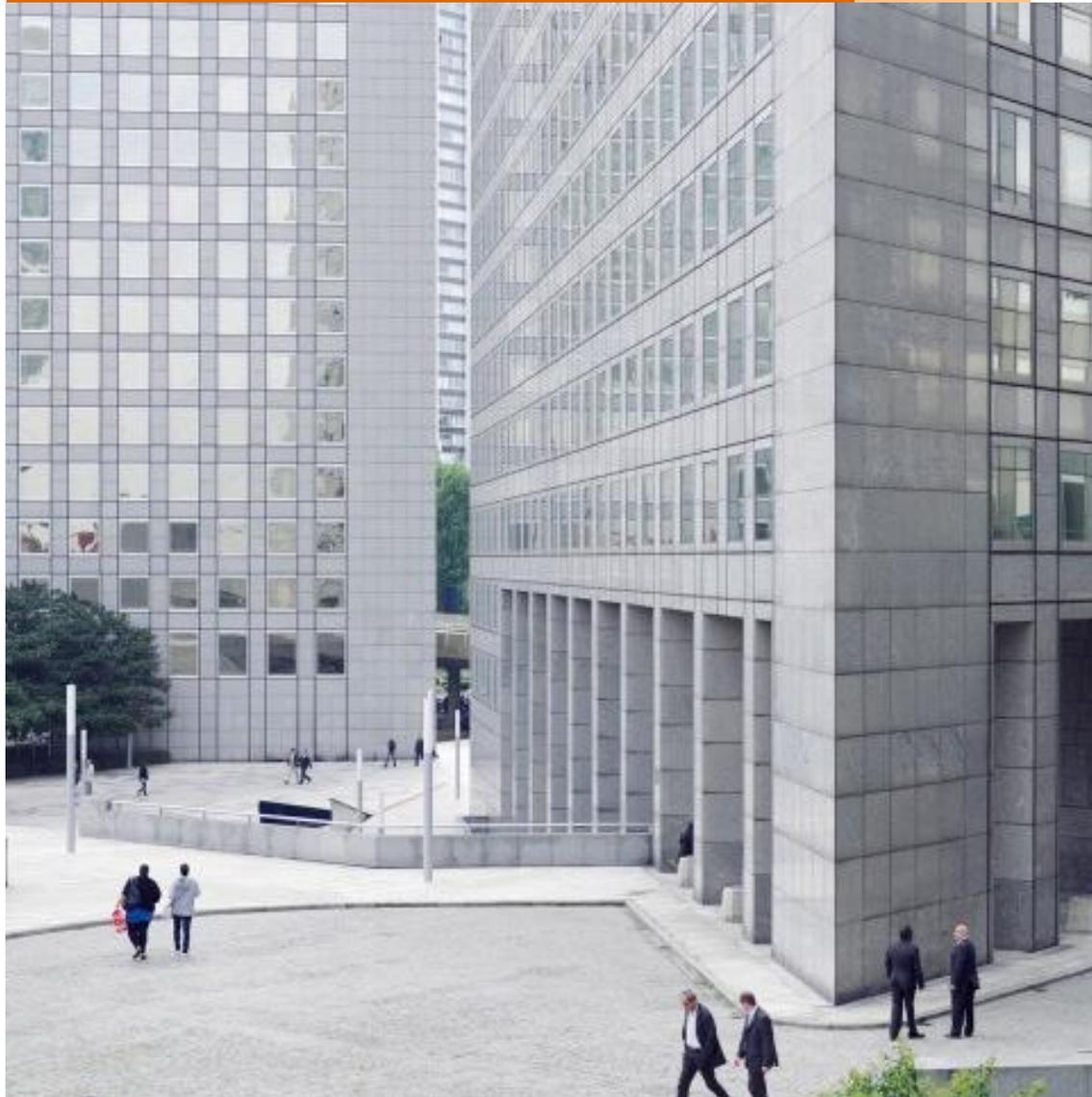# *Click on the dotted line:*

How digital mortgage processes are streamlining the borrower experience

October 2015

pwc

Introduction

Ask a mortgage lender, "Do you effectively use digital documents?" Most will highlight advances they've made in incorporating imaging into their processes.

Why now?

Technology has come a long way in recent years, making it feasible to have a fully digital mortgage process. Barriers that once stood in the way—such as regulatory and enforceability concerns—have recently been cleared.

The time is right for lenders to close the gap between expectation and reality and to truly introduce end-to-end digital processes.

Then ask a borrower the same question. You'll frequently hear a very different story—one full of paper documents, multiple resubmissions of the same document, misrouted mail, and other sources of borrower headaches. Thirty-six percent of borrowers list multiple asks for information as their biggest source of frustration.[1]

When it comes to the use of paper, the numbers don't lie. The average mortgage application includes a staggering 500 pages, a number that has trended up rather than down in recent years, despite the expected benefits of technological advances.[2] Moreover, the industry has failed to make significant progress in the number of loans registered on the Mortgage Electronic Registration Systems (MERS®) eRegistry, and the mortgage closing process continues to frustrate borrowers with its sometimes glacial pace.

The reason? Some mortgage lenders are taking a fragmented approach to electronic documents and, in most cases, failing to build integrated paperless workflows. Many lenders use electronic documents at certain points in their processes but then convert back to paper-based processes for the next step, often printing out the very files they just created electronically. While some individual components may be working well for lenders in areas such as electronic disclosures, most lenders are missing an integrated end-to-end strategy that supports an efficient paperless process.

> **It's not just about the note. Digital processes can be effective even with a paper note.**

Converting a paper loan file to an electronic copy at the closing room doesn't do anything to help you get there faster or with fewer errors. Unless paperless processes are integrated earlier in your value chain, you miss out on opportunities for more efficient workflows, improved data quality at every stage in the process, and the elimination of costs and delays associated with printing, shipping, and storing paper documents.

Lenders can start to reap benefits by developing paperless capabilities in a single area, effectively building the paperless functionality into a workflow. But the true value comes when paperless processes are linked seamlessly from application and document intake through closing and beyond to establish a true, end-to-end digital mortgage process—often referred to as an eMortgage.

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[1] "Lock in Loyalty. Coming to terms with the new borrower's needs." PwC, 2013.

[2] *Mortgage Bankers Association.* MBA NewsLink, December 13, 2013.
http://apps.mba.org/tools/FullStory.aspx?ArticleId=49005

Since the barriers that once stood in the way of digital processes, such as regulatory and enforceability concerns, have recently been cleared, lenders are now able to drive strategic change with these technologies. Based on our analysis, we believe digital mortgages will soon become an industry disruptor as more participants start identifying the full spectrum of advantages. It's not a matter of if, but rather, when digital mortgages will gain widespread adoption. Some of the advantages include:

- **Market share protection and growth.** Even though consumers are increasingly requesting electronic mortgages, today's mortgage origination process does not satisfy the customer. It's lengthy, paper-intensive, and slow. And it's not on par with the streamlined experience consumers have come to expect from their other banking and non-banking services. Lenders who offer a digital mortgage process will be able to differentiate themselves in the marketplace.

- **Industry-wide savings of $1 billion per year.**[3] Digital mortgages aren't just more convenient; they're significantly less expensive than today's paper-based or partially electronic mortgages. Lenders who are able to tap into these savings may decrease their operating costs and increase their margins.

- **Improved regulatory compliance.** As regulatory compliance becomes more complex, paper-intensive processes could become a risk factor due to the possibility of increased error rates. Lenders who automate and streamline with electronic mortgage processing have the opportunity to improve both their quality control and their regulatory compliance outcomes. And in many cases there's an opportunity to automate controls, testing, and loan quality reporting that would allow for either increased sample test sizes or even full population testing (as opposed to smaller, manually selected samples).

This Point of View paper explores the considerations mortgage lenders face as they rethink their paperless strategies to begin to reap the long-awaited benefits of adopting digital processes. It also explores 10 areas where lenders can benefit from establishing paperless processes, as well as provides a framework for determining an overarching strategy.

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[3] Fannie Mae, "Advancing eMortgage: Why Are We Still Using Paper?" May 6, 2014.

