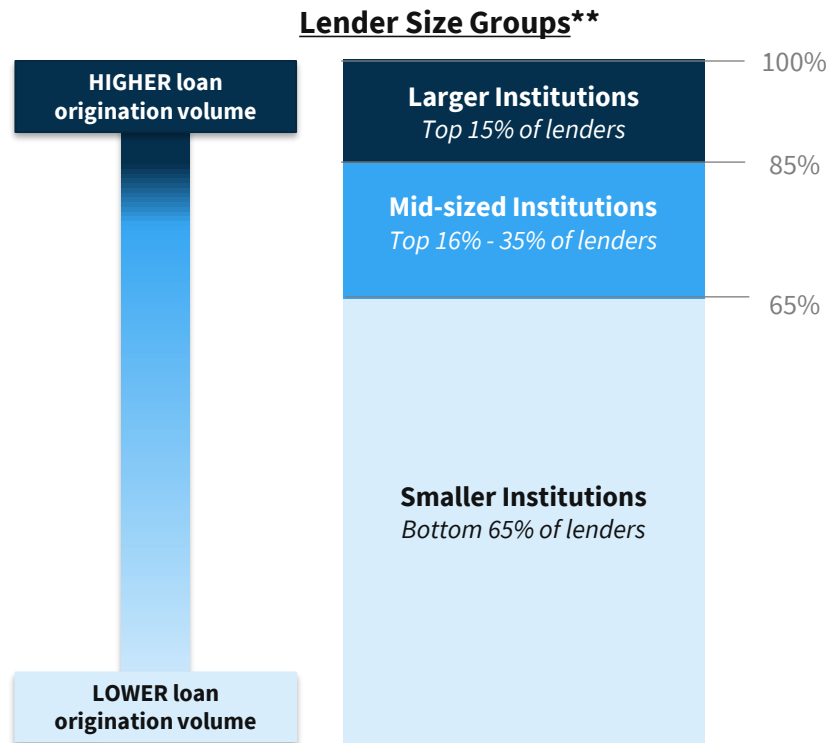
1. Blockchain is, literally, a *chain* of *blocks*. Each *block* is a record of a transaction. Each *chain* is a list of all the transactions that have occurred between users on a shared network of computers. A *block* records a single transaction between users. A *chain* lists all of the sales or exchanges that have ever taken place for, potentially, anything—a coin, a car, a piece of art, a house. With blockchain, there is no need for a single, central authority because each chain exists, not as one chain on one computer, but as identical copies of the blockchain on all the computers in the network. The copies synchronize automatically and continuously so no block can be altered without also altering all the other blocks. Each change must be approved by every computer in the network.
2. Decentralized finance, or DeFi, refers to financial services that are provided on a public blockchain, allowing consumers to borrow, lend, or trade with a digital currency, without going through a central authority or intermediary like a traditional bank or brokerage.

# Q4 2021 Respondent Sample and Groups

The current analysis is based on fourth quarter 2021 data collection. For Q4 2021, a total of 228 senior executives completed the survey between November 1-15, representing 205 lending institutions.*

### Lender Size Groups**

| | |
|---|---|
| **HIGHER loan origination volume** | 100% |
| **Larger Institutions** *Top 15% of lenders* | 85% |
| **Mid-sized Institutions** *Top 16% - 35% of lenders* | 65% |
| **Smaller Institutions** *Bottom 65% of lenders* | |
| **LOWER loan origination volume** | |

| Sample Q4 2021 | | | Sample Size |
|---|---|---|---|
| **Total Lending Institutions** The "Total" data throughout this report is an average of the means of the three lender-size groups listed below. | | | 205 |
| **Lender Size Groups** | **Larger Institutions** Lenders in the Fannie Mae database who were in the top 15% of lending institutions based on their total 2020 loan origination volume (above $2.25 billion) | | 58 |
| | **Mid-sized Institutions** Lenders in the Fannie Mae database who were in the next 20% (16%-35%) of lending institutions based on their total 2020 loan origination volume (between $598 million and $2.25 billion) | | 54 |
| | **Smaller Institutions** Lenders in the Fannie Mae database who were in the bottom 65% of lending institutions based on their total 2020 loan origination volume (less than $598 million) | | 93 |
| **Institution Type*** | **Mortgage Banks** (non-depository) | | 88 |
| | **Depository Institutions** | | 73 |
| | **Credit Unions** | | 39 |

* The results of the Mortgage Lender Sentiment Survey are reported at the lending institutional parent-company level. If more than one individual from the same institution completes the survey, their responses are weighted to represent their parent institution.
** The 2020 total loan volume per lender used here includes the best available annual origination information from Fannie Mae, Freddie Mac, and Marketrac. Lenders in the Fannie Mae database are sorted by their firm's total 2020 loan origination volume and then assigned into the size groups, with the top 15% of lenders being the "larger" group, the next 20% of lenders being the "mid-sized" group and the rest being the "small" group.
*** Lenders that are not classified into mortgage banks or depository institutions or credit unions are mostly housing finance agencies or investment banks.

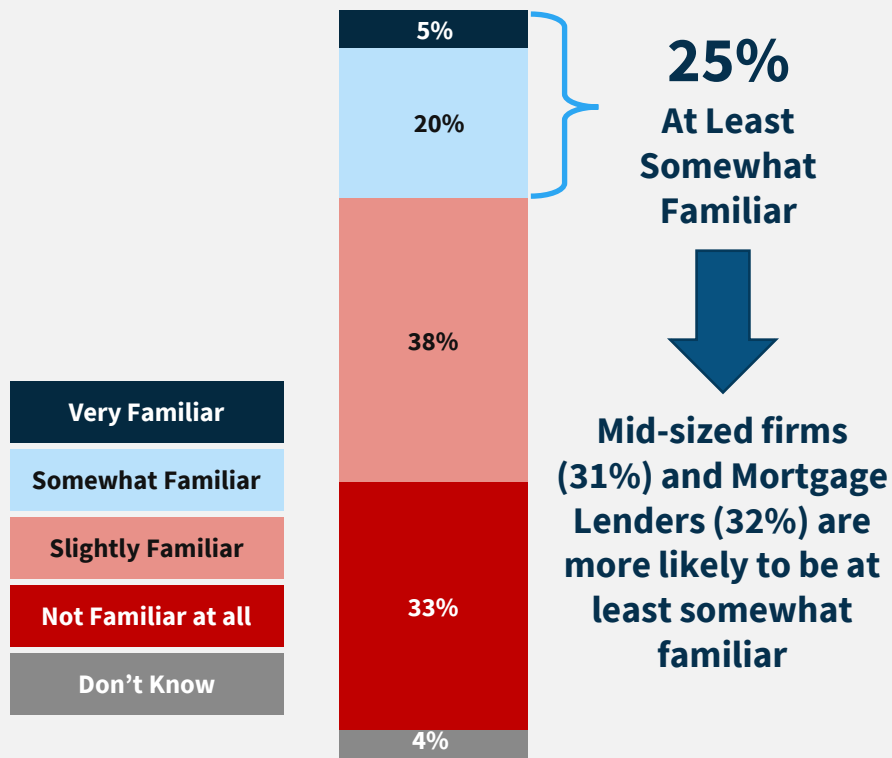# Blockchain & Application Ideas for the Mortgage Industry

# Familiarity with Blockchain Tools to Enhance Mortgage Business

Only a quarter of lenders are at least somewhat familiar with blockchain technology and its applications for the mortgage business, and only 5 percent say they are very familiar with it.

