HYPERLEDGER

Hyperledger Capital Markets SIG Proposal for a Mortgage Sub-Group

Angel Alban, Zventus Blockchain Advisory Services

Marvin Bantugan, Zventus Blockchain Solutions

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www.zventus.com

Angel Alban

Blockchain Advisory Services

aalban@zventus.com

+1-818-590-3673

Marvin Bantugan

Blockchain Solutions

mbantugan@zventus.com

+1-310-422-7963

Mortgage Domain Experts

25 years of strategy, operations and technology experience

Mortgage Subgroup

Build a community for mortgage industry professionals to learn about Hyperledger and support the Mission of Hyperledger Project ("HLP").

A. Create an enterprise grade, open source distributed ledger framework and code base, upon which users can build and run robust, industry-specific applications, platforms and hardware systems to support business transactions.

B. Create an open source, technical community to benefit the ecosystem of HLP solution providers and users, focused on blockchain and shared ledger use cases that will work across a variety of industry solutions;

C. Promote participation of leading members of the ecosystem, including developers, service and solution providers and end users; and

D. Host the infrastructure for HLP, establishing a neutral home for community infrastructure, meetings, events and collaborative discussions and providing structure around the business and technical governance of HLP.

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US Mortgage Market Research

Market Sizing and Relevance to GDP

According to figures from the FDIC and the Credit Union National Association (CUNA), there are a total of 13,066 financial institutions in the U.S.

In 2020, the size of th U.S. mortgage market is $11.05 trillion measured as outstanding mortgages.

New construction and remodeling of single family and multifamily homes only contributes about 3-5% of GDP, but has broad ripple effects in the economy.

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US Mortgage Market Research

Market Sizing and Key Stats

In the US, there are **122.8** million households (2019).

There are over **4,500** title insurance companies, title agents, independent abstracters, title searchers and attorneys across the United States.

In the US, there are **8 million** new home loans made every year on average.

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US Mortgage Market Research
Housing Forecast by Mortgage Banking Association

	2018	2019	2020	2021	2022
HOUSING MEASURES					
Housing Starts (SAAR, Thous)	1,250	1,268	1,305	1,339	1,380
Single-Family	873	885	920	954	990
Two or More	377	383	385	385	390
Home Sales (SAAR, Thous)					
Total Existing Homes	5,341	5,354	5,515	5,688	5,838
New Homes	615	690	726	746	767
FHFA US House Price Index (YOY % Change)	6.1	4.3	3.1	2.2	1.5
Median Price of Total Existing Homes (Thous $)	257.3	269.4	279.4	290.4	298.3
Median Price of New Homes (Thous $)	323.1	318.2	326.2	333.4	344.4
INTEREST RATES					
30-Year Fixed Rate Mortgage (%)	4.8	3.7	3.7	3.8	4.1
10-Year Treasury Yield (%)	3.0	1.8	1.9	2.0	2.3
MORTGAGE ORIGINATIONS					
Total 1- to 4-Family (Bil $)	1.677	2,068	1,914	1,757	1,799
Purchase	1,209	1,272	1,305	1,325	1,370
Refinance	467	796	609	432	429
Refinance Share (%)	28	38	32	25	24
MORTGAGE DEBT OUTSTANDING					
1- to 4-Family (Bil $)	10,322	10,661	11,047	11,415	11,787

The median price of a new home at this moment in 2020 is **$326,200 USD.**

Mortgage rates will average **3.7%** in 2020.

There will be **$1.91 trillion** new mortgages funded in 2020.

In 2020, the size of th U.S. mortgage market is **$11.05 trillion** measured as outstanding mortgages.

Link to source

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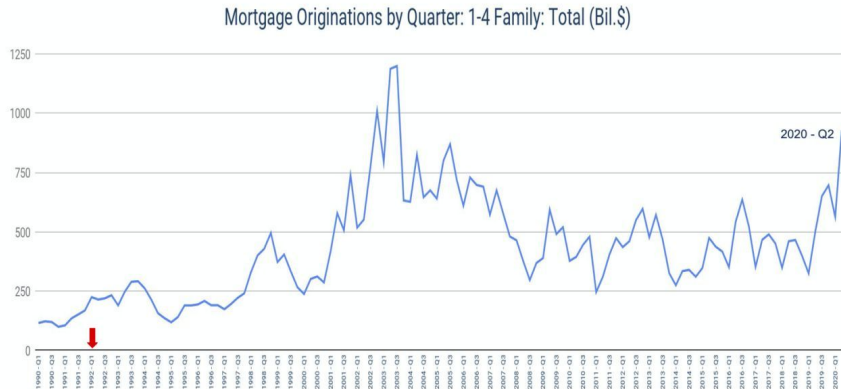# US Mortgage Market Research

Quarterly production of $1 trillion or more has been achieved only three times in the history of the industry.
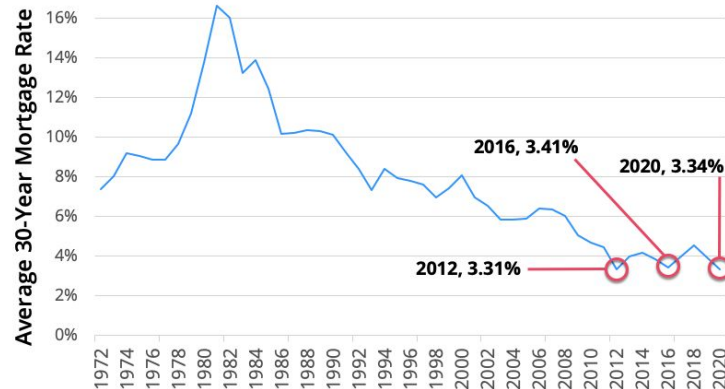It happened in 2002-Q4, 2003-Q2, and 2003-Q3.