A closer look

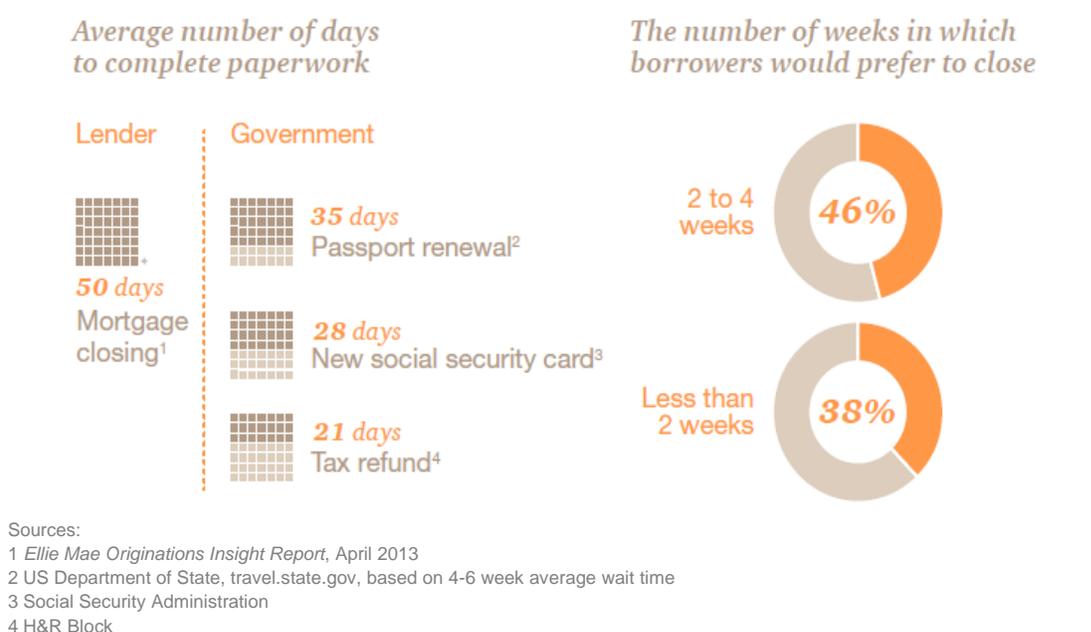## Customer preferences

Customers want quicker closings

Fannie Mae recently created a team to look into improving the mortgage process, including the use of electronic processing. It found that digital mortgages could reduce the average loan closing time from 52 days to only 22 days.[4]

Why is a quicker mortgage closing so important? In a recent PwC survey, 84% of mortgage customers said they want an expedited mortgage process.[5] Almost half of the respondents (48%) said they want to close in two to four weeks. Compared to other industries, today's mortgage processing is seen as painfully slow. As shown in Figure 1, even industries not known for speed seem to have more efficient processes.

Customers want a better experience

Today's consumers want transparency, ease of use, and real-time access in their financial transactions. Mortgages are no exception. The public has grown accustomed to the paperless, automated convenience afforded to them in other financial transactions, such as credit card and auto loan originations. A fully electronic transaction has now evolved from a novelty to an expectation in consumers' eyes.

Figure 1: The majority of customers want an expedited mortgage.

Average number of days to complete paperwork

Lender | Government

50 days Mortgage closing[1]

35 days Passport renewal[2]

28 days New social security card[3]

21 days Tax refund[4]

The number of weeks in which borrowers would prefer to close

2 to 4 weeks **46%**

Less than 2 weeks **38%**

Sources:
1 *Ellie Mae Originations Insight Report*, April 2013
2 US Department of State, travel.state.gov, based on 4-6 week average wait time
3 Social Security Administration
4 H&R Block

....
[4] Fannie Mae, "Advancing eMortgage: Why Are We Still Using Paper?" May 6, 2014.
[5] PwC, *Experience Radar – Lock in Loyalty: Coming to terms with the new borrowers' needs*, 2013.

Reduced costs

According to a study by the Mortgage Bankers Association (MBA), average total production costs have been rising since 2008, hitting a high of $8,025 in the first quarter of 2014, and then dipping slightly to $7,195 in Q1 2015.[6] The same study that found electronic mortgages could whittle the closing time down by 30 days also estimates that digital mortgages can reduce costs by an average of $1,100 per loan. This equates to a staggering $1 billion per year industry-wide.[7]

Digital mortgages can reduce costs in a number of areas:

- **Processing and underwriting,** which require fewer full-time equivalent (FTE) personnel due to automated workflows and reduced manual data entry.

- **Errors and re-work,** which diminish with less manual keying of information from paper documents.

- **Printing and shipping,** which decrease by eliminating paper files.

- **Warehousing,** which decreases due to faster funding.

- **Execution,** which is better due to increased data quality, the potential to deliver earlier, and the ability to tailor loan files to investor requirements.

Improved quality control and regulatory compliance

As regulatory expectations for mortgage originations continue to evolve in scope and complexity, the digital mortgage and its data-driven processes can provide the required transparency and accessibility to consumer data. Lenders who adopt a digital mortgage platform can more easily automate many aspects of their quality control (QC) and compliance programs, enabling them to strengthen and streamline their processes and examination outcomes. For instance, lenders can:
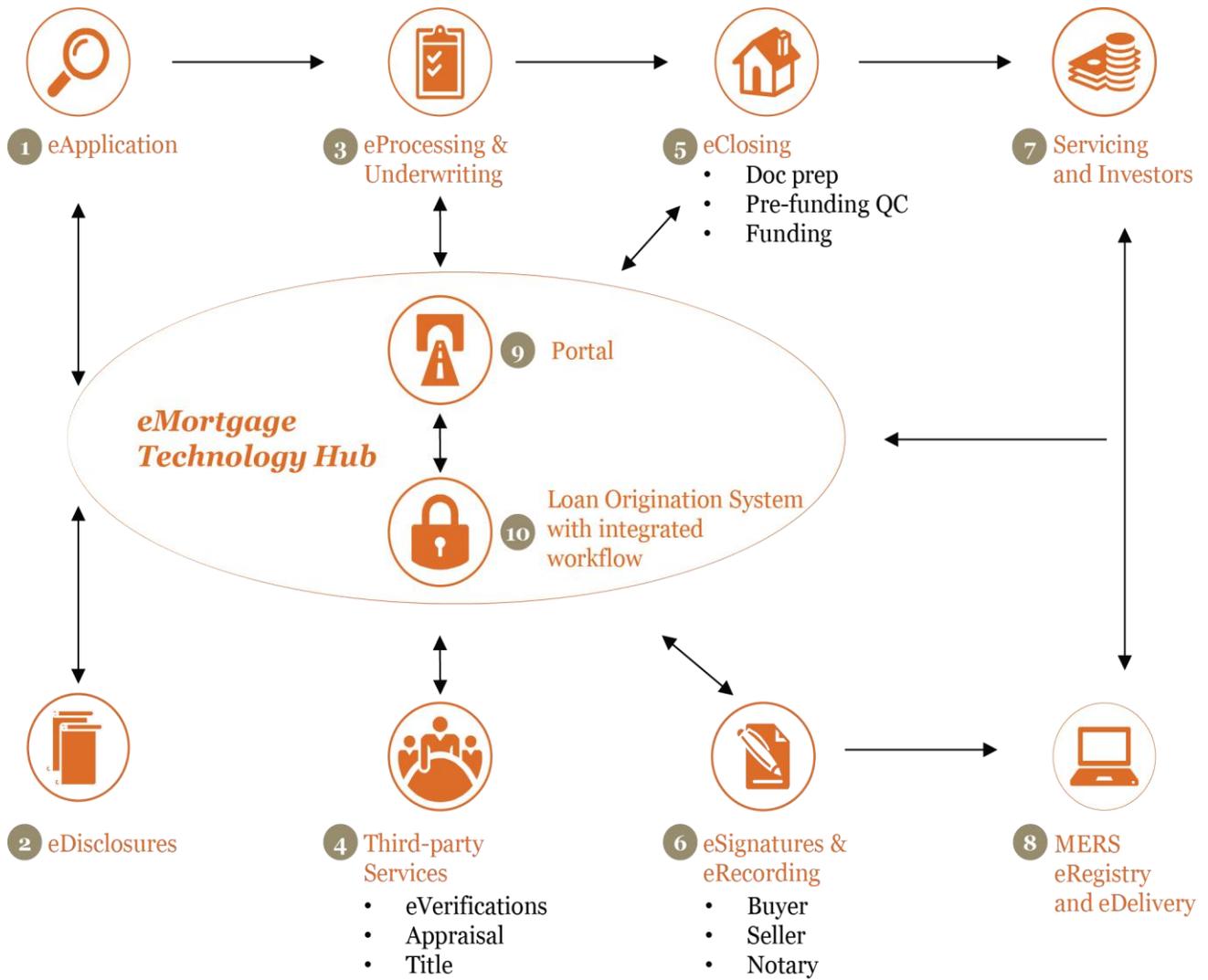
- Take advantage of the data-based controls and audit trails offered in today's modern loan origination systems to record and authenticate their lending decisions and comply with record retention requirements.