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**How familiar are you with blockchain and its applicability to enhance mortgage business?**
*Blockchain is a decentralized, distributed, asynchronized digital ledger or database consisting of a series (or chain) of records.*

**5%**
**20%**

**25%**
**At Least Somewhat Familiar**

**38%**

**33%**

**4%**

Mid-sized firms (31%) and Mortgage Lenders (32%) are more likely to be at least somewhat familiar

**Legend:**
- Very Familiar
- Somewhat Familiar
- Slightly Familiar
- Not Familiar at all
- Don't Know

## At Least Somewhat Familiar by Size/Type

*% Very Familiar + % Somewhat Familiar by Sub-Audience*

| | |
|---|---|
| Larger | 22% |
| Mid-Sized | 31% |
| Smaller | 22% |

*Institution Type:*

| | |
|---|---|
| Depository Institutions | 18% |
| Mortgage Banks | 32%ᴰ |
| Credit Unions | 19% |

*L/M/S - Denote a % is significantly higher than the annual loan origination volume group that the letter represents at the 95% confidence level*
*M/D/C - Denote a % is significantly higher than the institution type group that the letter represents at the 95% confidence level*

# Status of Blockchain Adoption

Just a fifth of lenders say they have begun exploring or using blockchain for their mortgage business and over two-thirds say they have not looked into it. Among those who have not rolled out blockchain broadly at their firm, nearly half say they do not expect to adopt this technology or are unsure, and the rest expect it to take several years.
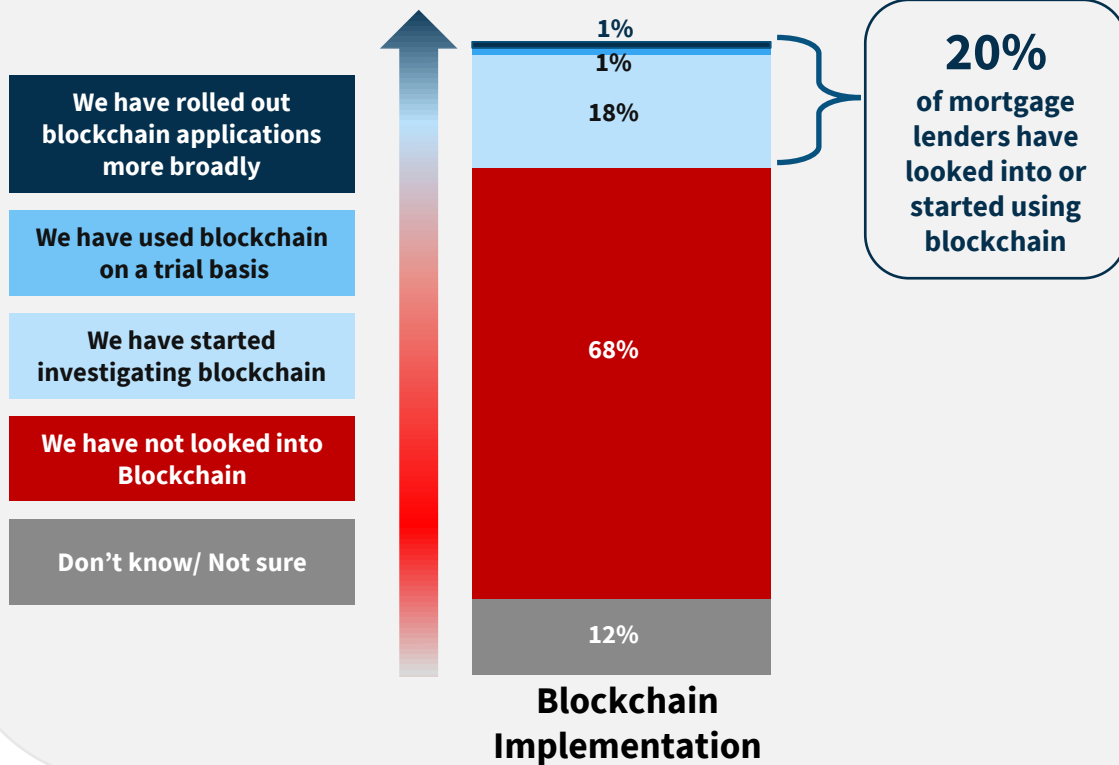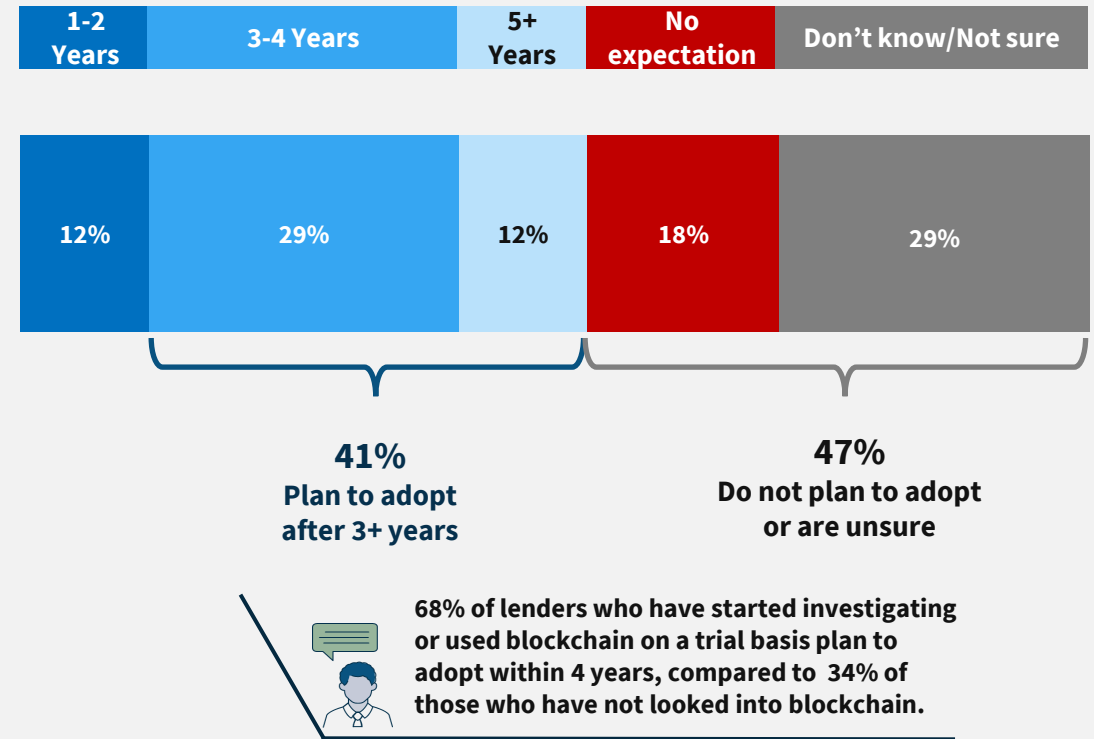
## Adoption Status of Blockchain for Mortgage Business

| Legend | Blockchain Implementation |
|---|---|
| We have rolled out blockchain applications more broadly | 1% |
| We have used blockchain on a trial basis | 1% |
| We have started investigating blockchain | 18% |
| We have not looked into Blockchain | 68% |
| Don't know/ Not sure | 12% |

