



## Mortgage Lender Sentiment Survey Questionnaire Quarterly Tracking Study – Q3 2018

***/\* DISPLAY \*/*** Welcome to the *Mortgage Lender Sentiment Survey*®, a quarterly survey conducted by Fannie Mae among senior mortgage executives like you. We need your help to gather your views and experience with the mortgage market. Your participation is critical to ensure that results portray a representative view of key mortgage industry indicators. We hope this research will provide intelligence to help you manage your business practices.

The information you provide in this survey will be kept confidential. All results will be reported in the aggregate, and responses will not be linked to any individual person or company.

Thank you for taking part in this survey, your participation is greatly appreciated.

### NHS Questions

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***/\* DISPLAY \*/*** This first series of questions asks about the overall economy and mortgage lending industry, nationwide. We're specifically interested in your opinion as a senior mortgage executive.

***/\* Q1 \*/*** In general, do you, as a senior mortgage executive, think the U.S. economy overall is on the right track or the wrong track?

- 1) Right track
- 2) Wrong track
- 3) Don't know

***/\* Q1A \*/*** Do you think it is very difficult, somewhat difficult, somewhat easy, or very easy for consumers to get a home mortgage today?

- 1) Very difficult
- 2) Somewhat difficult
- 3) Somewhat easy
- 4) Very easy
- 5) Don't know

***/\* Q2 \*/*** Nationally, during the next 12 months, do you, as a senior mortgage executive, think home prices in general will go up, go down, or stay the same as where they are now?

- 1) Go up
- 2) Go down
- 3) Stay the same
- 4) Don't know

***/\* Q4a \*/ ## IF Q2=C1 ##*** By about what percent do you, as a senior mortgage executive, think home prices nationally will go up on average over the next 12 months? ***/\* OPEN END NUMERIC (0 TO 100) \*/***

***/\* Q5a \*/ ## IF Q2=C2 ##*** By about what percent do you, as a senior mortgage executive, think home prices nationally will go down on average over the next 12 months? ***/\* OPEN END NUMERIC (0 TO 100) \*/***



## Consumer Demand

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**/\* DISPLAY \*/** This section is about consumer demand for single-family mortgages. We will be asking you these questions across three market categories, GSE Eligible, Non-GSE Eligible, and Government. We will also be asking these questions separately by purchase market and refinance market.

**/\* DISPLAY \*/** Now, let's focus on the consumer demand for single-family purchase mortgages your firm has experienced over the past three months.

**/\* METRIC A \*/** Over the past three months, apart from normal seasonal variation, did your firm's consumer demand for single-family purchase mortgages go up, go down, or stay the same?

Hover over the terms "GSE Eligible," "Non-GSE Eligible," and "Government" in the table below to see the definitions.

### **Consumer Demand for Purchase Mortgages for the Past 3 Months**

- 1) Went up significantly
- 2) Went up somewhat
- 3) Stayed the same
- 4) Went down somewhat
- 5) Went down significantly
- 6) Not applicable

### **/\* REPEAT CODES \*/**

**/\* Q6a \*/** Purchase - [**/\* GSE Eligible \*/**] [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]

**/\* Q6b \*/** Purchase - [**/\* Non-GSE Eligible \*/**] [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and may carry higher interest rates than GSE loans. Exclude Government loans from this category. -]

**/\* Q6c \*/** Purchase - [**/\* Government \*/**] [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]

### **/\* END SERIES \*/**

**/\* Q7 \*/** ## IF (Q6a=c1, c2, c4, c5) OR (Q6b= c1, c2, c4, c5) OR (Q6c= c1, c2, c4, c5) ## What do you think drove the change in your firm's consumer demand for single family purchase mortgages over the past three months? Please be as specific as possible. (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**

### **/\* END SERIES \*/**



**/\* METRIC A \*/ Now, let's focus on the purchase mortgages over the next three months.**

Over the next three months, apart from normal seasonal variation, do you expect your firm's consumer demand for single-family purchase mortgages to go up, go down, or stay the same?