- Develop rules-based workflow engines to be sure all required documentation is obtained before progressing the loan status, and validate key data elements across all systems and documents.

- Use electronic disclosures and system timestamps to eliminate any questions regarding the timing or execution of disclosures between lenders and their consumers, including evidence of compliance with new disclosure and re-disclosure timelines under TILA-RESPA Integrated Disclosure (TRID) rules.

- Create real-time, systematically directed QC programs as a data-driven process replaces the paper-based origination process.

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[6] *Mortgage Bankers Association.* Press Release—Performance Report, June 10, 2015.
https://www.mba.org/2015-press-releases/august/independent-mortgage-bankers%E2%80%99-profits-increase-slightly-with-higher-volume-in-the-second-quarter-of-2015

[7] "Advancing eMortgage: Why Are We Still Using Paper?" Fannie Mae, May 6, 2014.

Figure 2: End-to-end digital mortgage process.

1. eApplication

3. eProcessing & Underwriting

5. eClosing
   - Doc prep
   - Pre-funding QC
   - Funding

7. Servicing and Investors

9. Portal

eMortgage Technology Hub

10. Loan Origination System with integrated workflow

2. eDisclosures

4. Third-party Services
   - eVerifications
   - Appraisal
   - Title

6. eSignatures & eRecording
   - Buyer
   - Seller
   - Notary

8. MERS eRegistry and eDelivery

The 10 components of a digital mortgage process

1. eApplication

What does an electronic process look like?

An eOrigination process consists of integrated systems that reduce the need for manual data entry and cumbersome interfaces that delay the start of loan processing. On the front end, a system should be in place where an online application (e.g., web-based or mobile application) feeds the loan origination system (LOS) directly, as well as meets TRID compliance by mapping application data directly to the new Loan Estimate and Closing Disclosure forms. By implementing rules that make certain all required data elements are populated correctly, concerns over data validation can be mitigated. These rules will also enable better pipeline management and compliance with application-triggered reporting requirements and operational service-level agreements (SLAs).

Linking the application process to the LOS significantly reduces the need for manual intervention. It also provides higher data quality by nearly eliminating data entry typos and automatically assessing data quality to ensure that the information is complete. Mortgage pull-through rates on the back end may increase, as a properly configured eOrigination system has the power to decision loans in days rather than weeks, enhancing the customer experience. Conversely, a lender who receives an electronic application but then has to manually key data into the LOS sees little benefit; plus, this process is prone to errors and risks diminishing the customer experience.

It's helpful to think of an eApplication process as one that, from the point of sale (POS), accurately takes in a borrower's personal information electronically through a web portal or mobile application. It also accepts employment and income information proactively from electronic data feeds, and then uses a series of workflow-related tasks to drive the loan through the entire end-to-end digital mortgage process. Many of the same functions of the borrower portal that enable an eApplication are relevant for the intake of borrower documents and other information throughout the origination process.

Challenges

One challenge for lenders is data assurance at each point in the origination process, because any data integrity defects increase risk. Unfortunately, the traditional non-connected POS origination process typically includes low data capture rates, low data integrity functions, and weak controls, because loan officers must manually obtain borrower documentation and key it into the LOS. This can lead to incomplete or error-prone applications. However, a robust eApplication process that systematically incorporates these data validations into the workflow can help to capture data integrity issues early and ensure that the data being automatically fed from the eApplication process is accurate and includes the required information.

Another challenge relates to the need for a robust, secure borrower portal. (We will discuss ePortals and their functions in greater detail when we get to component #9.) Simply put, the need for both borrower authentication and data security is crucial to protect borrower information and provide a mechanism by which borrowers can be comfortable providing personal information. This is a recurring theme that will be addressed in many of the digital mortgage process components.

Benefits

- Significantly reduces/eliminates the need for manual data entry.

- Speeds up the loan process with quicker validation, analysis, and underwriting decisions.

- Helps lenders achieve a higher pull-through of closings on the back end.

- Electronic documentation provides a quick and efficient audit trail for regulatory compliance.

2. eDisclosures

What does an electronic process look like?

The baseline requirements for eDisclosures are straightforward: provide borrowers with the required disclosures electronically, and in the required timeframes. However, as the remainder of this section examines, this can be more complex than it seems. Additionally, an electronic disclosure process should include extra features to give borrowers more functionality and an improved experience that provides benefits they couldn't get from a paper disclosure. One such enhancement is an interactive disclosure, which includes links to external data that provides context, embedded definitions, and explanatory text or videos borrowers can choose to view if they want additional information.

The eDisclosure component should also include a secure delivery and tracking mechanism that:

- Provides an audit trail of all disclosures sent.

- Tracks customer receipt and viewing.

- Automates the creation of paper disclosures if borrowers do not view the electronic version.

A disclosure should never be sent by email unless it's first encrypted. Ideally, data should only be accessible through a secured portal with single sign-on, SSL data encryption, and other security features, such as audit logs and digital certificates.

Challenges

The primary requirement for implementing eDisclosures is developing a customer-facing portal to securely provide documents to borrowers. (This portal can also be leveraged in *eApplications*, as noted above.) While there can be challenges with any new system, eDisclosures are based on a limited number of consistent, well-defined forms that can simplify the implementation process.

At its most basic level, the eDisclosure process is an outbound function that is independent of the complex intake procedures used for electronic documents. Lenders can begin to realize benefits even if they have established only the outbound eDisclosure component, thanks to the shortened cycle times realized by avoiding mail delays. As such, lenders can catch errors sooner and shorten re-disclosure timelines.

Because lenders can realize benefits even with a standalone eDisclosure solution, it's an attractive option for companies to use as their digital mortgage starting point. And because lenders should already have the data mapped to create the disclosures using existing system data, as well as the processes in place to send the required disclosures, electronic integration and systematic tracking are a natural progression. Many of the challenges associated with eDisclosures are also opportunities to improve processes that may pose even greater issues with paper-based solutions. For instance, while managing disclosure timelines and re-disclosures will be a major hurdle in creating a compliant eDisclosures solution, particularly following the implementation of TRID, many lenders currently struggle with these same challenges in their existing paper processes. As such, the upcoming TRID changes may provide an ideal opportunity to overhaul the electronic tracking process to improve compliance and develop more robust audit trails.

Lenders whose policy requires a borrower signature or acknowledgement could have added challenges. (We will address these challenges in the *eSignatures and eRecording* sections below.) But this is another opportunity to leverage modular technology components. In this case, lenders who implement electronic signatures as part of their eDisclosure solution can use the same solution for any other documents requiring a signature.

Benefits

- Quicker disclosures and more supporting information improve the customer experience.
- Electronic tracking of borrower receipt and data changes simplifies the compliance process, improves the audit trail, and improves the ability to demonstrate regulatory compliance.

- Helps companies adhere to the TILA-RESPA Integrated Disclosure rule by:
  - Providing a three-day disclosure window.
  - Seeking to reduce paperwork and customer confusion, highlight important information, increase the reliability of information, and give customers enough time to review and understand their transactions.

3. eProcessing and eUnderwriting

What does an electronic process look like?

eProcessing automates the processes in which the required information, including borrower-submitted documents, is obtained and the data is fed into the LOS. eUnderwriting automates the process by which these documents and the accompanying data are made available to the underwriter for review. These automated components frequently include a process that electronically validates borrower information and asset data.

A consideration when designing this system component is the idea of straight-through processing, or the elimination of the need for re-keying data or manual intervention. For instance, once the LOS captures application data, it needs to validate and assess the data quality to determine if the information is complete. Anything short of completion means the processor will have to spend time requesting new or previously provided information from the borrower. It's this automation and subsequent reduction in manual intervention that will provide true time and cost savings to lenders while enhancing the customer experience.

Lenders should consider the needs of both borrowers and internal team members during this step.

- For **borrowers,** provide a user-friendly and secure web portal or mobile application to transfer electronic documents to and from the lender. Communication between lender and borrower should be secure and convenient, and the portal should provide real-time status updates.

- For **internal team members,** real-time data availability and the ability for multiple parties to access information simultaneously are crucial. Underwriters' jobs can be simplified by incorporating rules-based engines that can flag high-risk areas for additional review.