**20%** of mortgage lenders have looked into or started using blockchain

## Blockchain Implementation Timeline
*Asked of Firms That Have Not Rolled Out Blockchain Applications Broadly (N=177)*

| 1-2 Years | 3-4 Years | 5+ Years | No expectation | Don't know/Not sure |
|---|---|---|---|---|
| 12% | 29% | 12% | 18% | 29% |

**41%** Plan to adopt after 3+ years

**47%** Do not plan to adopt or are unsure

68% of lenders who have started investigating or used blockchain on a trial basis plan to adopt within 4 years, compared to 34% of those who have not looked into blockchain.

Q: *What's the current adoption status of blockchain for mortgage business at your firm?*      Q: *In your view, approximately how many years do you think it will take your firm to more broadly adopt blockchain applications for its mortgage business?*
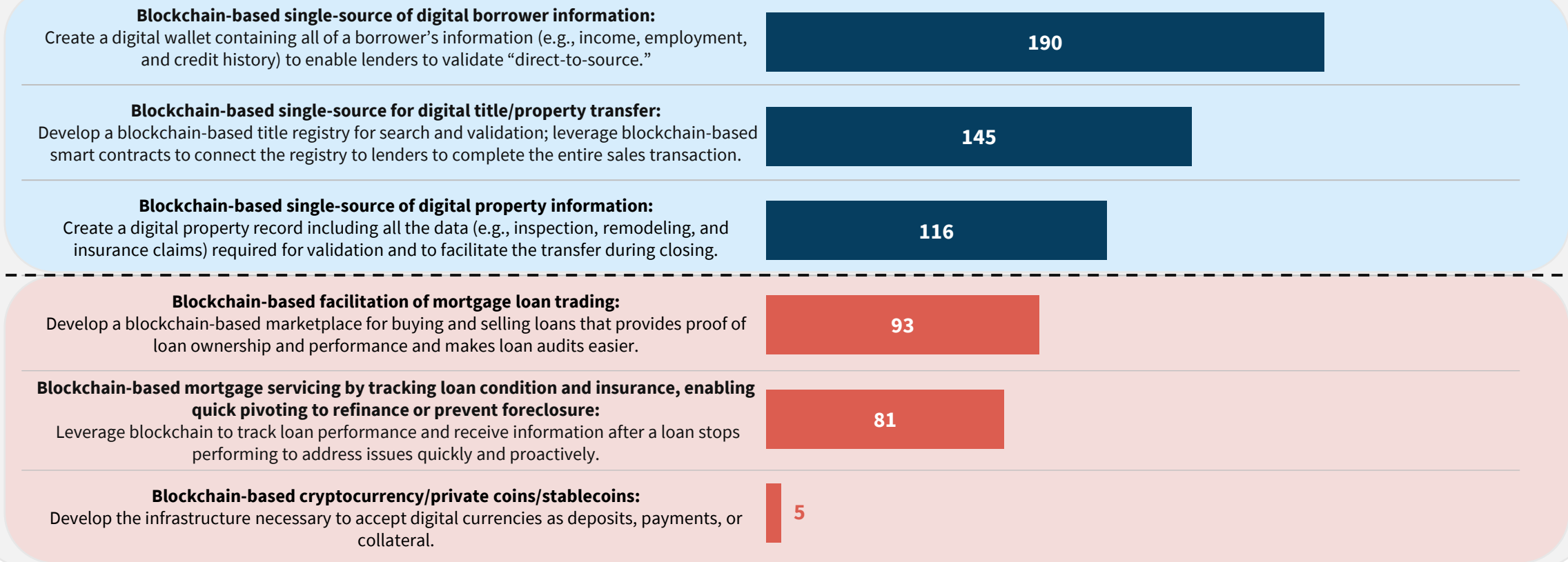
10   Blockchain & Applications for the Mortgage Industry                                                        © 2021 Fannie Mae.  Trademarks of Fannie Mae.

# Most Appealing Blockchain Ideas for Mortgage Business

Among a list of blockchain ideas for mortgage business, the idea of a digital wallet containing all borrower information to enable "direct to source" validation and the idea of a title registry for search and validation to complete title/property transfers are the most appealing to lenders.

**Relative Value of Blockchain Ideas (with 100 = average)**
*Relative Value Scores derived from MaxDiff Analysis (see pg. 18 for additional information)*

**Blockchain-based single-source of digital borrower information:**
Create a digital wallet containing all of a borrower's information (e.g., income, employment, and credit history) to enable lenders to validate "direct-to-source."
**190**

**Blockchain-based single-source for digital title/property transfer:**
Develop a blockchain-based title registry for search and validation; leverage blockchain-based smart contracts to connect the registry to lenders to complete the entire sales transaction.
**145**

**Blockchain-based single-source of digital property information:**
Create a digital property record including all the data (e.g., inspection, remodeling, and insurance claims) required for validation and to facilitate the transfer during closing.
**116**

**Blockchain-based facilitation of mortgage loan trading:**
Develop a blockchain-based marketplace for buying and selling loans that provides proof of loan ownership and performance and makes loan audits easier.
**93**

**Blockchain-based mortgage servicing by tracking loan condition and insurance, enabling quick pivoting to refinance or prevent foreclosure:**
Leverage blockchain to track loan performance and receive information after a loan stops performing to address issues quickly and proactively.
**81**

**Blockchain-based cryptocurrency/private coins/stablecoins:**
Develop the infrastructure necessary to accept digital currencies as deposits, payments, or collateral.
**5**

*Q: In this section, you will see some blockchain ideas your firm might leverage in the future to improve (e.g., streamline) or expand its mortgage business. Some ideas do not exist yet or may require state or industry-wide adoption. These ideas will be presented in a total of 5 sets. The first 2 sets will show 3 ideas each, and you will be asked to choose the idea that is the MOST appealing and the idea that is the LEAST appealing to your organization in each set. For the remaining 3 sets, you will evaluate 2 ideas in each set and choose which is more appealing to your organization.*

# Suggestions Regarding Blockchain for Mortgage Industry

Lenders are also interested in using blockchain to reduce costs for consumers, as well as helping build an interconnected digital ecosystem that intertwines multiple aspects of the mortgage business. In order to incorporate these ideas, many lenders desire more education into this young technology.