**Consumer Demand for Purchase Mortgages for the Next 3 Months**

- 1) Go up significantly
- 2) Go up somewhat
- 3) Stay the same
- 4) Go down somewhat
- 5) Go down significantly
- 6) Not applicable

**/\* REPEAT CODES \*/**

**/\* Q14a \*/ Purchase - [/\* GSE Eligible \*/] [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]**

**/\* Q14b \*/ Purchase - [/\* Non-GSE Eligible \*/] [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and may carry higher interest rates than GSE loans. Exclude Government loans from this category. -]**

**/\* Q14c \*/ Purchase - [/\* Government \*/] [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]**

**/\* END SERIES \*/**

**/\* METRIC A \*/ ## IF Q14a=C1, C2 ## You mentioned that you expect your firm's consumer demand for GSE eligible loans will go up over the next three months. Which of the following housing marketplace factors do you think will drive the demand to go up? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/****

- 1) Home prices are low
- 2) Mortgage rates are favorable
- 3) There are many homes available on the market
- 4) It is easy to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q46a \*/ 1 - Most important**

**/\* Q46b \*/ 2 - Second most important**

**/\* END SERIES \*/**



**/\* METRIC A \*/ ## IF Q14a=C4, C5 ##** You mentioned that you expect your firm's consumer demand for **GSE** eligible loans will go down over the next three months. Which of the following housing marketplace factors do you think will drive the demand down? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are high
- 2) Mortgage rates are not favorable
- 3) There are not many homes available on the market
- 4) It is difficult to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are not favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q47a \*/** 1 - Most important

**/\* Q47b \*/** 2 - Second most important

**/\* END SERIES \*/**

**/\* METRIC A \*/ ## IF Q14b=C1, C2 ##** You mentioned that you expect your firm's consumer demand for **Non-GSE** eligible loans will go up over the next three months. Which of the following housing marketplace factors do you think will drive the demand to go up? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are low
- 2) Mortgage rates are favorable
- 3) There are many homes available on the market
- 4) It is easy to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q49a \*/** 1 - Most important

**/\* Q49b \*/** 2 - Second most important

**/\* END SERIES \*/**



**/\* METRIC A \*/ ## IF Q14b=C4, C5 ##** You mentioned that you expect your firm's consumer demand for **Non-GSE** eligible loans will go down over the next three months. Which of the following housing marketplace factors do you think will drive the demand down? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are high
- 2) Mortgage rates are not favorable
- 3) There are not many homes available on the market
- 4) It is difficult to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are not favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q50a \*/** 1 - Most important

**/\* Q50b \*/** 2 - Second most important

**/\* END SERIES \*/**

**/\* METRIC A \*/ ## IF Q14c=C1, C2 ##** You mentioned that you expect your firm's consumer demand for **government** loans will go up over the next three months. Which of the following housing marketplace factors do you think will drive the demand to go up? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are low
- 2) Mortgage rates are favorable
- 3) There are many homes available on the market
- 4) It is easy to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q51a \*/** 1 - Most important

**/\* Q51b \*/** 2 - Second most important

**/\* END SERIES \*/**



**/\* METRIC A \*/ ## IF Q14c=C4, C5 ##** You mentioned that you expect your firm's consumer demand for **government** loans will go down over the next three months. Which of the following housing marketplace factors do you think will drive the demand down? Please select up to two of the most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Home prices are high
- 2) Mortgage rates are not favorable
- 3) There are not many homes available on the market
- 4) It is difficult to qualify for a mortgage
- 5) Economic conditions (e.g., employment) overall are not favorable
- 6) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q52a \*/** 1 - Most important

**/\* Q52b \*/** 2 - Second most important

**/\* END SERIES \*/**

**/\* DISPLAY \*/** The next section is about consumer demand for refinance mortgages. Similarly, we will be asking these questions across three market categories, GSE Eligible, Non-GSE Eligible, and Government.

**/\* DISPLAY \*/** Now, let's focus on the consumer demand for single-family refinance mortgages your firm has experienced over the past three months.

**/\* METRIC A \*/** Over the past three months, apart from normal seasonal variation, did your firm's consumer demand for single-family refinance mortgages go up, go down, or stay the same?

#### **Consumer Demand for Refinance Mortgages for the Past 3 Months**

- 1) Went up significantly
- 2) Went up somewhat
- 3) Stayed the same
- 4) Went down somewhat
- 5) Went down significantly
- 6) Not applicable

**/\* REPEAT CODES \*/**

**/\* Q10a \*/** Refinance - **/\* GSE Eligible \*/** [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]

**/\* Q10b \*/** Refinance - **/\* Non-GSE Eligible \*/** [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and may carry higher interest rates than GSE loans. Exclude Government loans from this category. -]