Challenges

Most mortgage lenders today can accept electronic documents, or they at least have imaging capabilities to convert paper documents to a digital format. However, the next step of integration is often lacking, with many lenders going from a paperless process back to a manual one. While optical character recognition (OCR) is used in many areas, capabilities around true data integration remain limited. Lenders must develop a process to manage both documents and data, and then link the two in a way that allows for data validation and minimizes re-keying. The use of SMART® Docs [8] and direct data feeds can aid in this area. However, many borrower-provided documents are likely to be standard PDFs, which may be in inconsistent formats or suffer from poor image quality. Robust OCR capabilities with machine learning can address many of these challenges, but

lenders will still need a process for manual data review for some documents. Striking the right balance in establishing protocols to validate data without duplicating efforts is key to maximizing the effectiveness of eProcessing and eUnderwriting—as is making sure that data flows between all systems in real time. As noted above, developing a system for simultaneously sharing documents and data in real time with borrowers, internal staff, and third parties is important, and it may require significant changes to system interfaces and the way data is used today.

Benefits

- Improved customer experience with increased transparency, real-time information, and faster turnaround times.

- Automated document inventory checklist.

- Improved exception reporting.

- Cost savings.

- Quicker processing.

- Faster decision-making.

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[8] SMART Doc® Version 3 is a uniform way of transmitting the documents used in all types of mortgage-related transactions and services. The new structure combines the capabilities of the previous SMART Doc ® 1.02, PRIA Document 2.6, and Embedded File structures and supports various view formats such as: PDF, XHTML, TIFF, XPS, and others. http://www.mismo.org/AboutMISMO/eMortgageWorkgroups.htm

4. Third-party services

What does an electronic process look like?

Mortgage lenders will leverage a number of third-party services in their digital mortgage process. Lenders need to consider how they will obtain and provide electronic documents and data to and from third parties. One option is to make available an electronic vendor portal to third-party service providers (e.g., appraisers and insurance companies), where those external parties will submit data in a specified format that feeds directly into the lender's LOS without the need for any back-office manual intervention. The technology for this solution frequently mirrors that used for the borrower portal, although it may leverage different authentication protocols due to the recurring transactional nature of the connection with the third party.

A few examples of specific third parties are discussed below.

Borrower verifications

Lenders often work with third-party vendors who provide electronic verification (eVerification) for a number of borrower data points, including employment, income, and undisclosed debt.

Vendors' eVerification services are also used to confirm a borrower's identity. Systems can automatically verify the electronic and physical security features of identity documents such as driver's licenses and passports. A borrower's social security number can be electronically compared against records at the Social Security Administration. These eVerifications offer enhanced protection by detecting when activities on an account fall outside the parameters of anticipated behavior, such as accessing the account from a different computer or geographic locale. With eVerifications in place, the borrower is prompted for further information to verify his or her identity, preventing unauthorized parties from compromising the account.

eRecording

eRecording enables title companies, lenders, attorneys, and other agents to electronically record documents with the Registrar of Titles via the Internet. eRecording is rapidly becoming the preferred method to submit documents for recording. Currently, 1,120 jurisdictions nationwide accept eRecordings (which covers 65% of the US population), and momentum is building rapidly (see Figure 3).

Appraisers

Appraisers should be able to use a secure portal to submit final appraisal forms to lenders, and the critical valuation data points should feed directly into the LOS as part of the loan decision process. Directly integrating this data and maintaining electronic records of all appraisals can speed the process and provide more robust data for identifying potential fraudulent valuations.

Figure 3: eRecording population coverage: 2009 vs. 2014.[9]

2007	2014
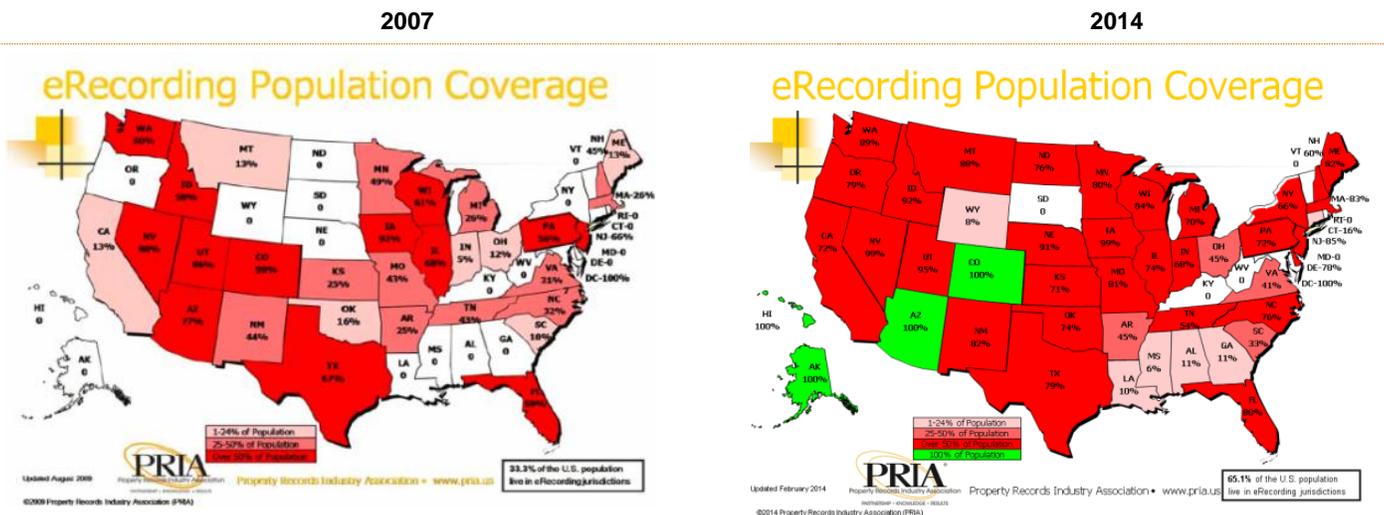
Title insurance companies

Providing insurance information to and obtaining it from lenders is extremely important for title companies, due to the tight timelines and potential impact on closings. This process can be streamlined with a secure portal for two-way communications that is integrated into overall workflows, which should also feed directly into the LOS.

....
[9] Maps are courtesy of the Property Records Industry Association

Challenges

The greatest challenge when working with third parties is often related to the varying levels of vendor sophistication. Lenders will need to partner with either their third-party service providers or an aggregator to develop interfaces and processes for exchanging electronic documents and data. Alternatively, vendors simply may not be able to adapt fast enough to provide data through an electronic interface. Lenders must then assess the cost/benefit of changing to vendors who are more prepared for electronic processes or setting up other forms of intake, including imaging and OCR, to convert the documents vendors send to electronic versions.

Although the majority of the US population lives in eRecording jurisdictions, there are still jurisdictions that haven't adopted this technology. To serve all customers, it may be necessary to have both an electronic solution and a paper process. Because eRecordings are on the uptick, this will likely be a temporary issue, enabling and lenders to revert to one electronic process over time.

Benefits

- eVerifications for employment:
  - Are quicker
  - Are more accurate
  - Have systems that are able to identify disparities
  - Include pre-closing verification that can detect fraud and alert the lender
  - Help prevent lenders from closing a loan from an applicant who recently lost his or her job

- eVerification to authenticate identity:
  - Is quicker (usually in minutes)
  - Lowers the number of rejected documents lenders encounter
  - Improves customer service
  - Protects against fraud
  - Assists with adherence to regulations
 - Uses electronic transactions that leave an audit trail

5. eClosing

What does an electronic process look like?

eClosing was thought of as the last major technological hurdle before borrowers executed their closing documents. The Consumer Financial Protection Bureau (CFPB) recently released results of its "Know Before You Owe" eClosing pilot, which includes lessons learned from industry pilot participants, that lenders can review to help them understand the challenges and success factors involved when implementing an eClosing process.[10] It is important to consider eClosing's interrelationship with and dependence on many of the other electronic components, such as eRecording, eSignature, eDelivery, and the Mortgage Electronic Registration Systems (MERS) eRegistry (see Figure 4). However, the eClosing level of integration varies depending on the scope of the eSigned documents. For instance, the process could rely on technology that allows consumers and those involved with the mortgage transaction to view and sign documents electronically, but it could also be a hybrid closing process.

Another option for lenders involves developing a virtual "electronic closing room" with a secure web- or software-based portal that allows the lender, borrower, and closing agent to electronically view, sign, store, and transfer closing documents. This should allow borrowers and closing agents to transfer and review documents and data in advance, and it should be used to capture and record the actual signing event.