## Other Thoughts & Blockchain Ideas That Can Be Used to Help Improve Mortgage Business
*(N=23)*

### Uncertainty & Need for More Knowledge

*"We need **leadership and training** in this area. What a great role for Fannie to play." – Larger Institution*

*"Have not heard anything about this and so are **[I] am in the dark** on the functions of this process." –Smaller Institution*

*"All are interesting to me and I believe as a community bank **we will need to understand the blockchain** and adopt a crypto currency strategy."– Smaller Institution*

*"Blockchain at its heart is de-centralized control which doesn't allow for regulation or oversight and if you try to regulate or control it, it will lose its value. **I don't see many applications for it in our highly regulated industry**." –Smaller Institution*

### Ecosystem - Interconnected

*"**Title** process and **appraisal** process tied to blockchain would be interesting. Appraisals are not nearly as precise as they once were and It would appear that the data we have stored can facilitate a better valuation than most in-person appraisers at this point." – Larger Institution*

*"Although one of your questions asked for most desirable and least desirable of three choices, **all three really go together.** Having customer and title info on the blockchain will enable the trading side to utilize it as well. [It is] difficult to separate or rank the three since they are all potentially **part of the same ecosystem.**" – Larger Institution*

*"Digital note registry [is appealing], although that should be tied to **servicing data and title data**." – Larger Institution*

*"Any type of automation or retaining **customer information** for future uses." – Mid-sized Institution*

*"Connection with **home buying** experience." – Larger Institution*

### Reduce Cost

*"Smart contracts may ultimately disrupt the LOS, loan delivery and trading, and title business. [We] need to see how the **user interfaces and customer experiences** change, and make sure the **cost reductions** can adequately improve in both areas." - Larger Institution*

*"I have been with same firm 22 years. Every loan has expensive lenders title insurance. Millions of dollars collected and never had one claim. **Title insurance is too expensive** vs. claims paid and needs **blockchain to reduce cost** to borrower and enable more purchases for LMI income borrowers." – Smaller Institution*

*"Ability to combine Real Estate Transaction, Lending, and Servicing in a single transaction to **reduce the overall consumer cost through automation**. Sharing the benefits to the consumer through technology is our vision." – Smaller Institution*
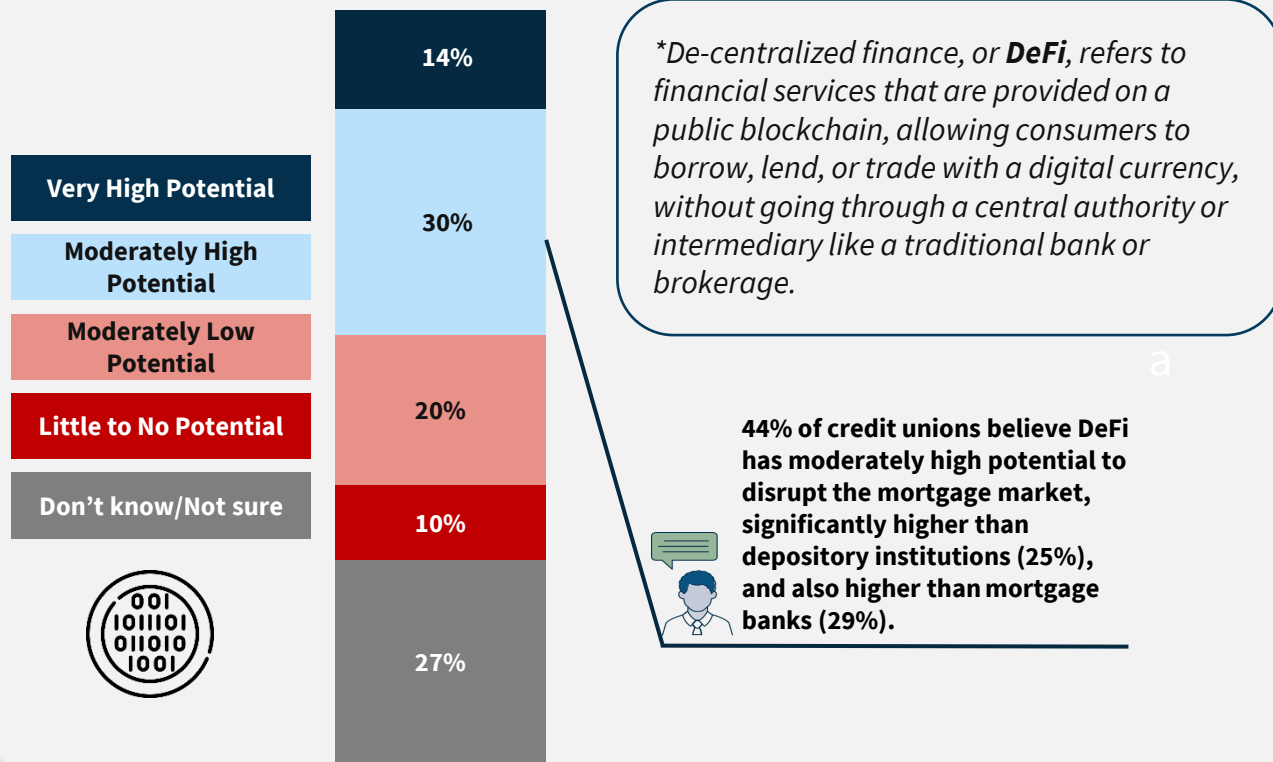
**Q:** *What other blockchain ideas would you like to be developed to help improve (e.g., streamline) your firm's business, both mortgage and non-mortgage? Please share your thoughts.*
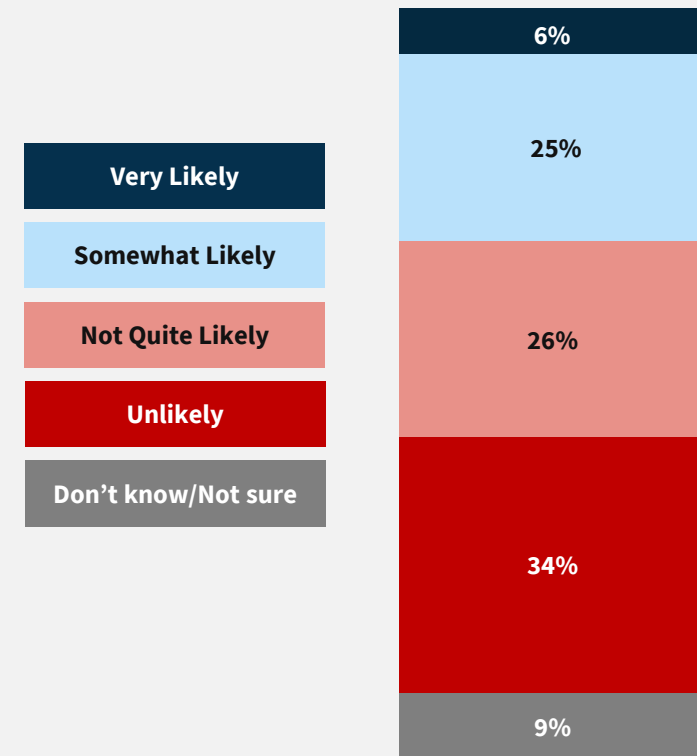
# The Potential for Decentralized Finance (DeFi) and Cryptocurrency

Just over two-fifths of lenders say that decentralized finance has moderately high to very high potential to disrupt current financial institutions, though almost two-fifths are unsure or think there's little to no potential. Only about a third of lenders believe that mortgage companies will likely accept cryptocurrency as mortgage payments over the next three years.