**/\* Q10c \*/ Refinance - [ \* Government \* ] [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]**

**/\* END SERIES \*/**

**/\* DISPLAY \*/ Now, let's focus on the refinance mortgages over the next three months.**

**/\* METRIC A \*/ Over the next three months, apart from normal seasonal variation, do you expect your firm's consumer demand for single-family refinance mortgages to go up, go down, or stay the same?**

### **Consumer Demand for Refinance Mortgages for the Next 3 Months**

- 1) Go up significantly
- 2) Go up somewhat
- 3) Stay the same
- 4) Go down somewhat
- 5) Go down significantly
- 6) Not applicable

**/\* REPEAT CODES \*/**

**/\* Q18a \*/ Refinance - [ \* GSE Eligible \* ] [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]**

**/\* Q18b \*/ Refinance - [ \* Non-GSE Eligible \* ] [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and may carry higher interest rates than GSE loans. Exclude Government loans from this category. -]**

**/\* Q18c \*/ Refinance - [ \* Government \* ] [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]**

**/\* END SERIES \*/**

### **Profit Margin**

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**/\* DISPLAY \*/ Now you will see some questions regarding your firm's profit margin outlook.**

**/\* Q22 \*/ Over the next three months, how much do you expect your firm's profit margin to change for its single-family mortgage production?**

- 1) Increase significantly (25+ basis points)
- 2) Increase somewhat (5 - 25 basis points)
- 3) Remain about the same (0 - 5 basis points)
- 4) Decrease somewhat (5 - 25 basis points)
- 5) Decrease significantly (25+ basis points)
- 6) Not sure/Prefer not to answer/Not applicable



**/\* METRIC A \*/ ## IF Q22=4,5 ##** What do you think will drive the decrease in your firm's profit margin over the next three months? Please select the two most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Consumer demand
- 2) Competition from other lenders
- 3) Government monetary or fiscal policy
- 4) Government regulatory compliance
- 5) GSE pricing and policies
- 6) Non-GSE (other investors) pricing and policies
- 7) Operational efficiency (i.e. technology)
- 8) Staffing (personnel costs)
- 9) Marketing expenses
- 10) Servicing costs
- 11) Market trend changes (i.e. shift from refinance to purchase)
- 12) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q24a \*/** 1 - Most important

**/\* Q24b \*/** 2 - Second most important

**/\* END SERIES \*/**

**/\* END SERIES \*/**

**/\* METRIC A \*/ ## IF Q22=1,2 ##** What do you think will drive the increase in your firm's profit margin over the next three months? Please select the two most important reasons and rank them in order of importance. **/\* RANDOM ROTATE CHOICES \*/**

- 1) Consumer demand
- 2) Less competition from other lenders
- 3) Government monetary or fiscal policy
- 4) Government regulatory compliance
- 5) GSE pricing and policies
- 6) Non-GSE (other investors) pricing and policies
- 7) Operational efficiency (i.e. technology)
- 8) Staffing (personnel costs) reduction
- 9) Marketing expense reduction
- 10) Servicing cost reduction
- 11) Market trend changes (i.e. shift from refinance to purchase)
- 12) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* Q26a \*/** 1 - Most important

**/\* Q26b \*/** 2 - Second most important

**/\* END SERIES \*/**



## Credit Standards

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**/\* DISPLAY \*/ This section is about your firm's credit standards for approving applications from individuals for mortgage loans.**

**/\* METRIC A \*/ Now, let's focus on the past three months.**

Over the past three months, how did your firm's credit standards for approving consumer applications for mortgage loans change (across both purchase mortgages and refinance mortgages)? Please answer for GSE Eligible mortgages, Non-GSE Eligible mortgages, and Government mortgages.

### **Credit Standards over the Past 3 Months**

- 1) Eased considerably
- 2) Eased somewhat
- 3) Remained basically unchanged
- 4) Tightened somewhat
- 5) Tightened considerably
- 6) Not applicable

**/\* REPEAT CODES \*/**

**/\* Q27a \*/ /\* GSE Eligible \*/ [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]**

**/\* Q27b \*/ /\* Non-GSE Eligible \*/ [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and may carry higher interest rates than GSE loans. Exclude Government loans from this category. -]**

**/\* Q27c \*/ /\* Government \*/ [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]**

**/\* END SERIES \*/**

**/\* Q28 \*/ ## IF ANY (Q27a, Q27b, Q27c) = c1,c2,c4,c5 ##** What do you think drove the change in your firm's credit standards for approving consumer applications for purchase and refinance mortgage loans over the last three months? Please be as specific as possible. (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**



**/\* DISPLAY \*/ Now let's focus on the next three months.**

**/\* METRIC A \*/** Over the next three months, how do you expect your firm's credit standards for approving applications from individuals for mortgage loans to change (across purchase mortgages and refinance mortgages)?