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[10] "Leveraging technology to mortgage consumers at closing." Consumer Financial Protection Bureau, August 2015. http://files.consumerfinance.gov/f/201508_cfpb_leveraging-technology-to-empower-mortgage-consumers-at-closing.pdf

Figure 4: Players in the closing process.
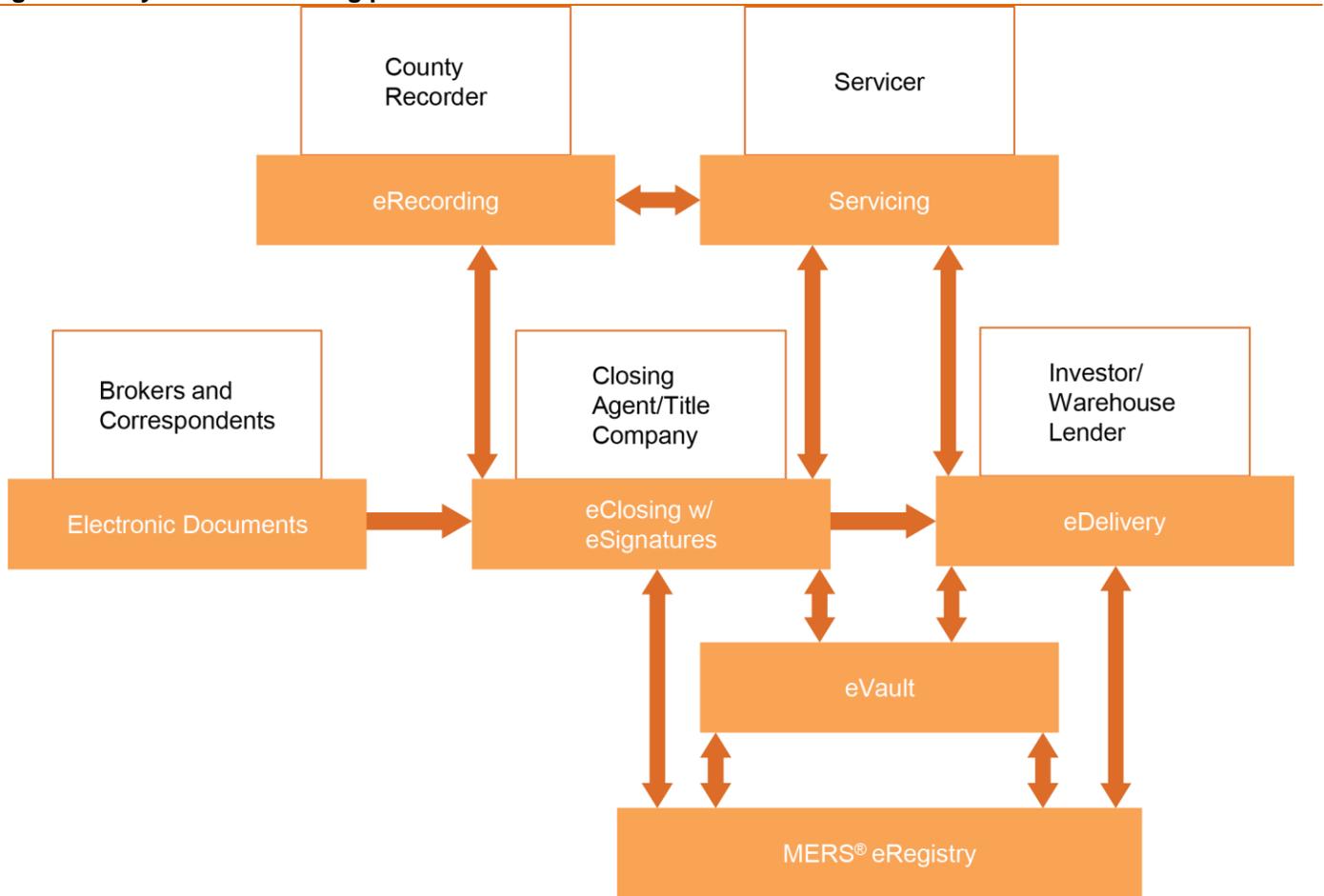
Closing presents its own unique considerations, due in large part to the reliance on the closing agent, as well as the potential need for the borrower to be physically in the presence of the closing agent and/or notary at the time of signing. It is typically a requirement that each borrower be in the presence of a closing agent and/or notary when executing electronic records. Keep in mind the following points when developing an eClosing process:

- Consider the hardware requirements associated with making this eClosing platform available in advance, as well as at the time of signing. Then determine whether the eClosing process will use traditional computers, tablets, signature pads, or other devices, which will also impact the choice of eSignature method.

- Accommodate hybrid solutions, and document which files will be signed on paper versus electronically. Lenders should have investor-specific requirements programmed into the workflow to ensure that loans are compliant with the planned investor (e.g., paper security instruments for Freddie Mac). They should allow for electronic viewing of documents that will be signed on paper to provide a consistent viewing experience throughout the process.

- Determine how to meet notarization requirements. Depending on the jurisdiction, electronic notarization may be an option for certain documents, including the security instrument. But these requirements vary significantly by state, and in many cases security instruments need a "wet"—or physical—signature. If you elect to use electronic security instruments, you will also need to work with your partners to make sure that local eNotarization standards are followed.

Closing agents

Closing agents are key to a successful electronic closing, and they'll need to be trained on the new processes. To make this a successful partnership, you should:

- Partner with closing agents to push out the eSignature platform and get agents comfortable with the technology.

- Determine which agents in your network are willing to participate in eClosing.

- Train your closing agents. Although most borrowers are receptive to electronic closings, there may be some initial confusion about the process. Work with your closing agents to equip them with information to guide borrowers at the closing table.

Title companies

If title companies aren't integrated into the electronic processes, the time savings associated with electronic processes could be lost to delays in obtaining title insurance. By integrating title companies to streamline this data exchange and manage title timelines, lenders can make sure they're able to realize the full benefit of the streamlined closing process.

Challenges

eClosing represents one of the more challenging areas in implementing an electronic mortgage process due to the involvement of multiple third parties, the need to preserve legal enforceability, data privacy and fraud prevention concerns, and investor-specific requirements.

To combat these challenges, lenders should use industry standards, such as the MERS eRegistry, and work with trusted vendors whose products have been subjected to regulatory testing. It is important to point out that the CFPB mentioned that participants in its eClosing pilot program faced eNotarization challenges for various reasons. Some participants cited legal challenges to electronic notarization, while others simply stated that the adoption of eNotarization capabilities was relatively low. Lenders and closers may have to revert to wet notarization (hybrid eClosing) until eNotarization challenges are sorted out and adoption becomes more prevalent.[11]

Benefits

eClosing provides an improved and quicker closing experience for consumers by:

- Sharing closing documents with customers in advance, giving them more time to review their paperwork.

....
[11] Leveraging technology to mortgage consumers at closing." Consumer Financial Protection Bureau, August 2015, page 72.

- Decreasing documentation errors.

- Lowering costs, due to reduced rework.

- Aligning to the CFPB's proposed vision of a "knowledgeable, empowered homebuyer experiencing a more efficient, consumer-friendly process."[12]

- Providing the ability to electronically incorporate the CFPB's or others' educational materials.

6. eSignatures and eRecording

What does an electronic process look like?

Electronic signatures come in a broad range of formats, and different options may be beneficial for different stages in the electronic loan lifecycle.

Common eSignature methods include:

- **Click-to-sign.** The signer clicks a button acknowledging his or her signature (e.g., "I Accept").

- **Typed signatures.** The signer uses the keyboard to type his or her signature, which is reflected in a standard font.

- **Graphic signatures.** The signer attaches an image of his or her signature; this may be a stored image for repeat signers, such as third-party service providers.

- **eSignature pad captures.** The signer uses a physical signature pad or touchscreen device (e.g., tablet) to sign with a stylus or a finger.

- **Handwritten mouse signatures.** The signer uses a mouse to draw his or her signature in a designated area within the document.

- **Voice signatures.** The signer records an audio statement acknowledging his or her agreement.

- **Biometric signatures.** These can include fingerprint, vocal, facial, or retinal recognition. They can be used in conjunction with eSignature pad capture or handwritten mouse signatures to identify and recognize unique characteristics, such as speed and timing. This option may be particularly useful for repeat signers, such as third-party service providers.

Lenders may choose to use more than one kind of signature, depending on the type of document being signed. For instance, you may allow click-to-sign for non-binding disclosures but require a more robust alternative for electronically signed Promissory Notes (eNotes). Each type of signature can be used along with the various identity authentication methods described in the eOriginations section above.

Additional factors to consider with eSignatures:

- Include documentation of borrowers' intent to sign in your signature requirements.

- Document that borrowers are reading what they sign. This is important to maintain eSignatures' compliance with regulations. Options include:

  – Click-wrap technology, where users accept or initial at various points throughout the document.