## Potential for DeFi* to Disrupt the Incumbent Financial Institutions

- **Very High Potential** — 14%
- **Moderately High Potential** — 30%
- **Moderately Low Potential** — 20%
- **Little to No Potential** — 10%
- **Don't know/Not sure** — 27%

*De-centralized finance, or **DeFi**, refers to financial services that are provided on a public blockchain, allowing consumers to borrow, lend, or trade with a digital currency, without going through a central authority or intermediary like a traditional bank or brokerage.

**44% of credit unions believe DeFi has moderately high potential to disrupt the mortgage market, significantly higher than depository institutions (25%), and also higher than mortgage banks (29%).**

## Likelihood of Mortgage Companies Accepting Cryptocurrency as Mortgage Payments over the Next 3 Years

- **Very Likely** — 6%
- **Somewhat Likely** — 25%
- **Not Quite Likely** — 26%
- **Unlikely** — 34%
- **Don't know/Not sure** — 9%

# Appendix

# Objectives of Mortgage Lender Sentiment Survey®

The Mortgage Lender Sentiment Survey® (MLSS), which debuted in March 2014, is a quarterly online survey among senior executives in the mortgage industry. The survey is unique because it is used not only to track lenders' current impressions of the mortgage industry, but also their insights into the future.

## Tracks insights and provides benchmarks into current and future mortgage lending activities and practices.

**Quarterly Regular Questions**

- Consumer Mortgage Demand
- Credit Standards
- Profit Margin Outlook

**Featured Specific Topic Analyses**

- Closing Homeownership Gaps
- Lenders' 2021 Business Priorities
- COVID-19 & Remote Working
- Mortgage Servicing Challenges
- CONDO Mortgage Lending Opportunities
- COVID-19 Challenges and Lender Business Priorities

The MLSS is a quarterly 10-15 minute online survey of senior executives, such as CEOs and CFOs, of Fannie Mae's lending institution customers. The results are reported at the lending institution parent-company level. If more than one individual from the same institution completes the survey, their responses are averaged to represent their parent company.

# Methodology of Mortgage Lender Sentiment Survey®

**Survey Methodology**

- A quarterly, 10- to 15-minute online survey among senior executives, such as CEOs and CFOs, of Fannie Mae's lending institution partners.
- To ensure that the survey results represent the behavior and output of organizations rather than individuals, the Fannie Mae Mortgage Lender Sentiment Survey is structured and conducted as an establishment survey.
- Each respondent is asked 40-75 questions.

**Sample Design**

- Each quarter, a random selection of approximately 3,000 senior executives among Fannie Mae's approved lenders are invited to participate in the study.

**Data Weighting**

- The results of the Mortgage Lender Sentiment Survey are reported at the institutional parent-company level. If more than one individual from the same parent institution completes the survey, their responses are averaged to represent their parent institution.

# MaxDiff Methodology for Q4 2021 MLSS

**What is MaxDiff?**

- Maximum Difference Scaling, or simply MaxDiff, is an approach to measure preference or importance scores on a number of items or "attributes" (e.g., product benefits, advertising claims, brand claims).

- Each respondent will go through a number of exercises, and, for each exercise/set, choose the most important (most preferred) option and the least important (least preferred) option. In the Q4 2021 MLSS, we tested 6 different ideas on Blockchain that could help streamline business processes. Respondents were first shown 2 randomly preselected sets of 3 ideas each then shown 3 more sets with 2 ideas each based on their answers from the first sets. An example set that respondents were shown is below:



Please choose the idea that is the MOST appealing and the idea that is the LEAST appealing to your organization.

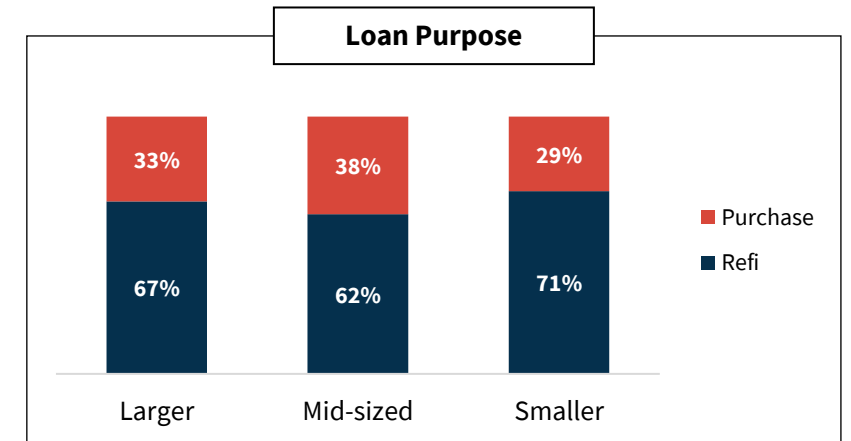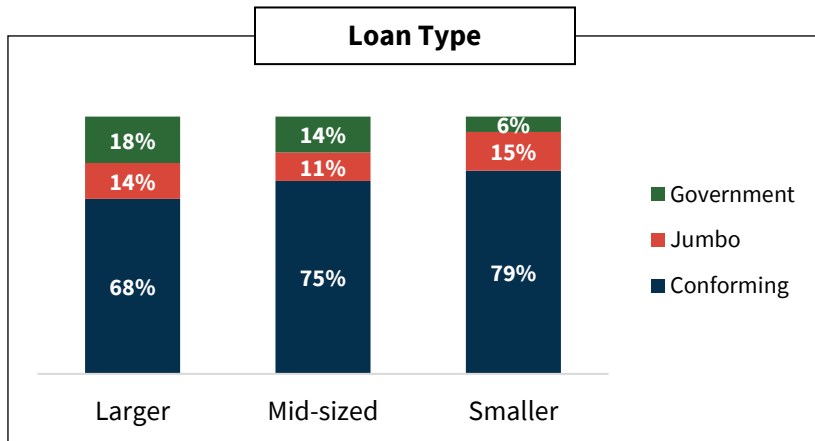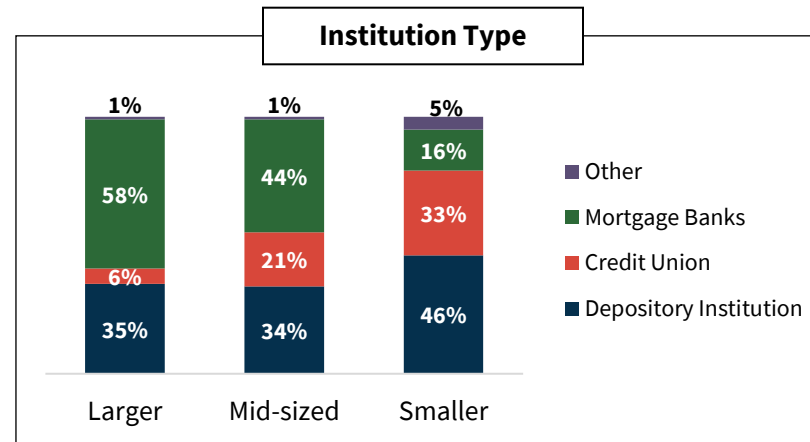| Most Appealing | | Least Appealing |
|:---:|:---|:---:|
| ○ | **Blockchain-based single-source for digital title/property transfer:** develop a blockchain-based title registry for search and validation; leverage blockchain-based smart contracts to connect the registry to lenders to complete the entire sales transaction. | ○ |
| ○ | **Blockchain-based single-source of digital property information:** create a digital property record including all the data (e.g., inspection, remodeling, and insurance claims) required for validation and to facilitate the transfer during closing. | ○ |
| ○ | **Blockchain-based single-source of digital borrower information:** create a digital wallet containing all of a borrower's information (e.g., income, employment, and credit history) to enable lenders to validate "direct-to-source." | ○ |