❏ It has been 17 years since the industry has originated $1 trillion or more in a quarter
❏ $1.1 trillion USD in Q3 2020.

Mortgage rates hit their second-lowest in 48 years

❏ On Monday (February 24, 2020), the average 30-year mortgage rate clocked in at **3.34%**.

Mortgage Originations by Quarter: 1-4 Family: Total (Bil.$)

2020 - Q2

Source: MBA

Average 30-Year Mortgage Rate

2016, 3.41%
2020, 3.34%
2012, 3.31%

Historical Data: Freddie Mac. (c) TheMortgageReports.com

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MBA Key Housing Data (May 2021)

Figure 1.

	2019	2020	2021	2022	2023
GDP Growth	2.3%	-2.4%	7.0%	2.5%	1.7%
Inflation	1.8%	1.2%	2.9%	1.9%	2.1%
Unemployment	3.7%	8.1%	5.4%	4.4%	4.3%
Fed Funds	1.625%	0.125%	0.125%	0.125%	0.625%
10-year Treasury	1.8%	0.9%	2.0%	2.5%	3.1%
30-year Mortgage	3.7%	2.8%	3.5%	4.2%	4.9%
New home sales (000s)	685	813	916	1,007	1,094
Existing home sales (000s)	5,331	5,678	6,147	6,478	6,624
Purchase originations ($B)	1,225	1,433	1,656	1,740	1,775
Refi originations ($ B)	1,028	2,395	1,744	573	520
Total originations ($B)	2,253	3,828	3,400	2,313	2,295

Source: MBA Forecast

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US Mortgage Process Insights

US Mortgage: Why can't consumers close loans online?

Step 1
Shop Online

Step 2
Apply Online

Close Online

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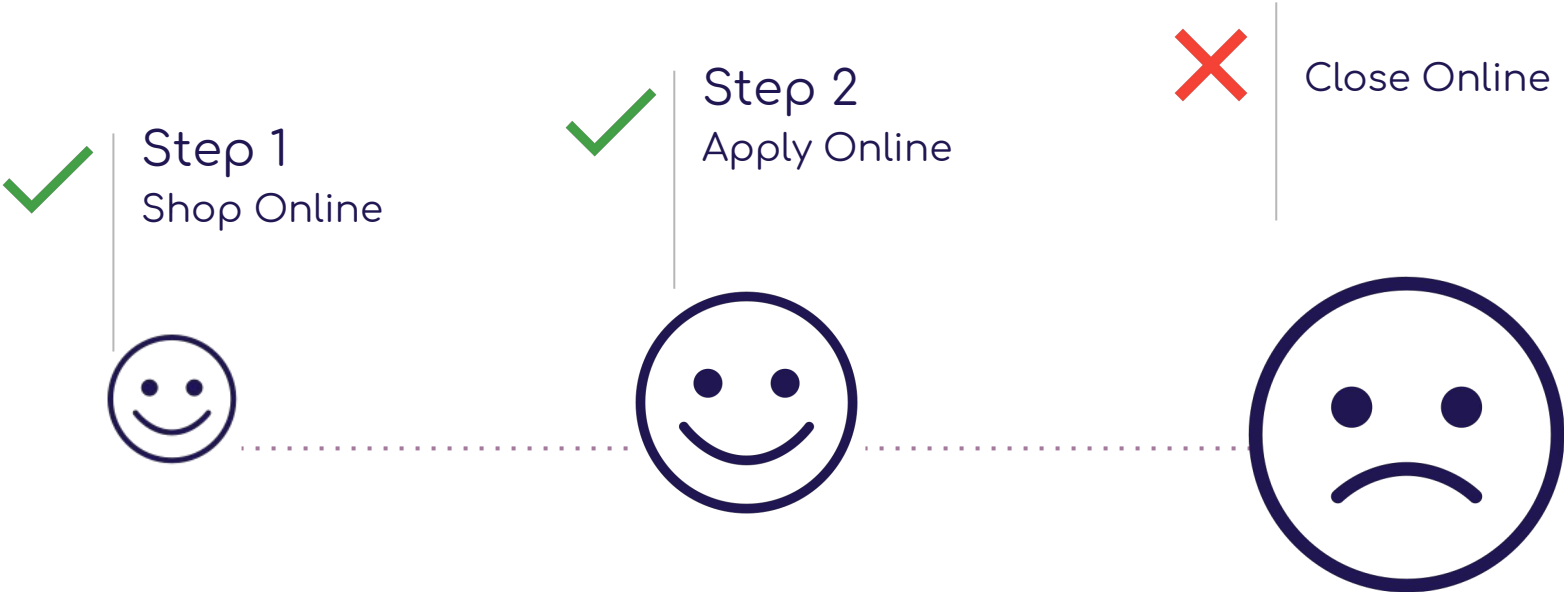
US Mortgage: Impact from manually signing loan documents