  – Screen advances, which prevent borrowers from advancing to the next screen for 30 to 60 seconds so they have a chance to read the content.

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[12] "eClosing Pilot guidelines." Consumer Financial Protection Bureau, April 23, 2014. http://files.consumerfinance.gov/f/201404_cfpb_guidelines_eclosing-pilot.pdf

- Embed key documents with a tamper-evident digital signature "tamper seal" to validate that the document hasn't been changed since signing.

When determining your choice of signature methods, consider:

- Hardware requirements.

- Borrower and third-party preferences.

- Agency and investor requirements. Currently, Fannie Mae will not accept audio or voice recordings[13] and Freddie Mac will not accept either of those options or signatures that solely consist of biometric data.[14]

- Whether eSignature solutions should be standalone or integrated with other eDocument offerings.

- Whether to use a hosted or on-premises solution.

After obtaining the eSignature, recording the document quickly is a key step in the process—one that is dependent on third parties. Title companies can integrate with recording networks to complete eRecording more quickly, reduce the length of the recording gap, and make sure time-sensitive documents are recorded quickly. As noted above, more than 1,000 recording jurisdictions nationwide accept eRecording, which covers approximately 65% of the US population.[15]

Challenges

The greatest potential challenge for eSignatures is ensuring that the borrower's identity and intent to sign are sufficiently established. However, when implemented correctly, eSignatures are just as enforceable and valid as a wet signature and can actually provide a stronger audit trail. Structuring the eSignature process in a way that will be legally enforceable is extremely important. Although vendors have established protocols in place, each lender should engage legal counsel to ensure the process is robust enough to meet all E-SIGN and Uniform Electronic Transactions Act (UETA) requirements.

Depending on the stage in the electronic loan lifecycle and the document in question, eSignature processes can look very different. Lenders will need to ensure that borrowers and any third parties have sufficient information to understand the signature requirements and that the process is simple and straightforward.

Many lenders assume borrower acceptance of an eSignature process will be a challenge. And they are right. According to CFPB's recent eClosing pilot program results, lenders who pursued eNotes found process changes to be more complex to manage. But borrower resistance appears to be limited; most are comfortable with digital channels, including eSignatures, for their mortgage. For the few borrowers who do have concerns, lenders can overcome resistance by offering hybrid processes that allow borrowers to retain the option of paper-based closing. In fact, results of the CFPB's eClosing pilot program provide ample support that lenders who take incremental steps by implementing hybrid solutions realized fewer implementation challenges. This allows lenders to benefit from the savings associated with electronic processes without the risk of losing a potential borrower. With the large number of borrowers demanding faster processes and increasing consumer comfort with digital channels, borrower adoption can no longer be used as an excuse to not implement eSignatures.

[13] "Guide to Delivering eMortgage Loans to Fannie Mae. Fannie Mae, August 28, 2013. https://www.fanniemae.com/content/technology_requirements/emortgage-delivery-guide.pdf
[14] "Freddie Mac eMortgage Guide Version 3.0." Freddie Mac, July 2014. http://www.freddiemac.com/singlefamily/elm/pdf/eMortgage_Guide.pdf
[15] Pilot Records Improvement Act of 1996.

Benefits

- eSignatures are an enabler to other elements of the electronic process and, mostly notably, are a key requirement for electronic closing.

- eSignatures speed up interfaces and exchanges any time a signature is required, leading to quicker processing.

- eSignatures are more secure than a paper signature because they incorporate processes to document intent to sign and establish borrowers' identity. As a result, lenders can build strong evidentiary trails to prevent claims of fraud and establish a signature as bona fide.

- Cryptographic digital signatures can reduce forgery and alteration concerns.

7. Servicing and investors

What does an electronic process look like?

Investors

This step in the digital mortgage process allows lenders to electronically ship loan folders to investors, eliminating much, if not all, of the paper associated with file transmission. Laborious tasks, such as placing paper documents into investor-specific stacking orders and packaging those files, are eliminated, as are the cost of couriers and express mail.

eWarehouse lending[16] and the use of eCustodians can also provide significant benefits. Eliminating shipping delays and providing information to these partners in real time can significantly speed the process. For instance, use of an eWarehouse lending process can cut the timelines for receiving funding from more than ten days to a single

business day.[17] Faster cycle times can allow lenders to finance six to seven times more loans with the same amount of available credit, as well as significantly decrease expenses resulting from lowered shipping costs and reduced buy-downs. A Mortgage Bankers Association study indicates that eWarehouse lending can provide a potential savings of 20 basis points, or $400 per loan.[18] Similarly, use of eCustodians can significantly reduce the time and cost associated with certification.

Servicers

While digital mortgage servicing is very similar to the processes required in servicing a paper loan, there are a few important distinctions. Fannie Mae requires servicers to integrate with the MERS eRegistry to update life-of-loan events as they occur. Servicers will also need to identify digital mortgage loans in their servicing portfolio. In addition, when transferring servicing that includes eNotes, the servicer must ensure that the new servicer has the capability to service digital mortgages.

Fannie Mae, Freddie Mac, and the Federal Housing Administration (FHA) are now all accepting digital mortgages, as long as lenders, servicers, and custodians comply with the guidelines supplied by each investor and validate their compliance with the requirements.

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16 eWarehouse lending is the process by which the documentation required to obtain interim funding between closing and investor remittance is replaced by an eNote, allowing more rapid transfer of control with MERS eRegistration and eDelivery to custodians and investors.

17 "eWarehouse Lending: The New Frontier" (presentation, at Mortgage Bankers Association's annual National Technology in Mortgage Banking Conference & Expo, Ft. Lauderdale, FL, March 27-30, 2011). http://apps.mba.org/files/Conferences/2011/Tech/Tech11eWarehouseLendingMar29.pdf

18 "eWarehouse Lending: The New Frontier" (presentation, at Mortgage Bankers Association's annual National Technology in Mortgage Banking Conference & Expo, Ft. Lauderdale, FL, March 27-30, 2011). http://apps.mba.org/files/Conferences/2011/Tech/Tech11eWarehouseLendingMar29.pdf

Challenges

The FHA enacted its much anticipated eSignatures policy on January 30, 2014. The policy allows lenders and servicers to use eSignatures on FHA documents, insurance endorsements, servicing and loss mitigation, insurance claims, and real estate owned (REO) property sales.

Government-sponsored entities (GSEs) have different requirements for the sale and delivery of electronically signed mortgages. For example, Freddie Mac will only accept eNotes with a paper security instrument, but Fannie Mae will accept both an eNote and an electronic security instrument. As a result, some lenders are only able to sell electronically signed mortgages to either Fannie Mae or Freddie Mac.

One way to address this is to maintain hybrid processes, in which some documents (such as the security instrument) are wet signed while others are electronic. This allows lenders to maintain electronic processes throughout origination, up until the closing table, and to continue to reap the benefits of eNotes and the broader digital mortgage process. Lenders can set up their eClosing solution to tailor the documents based on the individual lender to ensure that all investor requirements are followed and comply with these differing standards.

Each of the GSEs also has different requirements for transferring the location and control of eNotes, which is critical to resolve when the authoritative copy of the Note and proof of its current ownership need to be presented in foreclosure court. This dual system leads to confusion and complexity for lenders during foreclosure. Like the previous barrier, this obstacle is largely relevant to the Note, so it will not hinder the implementation of a "mostly

paperless" eClosing solution, in which the consumer signs the Note by hand.[19]

Benefits

- Eliminates "missed" signatures via electronic prompts
- Reduces cycle times
- Lowers costs
- Increases operational efficiencies in post-closing reviews and document tracking
- Improves regulatory compliance with immediate access to eNotes and automated certification

8. MERS eRegistry and eDelivery

What does an electronic process look like?

Lenders will need to maintain a secure document repository to store electronic records, called an eVault, as well as provide a mechanism to securely share those documents, including transfer to document custodians. Freddie Mac, for example, requires eNotes to be stored in an approved Document Custodian's eVault.[20]

Fannie Mae and Freddie Mac use the MERS eRegistry to identify the owner and location of eNotes, and this system is likely to remain the industry standard for other investors who adopt eNotes. The MERS eRegistry is used to ensure that eNotes are transferable and to provide the equivalent of "holder-in-due-course" for eNotes.