**Interpreting MaxDiff Results**

- MaxDiff analysis produces a "utility" value for each attribute. To help ease the interpretation, utility scores are converted and expressed as index values, with 100 = average. Higher scores above the average of 100 indicate stronger preferences or higher importance.

# Lending Institution Characteristics

Fannie Mae's customers invited to participate in the Mortgage Lender Sentiment Survey represent a broad base of different lending institutions that conducted business with Fannie Mae in 2020. Institutions were divided into three groups based on their 2020 total industry loan volume – Larger (top 15%), Mid-sized (top 16%-35%), and Smaller (bottom 65%). The data below further describe the composition and loan characteristics of the three groups of institutions.



**Institution Type**

| | Larger | Mid-sized | Smaller |
|---|---|---|---|
| Other | 1% | 1% | 5% |
| Mortgage Banks | 58% | 44% | 16% |
| Credit Union | 6% | 21% | 33% |
| Depository Institution | 35% | 34% | 46% |

**Loan Type**

| | Larger | Mid-sized | Smaller |
|---|---|---|---|
| Government | 18% | 14% | 6% |
| Jumbo | 14% | 11% | 15% |
| Conforming | 68% | 75% | 79% |

**Loan Purpose**

| | Larger | Mid-sized | Smaller |
|---|---|---|---|
| Purchase | 33% | 38% | 29% |
| Refi | 67% | 62% | 71% |

Note: Government loans include FHA loans, VA loans and other non-conventional loans from Marketrac.

# Q4 2021 Cross-Subgroup Sample Sizes

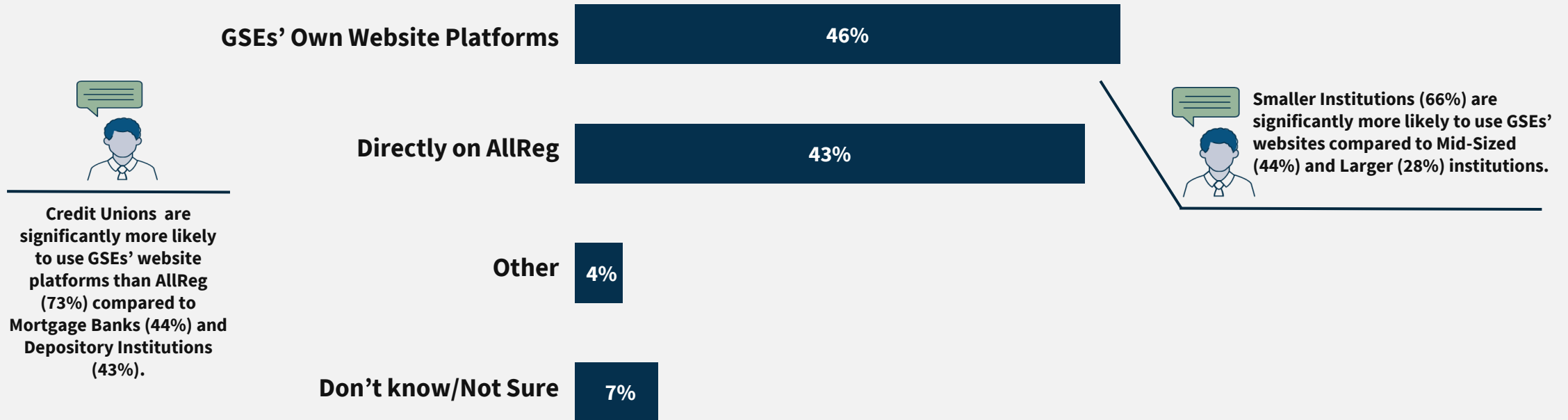|  | Total | Larger Lenders | Mid-Sized Lenders | Smaller Lenders |
|---|---|---|---|---|
| **Total** | 205 | 58 | 54 | 93 |
| **Mortgage Banks** (non-depository) | 88 | 37 | 28 | 23 |
| **Depository Institutions** | 73 | 15 | 15 | 43 |
| **Credit Unions** | 39 | 6 | 10 | 23 |

# Most Used Platforms for Finding GSE Guides and Services

Overall, lenders are split on their desired platform for accessing GSE selling and servicing guides, and they are almost equally likely to use GSEs' website platforms and AllReg. Of those surveyed, credit unions and smaller institutions prefer using GSEs' website platforms compared to other lender sizes and types.

## Most Used Platforms for Accessing GSE Selling and Servicing Guides

| Platform | Percentage |
|---|---|
| GSEs' Own Website Platforms | 46% |
| Directly on AllReg | 43% |
| Other | 4% |
| Don't know/Not Sure | 7% |

**Credit Unions are significantly more likely to use GSEs' website platforms than AllReg (73%) compared to Mortgage Banks (44%) and Depository Institutions (43%).**

**Smaller Institutions (66%) are significantly more likely to use GSEs' websites compared to Mid-Sized (44%) and Larger (28%) institutions.**

4% (n=8) of respondents said "Other". Responses include: "lender website", "Calyx", "Google", "Our Internal Guides", and "MRI Books".