**Credit Standards over the Next 3 Months**

- 1) Ease considerably
- 2) Ease somewhat
- 3) Remain basically unchanged
- 4) Tighten somewhat
- 5) Tighten considerably
- 6) Not applicable

**/\* REPEAT CODES \*/**

**/\* Q31a \*/** **/\* GSE Eligible \*/** [- GSE Eligible Mortgages are defined as mortgages meeting the underwriting guidelines, including loan limit amounts, of the Government-Sponsored Enterprises (GSEs) (Fannie Mae and Freddie Mac). Exclude Government loans from this category. -]

**/\* Q31b \*/** **/\* Non-GSE Eligible \*/** [- Non-GSE Eligible Mortgages are defined as mortgages that do not meet the GSE guidelines for purchase. These loans typically require larger down payments and may carry higher interest rates than GSE loans. Exclude Government loans from this category. -]

**/\* Q31c \*/** **/\* Government \*/** [- Government Mortgages primarily include Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) insured loans but also includes other programs such as Rural Housing Guaranteed and Direct loans. -]

**/\* END SERIES \*/**

**/\* Q32 \*/** **## IF ANY (Q31a, Q31b, Q31c) = c1,c2,c4,c5 ##** What do you think will drive the change in your firm's credit standards for approving consumer applications for purchase and refinance mortgage loans over the next three months? Please be as specific as possible. (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**

**/\* QR83 \*/** Does your firm originate or acquire loans through wholesale channels such as mortgage brokers or correspondent channels?

- 1) Yes
- 2) No
- 3) Not sure/don't know

**/\* QR84 \*/** **## IF QR83=c1 ##** Does your firm apply credit overlays when originating or acquiring loans through wholesale channels?

- 1) Yes
- 2) No
- 3) Not sure/don't know



**/\* QR84a \*/ ## IF QR84=c1##** How does your firm anticipate changing your credit overlays to brokers/correspondents over the next 6 months?

- 1) We plan on reducing credit overlays
- 2) We plan on increasing credit overlays
- 3) We plan on keeping credit overlays about the same

## **Rotating Questions – Artificial Intelligence and Mortgage Lending**

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**/\* DISPLAY \*/** In this section, we would like to gather your views and experiences with Artificial Intelligence (AI) or Machine Learning (ML) technology.

**/\* DISPLAY \*/** As you may know, with artificial intelligence (AI), computer systems are able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, language translation, and decision-making. And with machine learning (ML) capabilities, they also have the ability to process large amounts of data (structured and unstructured) from various sources and recognize patterns in the data to identify opportunities or risks.

Major areas of AI or ML application to the mortgage industry may include identifying anomalies, assessing risk, exploring non-credit-bureau data (e.g., social media or mobile phone usage) to enhance prediction of loan performance, and answering customer questions (e.g., chatbots).

**/\* QR268 \*/** How familiar are you with AI (Artificial Intelligence) or ML (Machine Learning) applications as specifically applied to enhancing your mortgage business processes? **/\* RANDOMLY REVERSE CHOICES \*/**

- 1) Very familiar
- 2) Somewhat familiar
- 3) Not very familiar
- 4) Not familiar at all
- 5) Don't know/Not sure **/\* DO NOT ROTATE \*/**

**/\* QR269 \*/** Which of the following statements best describes your firm's current status with AI or ML solutions for your mortgage business? **/\* RANDOMLY REVERSE CHOICES \*/**

- 1) We have not yet looked into AI/ML solutions for our mortgage business.
- 2) We have started investigating AI/ML solutions, but have not yet used any, for our mortgage business.
- 3) We have started deploying AI/ML solutions, but on a limited or trial basis, for our mortgage business.
- 4) We have deployed AI solutions and incorporated some of the tools into our current mortgage process.