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[19] "Mortgage closings today." Consumer Financial Protection Bureau, April 2014.
http://files.consumerfinance.gov/f/201404_cfpb_report_mortgage-closings-today.pdf
[20] "Freddie Mac eMortgage Guide Version 3.0." Freddie Mac, July 2014.
http://www.freddiemac.com/singlefamily/elm/pdf/eMortgage_Guide.pdf

eNotes should be electronically transmitted and registered on the MERS eRegistry immediately after closing. This will register ownership and store the tamper-evident digital signature. Any subsequent changes in owner or controller of the eNote will also need to be registered to preserve the chain of enforceability. Direct integration of the eVault with the eRegistry, with MERS eDelivery providing vault-to-vault transfers, is a key component to enable delivery of loans to investors, servicers, and sub-servicers.

As shown in Figure 5, the process for updating the eRegistry is complex. It's important to create the appropriate logic and message flows to make sure all notes are correctly transferred and their legal status updated
as needed.

Challenges

Data security and the ability to preserve enforceability are key challenges. Fortunately, vendor technology provides a number of features to help address these issues, including:

- Multifactor authentication and role-based access controls.

- Tamper-seal validation, registry crosschecks, and system and electronic record integrity (eVerification).

- Real-time Online Certificate Status Protocol (OCSP) verification and Certificate Revocation List checks.

- Firewall protection, intrusion detection, data encryption, and other standard electronic security protocols.

- Exception handling and tracking of delivery success/failure.

- Physical access security.

Given the robust technology requirements and the need to provide 24x7x365 availability, lenders run the risk of becoming IT shops if they attempt to meet these requirements internally. Partnering with third-party vendors can help companies comply with eVault and eDelivery requirements.
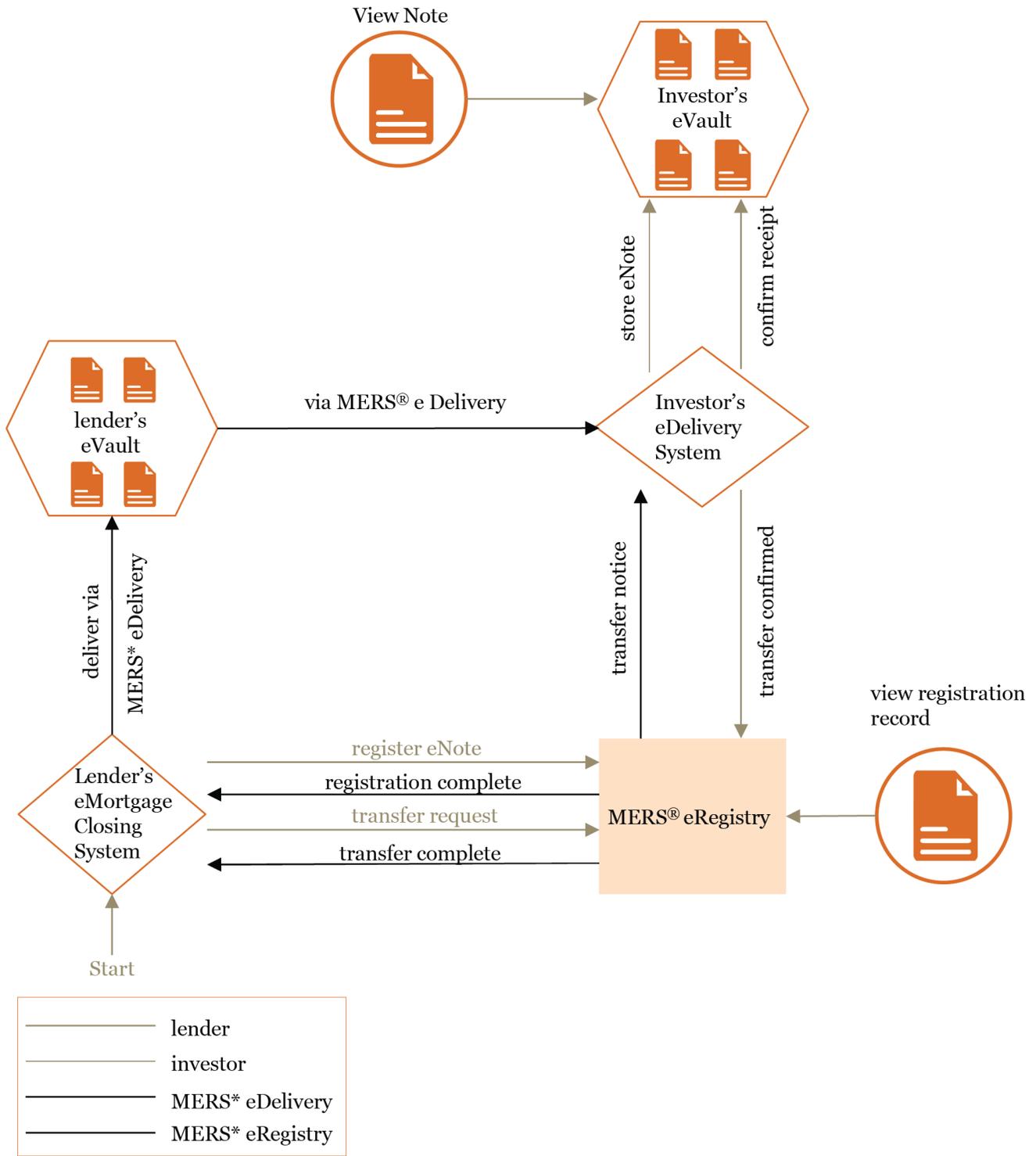
Lenders should also perform rigorous testing to ensure that enforceability is preserved. Both the agencies and MERS eRegistry maintain separate test environments for setting up eDelivery. Fannie Mae requires completion of test scripts for system validation of electronic document delivery, transfer of ownership, and acceptance of transfers back from Fannie Mae. Successful completion of the test scripts is a prerequisite to production deployment with Fannie Mae.[21] Lenders should consider what additional testing protocols they want to establish to ensure that exception processing is handled correctly and that they are prepared for a successful implementation.

Benefits

- Necessary to meet baseline investor requirements

- Faster delivery times

- Cost savings from shorter investment commitments

- Improved execution with better visibility into closing timelines

[21] "Guide to delivering eMortgage Loans to Fannie Mae." Fannie Mae, August 29, 2013.
https://www.fanniemae.com/content/technology_requirements/emortgage-delivery-guide.pdf

Figure 5: Process for updating eRegistry.[22]

View Note

Investor's eVault

store eNote

confirm receipt

lender's eVault

via MERS® e Delivery

Investor's eDelivery System

deliver via MERS* eDelivery

transfer notice

transfer confirmed

view registration record

Lender's eMortgage Closing System

register eNote

registration complete

transfer request

transfer complete

MERS® eRegistry

Start

	lender
	investor
	MERS* eDelivery
	MERS* eRegistry

22 MERS eRegistry Membership
    Kit (February 2014).

Click on the dotted line:
How digital mortgage processes are streamlining the borrower experience

9. ePortal

What does an electronic process look like?

Through the use of an ePortal, a borrower no longer has to walk into a bank, credit union, or other financial institution to submit a mortgage loan application. Instead, borrowers submit their application through a secured web portal or mobile app that feeds directly into the lender's point of sale or loan origination system (LOS). The ePortal design goes beyond just connecting front-end origination components, such as the application, to the LOS. Instead, an ePortal is a tool that bridges eight other components of the mortgage lifecycle and helps establish the framework for a fully functional, end-to-end digital mortgage process.

Building the right ePortal, one that links the digital mortgage components, allows lenders to implement automation through the various stages of the mortgage process. For instance, a portal has an interface that connects the borrower to the lending process (via communications and near-real-time decisions). Borrowers expect this service level, as well as a feedback loop that facilitates secured messaging (e.g., live chat, text, and email) and real-time decision statuses, while the loan application is moving through the digital mortgage cycle. The portal also links external vendors (e.g., appraisers and insurance companies) to the mortgage process by providing them with functionality to submit data in a format that feeds directly into the lender's LOS without manual intervention. The vendor portal can be set up as either a separate secure area within the portal or a separate portal.

In addition, the ePortal serves as a vault to store borrower documentation and artifacts that are generated during the mortgage process. All uploads, downloads, data, and documents are timestamped to provide an audit trail and demonstrate regulatory compliance to both internal compliance departments and external auditors or examiners. Any non-compliant actions would notify the appropriate parties in real time via the ePortal so remediation can begin promptly.

Challenges

One challenge lenders could face is data security and protecting borrowers' privacy; it is, therefore, vital to build a secure portal. As borrowers and outside vendors transmit sensitive and private information to the lender via the ePortal, the lender's IT department should make sure inbound and outbound data is transmitted through secure, authenticated networks that utilize the latest industry-accepted encryption protocols.