*Q: To the best of your knowledge, when accessing GSE selling and servicing guides, which platform do your loan officers or processors use most often?*

# How to Read Significance Testing

On slides where significant differences between three groups are shown:

- Each group is assigned a letter (L/M/S, M/D/C).
- If a group has a significantly higher % than another group at the 95% confidence level, a letter will be shown next to the % for that metric. The letter denotes which group the % is significantly higher than.

**Example:**

In your view, approximately how many years do you think it will take your firm to more broadly adopt blockchain applications for its mortgage business?
*Asked of Firms that Have Not Rolled Out Blockchain Applications More Broadly*

| | Total | LOAN VOLUME | | | INSTITUTION TYPE | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | | Larger (L) | Mid-sized (M) | Smaller (S) | Mortgage Banks (M) | Depository Institutions (D) | Credit Unions (C) |
| N= | 177 | 52 | 48 | 78 | 80 | 60 | 34 |
| 1-2 Years | 12% | 13% | 18%$^S$ | 5% | 18%$^D$ | 4% | 9% |
| 3-4 Years | 29% | 31% | 33% | 25% | 24% | 28% | 41% |
| 5+ Years | 12% | 18% | 7% | 10% | 9% | 15% | 14% |
| Don't expect to broadly adopt blockchain applications | 18% | 17% | 15% | 21% | 15% | 23% | 16% |
| Don't Know/ Not sure | 29% | 21% | 27% | 39%$^L$ | 35% | 30% | 21% |

18% is significantly higher than 5% (smaller institutions)

# Calculation of the "Total"

The "Total" data presented in this report is an average of the means of the three loan origination volume groups (see an illustrated example below). Please note that percentages are based on the number of financial institutions that gave responses other than "Not Applicable." Percentages below may not sum to 100% due to rounding.

**Example:**

| What's the current adoption status of blockchain for mortgage business at your firm? |
|---|

| | Total | LOAN VOLUME | | | INSTITUTION TYPE | | |
|---|---|---|---|---|---|---|---|
| | | Larger (L) | Mid-sized (M) | Smaller (S) | Mortgage Banks (M) | Depository Institutions (D) | Credit Unions (C) |
| *N=* | 205 | 58 | 54 | 93 | 88 | 73 | 39 |
| We have not looked into blockchain | 68% | 65% | 70% | 70% | 67% | 68% | 74% |
| We have started investigating blockchain | 18% | 22% | 18% | 13% | 21% | 14% | 13% |
| We have used blockchain on a trial basis | 1% | 3% | 0% | 0% | 2% | 0% | 0% |
| We have rolled out blockchain applications more broadly | 1% | 0% | 0% | 2% | 0% | 1% | 3% |
| Don't Know/ Not Sure | 12% | 10% | 12% | 15% | 10% | 17% | 10% |

| "Total" of 18% is<br>(22% + 18% + 13%) / 3 |
|---|

# Familiarity With Blockchain and its Applications for Mortgage Business

How familiar are you with blockchain and its applications (e.g., cryptocurrency, smart contracts, and digital tokens) as specifically applied to enhancing your mortgage business in lending or servicing?

| | Total | LOAN VOLUME | | | INSTITUTION TYPE | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | | Larger (L) | Mid-sized (M) | Smaller (S) | Mortgage Banks (M) | Depository Institutions (D) | Credit Unions (C) |
| *N=* | 205 | 58 | 54 | 93 | 88 | 73 | 39 |
| Very Familiar | 5% | 9% | 4% | 2% | 7% | 3% | 3% |
| Somewhat Familiar | 20% | 13% | 27% | 20% | 25% | 15% | 16% |
| Slightly Familiar | 38% | 47% | 35% | 32% | 40% | 30% | 42% |
| Not Familiar at all | 33% | 26% | 27% | 46%$^{L,M}$ | 23% | 49%$^{M}$ | 37% |
| Don't Know/ Not Sure | 4% | 4% | 7% | 1% | 5% | 3% | 3% |

*L/M/S - Denote a % is significantly higher than the annual loan origination volume group that the letter represents at the 95% confidence level*
*M/D/C - Denote a % is significantly higher than the institution type group that the letter represents at the 95% confidence level*

# Adoption Status of Blockchain at Organization

| | Total | LOAN VOLUME | | | INSTITUTION TYPE | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | | Larger (L) | Mid-sized (M) | Smaller (S) | Mortgage Banks (M) | Depository Institutions (D) | Credit Unions (C) |
| *N=* | 205 | 58 | 54 | 93 | 88 | 73 | 39 |
| We have not looked into blockchain | 68% | 65% | 70% | 70% | 67% | 68% | 74% |
| We have started investigating blockchain | 18% | 22% | 18% | 13% | 21% | 14% | 13% |
| We have used blockchain on a trial basis | 1% | 3% | 0% | 0% | 2% | 0% | 0% |
| We have rolled out blockchain applications more broadly | 1% | 0% | 0% | 2% | 0% | 1% | 3% |
| Don't Know/ Not Sure | 12% | 10% | 12% | 15% | 10% | 17% | 10% |

What's the current adoption status of blockchain for mortgage business at your firm?

*L/M/S - Denote a % is significantly higher than the annual loan origination volume group that the letter represents at the 95% confidence level*
*M/D/C - Denote a % is significantly higher than the institution type group that the letter represents at the 95% confidence level*

# Timeframe Towards Adopting Blockchain Applications

> In your view, approximately how many years do you think it will take your firm to more broadly adopt blockchain applications for its mortgage business?
> *Asked of Firms that Have Not Rolled Out Blockchain Applications More Broadly*

| | Total | LOAN VOLUME | | | INSTITUTION TYPE | | |
|---|---|---|---|---|---|---|---|
| | | Larger (L) | Mid-sized (M) | Smaller (S) | Mortgage Banks (M) | Depository Institutions (D) | Credit Unions (C) |
| *N=* | 177 | 52 | 48 | 78 | 80 | 60 | 34 |
| 1-2 Years | 12% | 13% | 18%[S] | 5% | 18%[D] | 4% | 9% |
| 3-4 Years | 29% | 31% | 33% | 25% | 24% | 28% | 41% |
| 5+ Years | 12% | 18% | 7% | 10% | 9% | 15% | 14% |
| Don't expect to broadly adopt blockchain applications | 18% | 17% | 15% | 21% | 15% | 23% | 16% |
| Don't Know/ Not sure | 29% | 21% | 27% | 39%[L] | 35% | 30% | 21% |

*L/M/S - Denote a % is significantly higher than the annual loan origination volume group that the letter represents at the 95% confidence level*
*M/D/C - Denote a % is significantly higher than the institution type group that the letter represents at the 95% confidence level*

# Most and Least Appealing Blockchain Ideas – MaxDiff

In this section, you will see some blockchain ideas your firm might leverage in the future to improve (e.g., streamline) or expand its mortgage business. Some ideas do not exist yet or may require state or industry-wide adoption. These ideas will be presented in a total of 5 sets.