**/\* QR270 \*/ ## IF QR269=3-4 (USES AI/ML) ##** You mentioned that your firm has started using AI/ML tools for your mortgage business. In the space provided below, can you share with us some specific functions as examples for which your firms uses AI/ML technology for mortgage lending? **/\* OPEN END 1 BOXES 0 REQ \*/**



**/\* QR271 \*/ ## IF QR269=3-4 (USES AI/ML) ##** Which of the following best describes your firm's primary objective in exploring AI/ML tools for your mortgage business? **/\* RANDOM ROTATE CHOICES \*/**

- 1) Reduce human error
- 2) Enhance consumer/borrower experience
- 3) Better control risks
- 4) Improve operational efficiency
- 5) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**## IF QR269=1-2 (DOES NOT USE AI/ML) ##** Earlier you mentioned that your firm has not used AI/ML applications. Listed below are some possible challenges companies might face in implementing AI/ML applications. Please select up to two of the biggest challenges for your firm and rank them in order of importance.

**/\* RANDOM ROTATE CHOICES \*/**

- 1) Costs too high
- 2) Lack of proven record of success (concerns over AI/ML accuracy)
- 3) Concerns with data quality or availability
- 4) Complexity of integrating AI/ML applications with our existing infrastructure
- 5) Concerns with data security (data breach) and privacy
- 6) Challenges of getting consumer consent to use their data
- 7) No ideas about what to do with AI/ML or where to start
- 8) Concerns with the potential for AI/ML to come up with discriminatory results
- 9) Lack of overall technology strategy at my firm
- 10) Lack of necessary staff skills
- 11) Other **/\* SPECIFY \*/ /\* DO NOT ROTATE \*/**

**/\* REPEAT CODES \*/**

**/\* QR273 \*/** Biggest Challenge

**/\* QR274 \*/** Second Biggest Challenge

**/\* END SERIES \*/**

**/\* QR272 \*/** What do you think the status of your firm's adoption of AI/ML applications for your mortgage business will be in two years? **/\* RANDOMLY REVERSE CHOICES \*/**

- 1) Not consider usage
- 2) Wait and see
- 3) Investigate usage
- 4) Use on a trial basis
- 5) Roll out more broadly

**/\* DISPLAY \*/** In this section, you will see some ideas for how your firm could leverage AI/ML technology to improve or expand its mortgage business. The ideas will be presented in a total of 7 sets with each set presenting 3 ideas. For each set, please choose the idea that is the MOST appealing and the idea that is the LEAST appealing to your firm. **## SHOWING 7 SETS WITH 3 IDEAS EACH ##**



- **AI-driven Customer Service Digital Assistants:**  
Voice-activated “virtual assistants” or text-based chatbots to interact like humans to answer customer questions or provide guidance to help customers complete tasks
- **AI-empowered Customer Relationship Management:**  
Have machines “listen in” to loan officers’ conversations or customer service calls and provide feedback such as how to better handle certain irate customers or spot certain business opportunities
- **AI/ML-based Property Valuation:**  
Have machines examine all data available (e.g., crime rates, psychographics of residents in the neighborhood, insurance records, etc.) to assess property value
- **AI/ML-based Borrower Default Risk Assessment:**  
Have machines examine all available information or data (financial and non-financial such as social media activities) to predict the probability of borrower defaulting on the loan to allow lenders to take proactive steps
- **AI/ML-based Borrower Prepay (move/refinance) Assessment:**  
Have machines examine all available information or data (financial and non-financial such as social media activities) to predict the probability of borrower refinancing or retiring the loan (due to move or home sale)
- **AI/ML-driven “Social Trust” Score:**  
For thin-credit borrowers, devise a “social trust” score by having machines analyze the individual’s non-financial transactions (e.g., social media activities, internet browsing history, app use, and geolocation data) to help predict loan performance
- **AI/ML-driven Anomaly Detection Automation:**  
Enable machines to process data from various sources to identify fraud or detect defects early in the underwriting process

**/\* Q43 \*/** This is the last question. Are there other topics that you think would be interesting or useful to be included in the future quarterly survey among senior mortgage executives like yourself? (Optional) **/\* OPEN END 1 BOXES 0 REQ \*/**

**/\* DISPLAY \*/** This now completes the survey. We really appreciate you taking the time to contribute to this important industry research.

You can find the previous quarters’ results as well as special topic analyses on the [Mortgage Lender Sentiment Survey®](#) page on FannieMae.com.

Please note that responses to the survey questions will be aggregated and analyzed solely to identify important topics, trends, and issues surrounding the mortgage industry. Fannie Mae will not publish respondent names or affiliated institutions.

At this point, you may close your browser window or **click below** to enter your email address if you would like to receive a copy of the Q3 2018 Mortgage Lender Sentiment Survey® report when it’s released. To ensure that your survey responses remain anonymous, after clicking on the link you will be directed to a separate website to enter your email address.