Benefits

ePortals improve the customer experience because borrowers have:

- A convenient means to provide information to lenders.

- The ability to receive real-time decisions and notifications during each stage of the mortgage process.

- More convenience for borrowers, lenders, and vendors, with simplified document retrieval and upload.

- An improved audit trail of borrower activity.

10. LOS with integrated workflow, secure document imaging, and OCR capabilities

What does an electronic process look like?

The loan origination system is the central point; it brings together all the components of the digital mortgage solution. While many individual aspects may be completed using other systems or technology partners, at the end of the day, it all comes back to making sure the right information flows into the LOS and is available for use in electronic workflows throughout the loan lifecycle.

Combining documents and data is the hallmark of a digital mortgage solution. For each stage outlined previously, it's important that lenders make sure all the data they capture flows through to the LOS and is integrated in real time. Typically, most of the data validation and rules-based logic will be incorporated into the LOS. And it's crucial to align LOS workflows to take advantage of the increased availability of information in each stage of the origination process.

While some of the larger banks have built their LOS platforms, the typical mortgage lender will find purchasing or leasing its LOS—whether self- or vendor-hosted—a more cost-effective alternative with significantly less risk. Regardless of which approach is taken, it's important to understand the capabilities of your LOS and align the functionality to keep up with the new, faster pace of your digital mortgage process.

Challenges

LOS systems that can accept digital mortgages are relatively mature. However, lenders should be mindful of the impact of eTechnologies on current business and operational processes, employee culture, and capacity for change. Moreover, in many cases, the system's functionality may not be "out of the box" and may require significant configuration and customization. Understanding the limitations of the system's functionality, and determining where add-ons or other solutions are required, is key to making sure the LOS fully supports your overall digital mortgage system architecture.

As with any major initiative, the adoption strategy for digital mortgage technologies should follow careful, disciplined planning. It should complement the strategic plans, goals, and objectives of the mortgage operation. In evaluating LOS options, lenders should understand their current business processes and improvement opportunities, and then develop the actions needed for incremental yet effective change.

Based on their current technology platform, lenders may find that enhancing existing technologies through integration with "best-of-breed" software providers is the preferred solution. Others, due to current technology capabilities or limitations, or the desire for a "wholly integrated solution," may seek a new LOS platform that already contains the technology components necessary for digital mortgage adoption.

In both cases, moving to a digital mortgage processing environment will require a careful examination of existing processes to fully leverage the benefits of the new technologies. Understanding the change dynamic involved with employee and consumer adoption is critical to implementation success. Establishing clear goals for anticipated productivity and cost savings will inform the lenders' ROI metrics.

Benefits

- Operational efficiency
- Lower costs from reduced:
  - Paper
  - Printing
  - Shipping and courier expenses
  - Document scanning and indexing
- Increased quality
- Improved compliance
- Improved customer experience

Do you have a plan?

The best way to implement a digital mortgage process is with a consistent framework that allows lenders to adapt the program based on their existing operations and systems. Following are three steps in that framework to guide you through the process.

Identify and prioritize areas for operational and customer experience improvements

While each component of the end-to-end digital mortgage process provides tangible benefits, different lenders may find that they will need to prioritize or emphasize enhancements in certain areas. For instance, lenders struggling with how to implement the new TILA-RESPA Integrated Disclosure (TRID) regulation may find particular benefits in eDisclosures. Those dealing with high processing costs and slow turnarounds may realize the largest initial benefits from eProcessing and eUnderwriting. However, most lenders are likely to find benefits from most, if not all, components. Thus, the question often becomes "when" and "how," rather than "which," when prioritizing the different electronic components.

There is no "one-size-fits-all approach," and each component can include different levels of sophistication and maturity. For instance, "bare bones" electronic processing and underwriting might simply use electronic documents to avoid printing and shipping. A more robust solution could incorporate workflows based on the receipt or completion of electronic documents, while a leading-edge solution might include robust rules-based data validations linked to workflows and the ability to confirm that the electronic documents match to all systems at all points. Lenders should evaluate their needs and the benefits of the potential features of each component against costs and implementation timelines to determine how sophisticated of a solution they wish to implement in each area.

Assess your current LOS and system capabilities against desired functionality

There are a few questions to consider from a systems perspective when assessing your current state operations. Most of the functionality that supports electronic processes is frequently integrated within loan origination systems. Lenders should review their LOS provider's capabilities to determine if the current system can be enhanced to support the desired electronic processes. It's important to review these capabilities thoroughly, as many solutions are not "out of the box." Lenders should not simply identify that their LOS offers a solution in a given area. Instead, they should conduct due diligence to assess the breadth and depth of the functionality and determine how it fits with their strategic plan for that area. If the LOS provider does not have the capability to support the required functionality, lenders will have to conduct a more thorough analysis to consider what other systems or processes would be needed to provide that functionality, whether bolt-on auxiliary systems or a potential new LOS. It will also be important to understand third-party integrations within the LOS and determine if any additional third-party interfaces will need to be built to accommodate document and data transfer.

Other systems play a key role in the overall electronic ecosystem. Most lenders have robust imaging capabilities, but the integration with all customer-facing systems should be considered to identify where systems may be unable to let staff access all required documentation. Imaging capabilities may need to be expanded to new operational groups, and more robust OCR functionality may be required for intake of borrower documents. More significantly, many lenders may need to develop a new borrower or third-party portal for secure transfer of electronic documents. Additionally, the system interfaces should be considered, to understand whether all systems are compatible and can provide simultaneous real-time access and data linkages.

eSignatures can also represent a significant new systems requirement, which many LOSs may not be equipped to handle. Standalone eSignature solutions may be needed to provide the appropriate levels of security. These solutions may be built into an overall eClosing solution.

Develop a long-term digital mortgage roadmap

Due to the interconnectedness of digital mortgage components, the overall roadmap should be designed before beginning any single aspect of a digital mortgage implementation. Avoid a fragmented approach, and understand that your plan may occur over multiple years.

While many lenders may start with eDisclosures or more simple components, consider whether the same systems or functionality can be used across multiple components. By considering these interconnections, lenders can make sure they build in consistencies. For example, if eSignatures will be used at five different touchpoints from eDisclosures through to eClosing, lenders should make sure their single solution will accommodate all those areas. Designing the systems and process together is crucial, but so is making sure that the systems are the right ones for the long-term plan

Final thoughts

Technology has come a long way in recent years, making it feasible to have an end-to-end digital mortgage process. Yet, only a few lenders have established this fully electronic platform, from eDisclosures through transferring the loan to investors. Document imaging and OCR, web portals, and digital document management and storage have helped lenders reduce their use of paper. However, these electronic processes largely coexist with a significant number of paper-based processes.

Mortgage origination is on the cusp of a transformation. Technology, customer expectations, and regulatory and investor acceptance are aligning, and the future of the industry is electronic and efficient. It will be a significant opportunity, giving mortgage lenders the chance to rebrand themselves in their customers' eyes. And this will be no small achievement for those who forge ahead as the competitive field continues to tighten.

Now is the time to set your plan in motion. Organizations that create an end-to-end digital mortgage process could emerge as clear winners in an industry where differentiation is becoming increasingly elusive.

How PwC can help

PwC has the deep experience and understanding in mortgage finance, operations, technology, regulatory compliance, and fair and responsible lending necessary to help mortgage lenders with their digital mortgage journey. We have worked closely with mortgage lenders, and more broadly with banks and other consumer financial services providers, to strategically address digital mortgage assessments and implementations.

Our relevant experience helping mortgage lenders and consumer finance lenders address their digital mortgage challenges includes:

- Digital mortgage strategy development and organizational alignment

- Process reengineering

- Vendor assessments and third-party integration

- System implementation and testing

- Enhancing quality control and compliance programs through systematic automation

- Employee training and change management

- Development of reporting metrics and key performance indicators (KPIs)

- Consumer education and borrower outreach

- Data analysis, reporting, and metrics

- ROI modeling

- Maturity model assessment

The process of preparing for your digital mortgage transformation can involve a significant change in the company's process, and even its culture. Taking the first steps and embarking on the digital mortgage journey may not be easy in the short term. However, companies often find that the resulting elevated level of discipline around process and transformational operation changes can also elevate the level of discipline around managing other core business risks and operations. Further, the journey will likely increase efficiencies and reduce costs. No matter where your company stands on its digital mortgage journey, we can help you achieve the full potential of building a true end-to-end process.

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PwC's Consumer Finance Group has extensive experience in helping mortgage companies develop solutions that are tailored to their specific needs. To learn more, please contact:

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