The first 2 sets will show 3 ideas each, and you will be asked to choose the idea that is the MOST appealing and the idea that is the LEAST appealing to your organization in each set. For the remaining 3 sets, you will evaluate 2 ideas in each set and choose which is more appealing to your organization.
*Showing Relative Indexed Utility Value*

| *Showing MaxDiff Scores* | Total | LOAN VOLUME | | | INSTITUTION TYPE | | |
|---|---|---|---|---|---|---|---|
| | | Larger (L) | Mid-sized (M) | Smaller (S) | Mortgage Banks (M) | Depository Institutions (D) | Credit Unions (C) |
| *N=* | 205 | 58 | 54 | 93 | 88 | 73 | 39 |
| Blockchain-based single-source of digital borrower information | 190 | 191 | 189 | 190 | 192 | 188 | 190 |
| Blockchain-based single-source for digital title/property transfer | 145 | 160 | 132 | 143 | 154 | 137 | 146 |
| Blockchain-based single-source of digital property information | 116 | 126 | 110 | 113 | 103 | 127 | 128 |
| Blockchain-based facilitation of mortgage loan trading | 93 | 96 | 96 | 85 | 103 | 87 | 72 |
| Blockchain-based mortgage servicing by tracking loan condition and insurance, enabling quick pivoting to refinance or prevent foreclosure | 81 | 80 | 71 | 93 | 71 | 99 | 71 |
| Blockchain-based cryptocurrency/private coins/stablecoins | 5 | 2 | 9 | 5 | 4 | 4 | 7 |

# Potential of De-Centralized Finance to Disrupt the Mortgage Market

| How much potential do you think DeFi has to disrupt incumbent financial institutions? |
|---|

| | Total | LOAN VOLUME | | | INSTITUTION TYPE | | |
|---|---|---|---|---|---|---|---|
| | | Larger (L) | Mid-sized (M) | Smaller (S) | Mortgage Banks (M) | Depository Institutions (D) | Credit Unions (C) |
| *N=* | 205 | 58 | 54 | 93 | 88 | 73 | 39 |
| Very High Potential | 14% | 12% | 12% | 17% | 17% | 14% | 5% |
| Moderately High Potential | 30% | 28% | 32% | 30% | 29% | 25% | 44%[D] |
| Moderately Low Potential | 20% | 23% | 16% | 20% | 22% | 15% | 22% |
| Little to no Potential | 10% | 10% | 9% | 9% | 9% | 15% | 3% |
| Don't Know/ Not sure | 27% | 26% | 31% | 24% | 23% | 31% | 26% |

| L/M/S - Denote a % is significantly higher than the annual loan origination volume group that the letter represents at the 95% confidence level<br>M/D/C - Denote a % is significantly higher than the institution type group that the letter represents at the 95% confidence level |
|---|

# Likeliness of Mortgage Companies Accepting Cryptocurrency for Mortgage Payments

There has been some discussion about the potential to accept cryptocurrency from consumers as mortgage payments. How likely do you think it is for mortgage companies to roll out this type of payment method over the next 3 years?

| | Total | LOAN VOLUME | | | INSTITUTION TYPE | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | | Larger (L) | Mid-sized (M) | Smaller (S) | Mortgage Banks (M) | Depository Institutions (D) | Credit Unions (C) |
| *N=* | 205 | 58 | 54 | 93 | 88 | 73 | 39 |
| Very Likely | 6% | 8% | 7% | 4% | 10% | 4% | 3% |
| Somewhat Likely | 25% | 30% | 19% | 26% | 26% | 25% | 28% |
| Not Quite Likely | 26% | 21% | 26% | 32% | 23% | 27% | 33% |
| Unlikely | 34% | 40% | 33% | 28% | 30% | 36% | 31% |
| Don't Know/ Not sure | 9% | 2% | 16%[L] | 9% | 12% | 7% | 5% |

L/M/S - Denote a % is significantly higher than the annual loan origination volume group that the letter represents at the 95% confidence level
M/D/C - Denote a % is significantly higher than the institution type group that the letter represents at the 95% confidence level

# Platform Most Often Used to Access GSE Selling and Servicing Guides

| To the best of your knowledge, when accessing GSE selling and servicing guides, which platform do your loan officers or processors use most often? |
| :--- |

|  | Total | LOAN VOLUME | | | INSTITUTION TYPE | | |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Larger (L) | Mid-sized (M) | Smaller (S) | Mortgage Banks (M) | Depository Institutions (D) | Credit Unions (C) |
| *N=* | 205 | 58 | 54 | 93 | 88 | 73 | 39 |
| Directly on AllReg (on Ellie Mae's platform) | 43% | 55%[S] | 51%[S] | 24% | 46%[C] | 43% | 20% |
| GSEs' own website platforms | 46% | 28% | 44% | 66%[L,M] | 44% | 43% | 73%[M,D] |
| Other | 4% | 6% | 4% | 2% | 4% | 4% | 3% |
| Don't Know/ Not sure | 7% | 11% | 1% | 8% | 6% | 10% | 5% |

| *L/M/S - Denote a % is significantly higher than the annual loan origination volume group that the letter represents at the 95% confidence level*<br>*M/D/C - Denote a % is significantly higher than the institution type group that the letter represents at the 95% confidence level* |
| :--- |

# Question Text

**QR462**: How familiar are you with blockchain and its applications (e.g., cryptocurrency, smart contracts, and digital tokens) as specifically applied to enhancing your mortgage business in lending or servicing?

**QR463:** What's the current adoption status of blockchain for mortgage business at your firm?

**QR465**: In your view, approximately how many years do you think it will take your firm to more broadly adopt blockchain applications for its mortgage business?

**QR466**: In this section, you will see some blockchain ideas your firm might leverage in the future to improve (e.g., streamline) or expand its mortgage business. Some ideas do not exist yet or may require state or industry-wide adoption. These ideas will be presented in a total of 5 sets. The first 2 sets will show 3 ideas each, and you will be asked to choose the idea that is the MOST appealing and the idea that is the LEAST appealing to your organization in each set. For the remaining 3 sets, you will evaluate 2 ideas in each set and choose which is more appealing to your organization.

**QR467**: What other blockchain ideas would you like to be developed to help improve (e.g., streamline) your firm's business, both mortgage and non-mortgage? Please share your thoughts.

**QR468:** Decentralized finance, or DeFi, refers to financial services that are provided on a public blockchain, allowing consumers to borrow, lend, or trade with a digital currency, without going through a central authority or intermediary like a traditional bank or brokerage.

**QR469**: There has been some discussion about the potential to accept cryptocurrency from consumers as mortgage payments. How likely do you think it is for mortgage companies to roll out this type of payment method over the next 3 years?

**QR470**: To your best knowledge, when accessing GSE selling and servicing guides, which platform do your loan officers or processors use most often?