8,000,000 mortgage loans forecasted for 2020 [1]
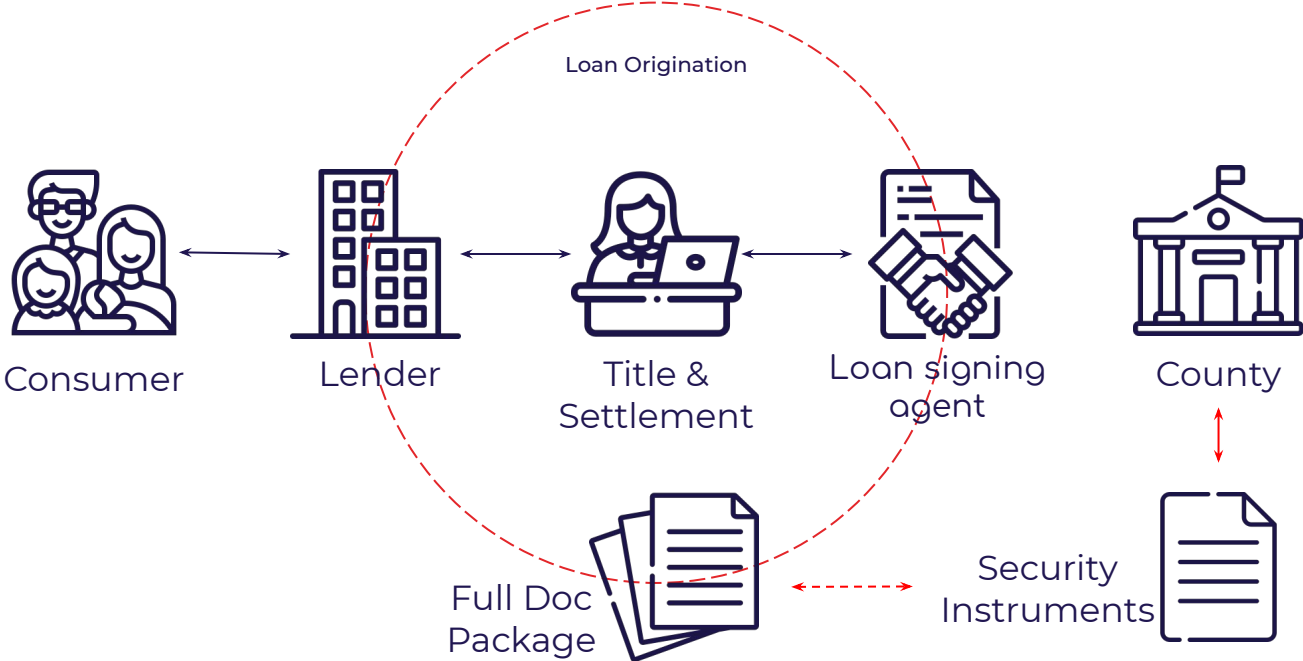
Printing Paper	Shipping Paper	Delays	Customer Experience

Based on MBA Mortgage Finance Forecast Feb 2020 $1.989T 1-4 Total Originations using $225K avg loan balance

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US Mortgage: Security Instruments and Recording Landscape

US Mortgage: Mortgage Value Chain

1 **Loan Application**

2 **Loan Processing**

3 **Underwriting**

4 **Approval & Closing**

5 **Loan Funding**

6 **Secondary Market sales**

7 **Loan Servicing**

Or Loan Origination Pre-approval

- ❏ Submit basic documentation to the Lender
- ❏ Pre-approval letter
- ❏ Order home appraisal & title search
- ❏ Obtain a Loan Estimate

2 (Loan Processing)
- ❏ Open Escrow account
- ❏ Verify property
- ❏ Conduct home appraisal
- ❏ Conduct Home inspection
- ❏ Pest inspection
- ❏ Title Search (hire an attorney)
- ❏ Insurance

3 (Underwriting)
- ❏ Verify documentation and borrower's
  - ❏ Credit score
  - ❏ Capacity
  - ❏ Collateral (property)
- ❏ Can approve conditionally or reject.
- ❏ "Clear to Close"

4 (Approval & Closing)
- ❏ Ensure all contingencies or conditions have been satisfied
- ❏ Review Closing Disclosure
- ❏ Final walk-through and closing meeting

5 (Loan Funding)
- ❏ Lender sends money to Escrow manager, who then performs settlement of closing costs and performs the disbursement.

6 (Secondary Market sales)
- ❏ Loans are sold to secondary markets as Pass Through or Collateralized Mortgage Obligations (CMO)s to Government Sponsored Enterprises (GSEs) or private investment banks.

7 (Loan Servicing)
- ❏ The borrower is serviced through the lifetime of the loan for monthly payments.
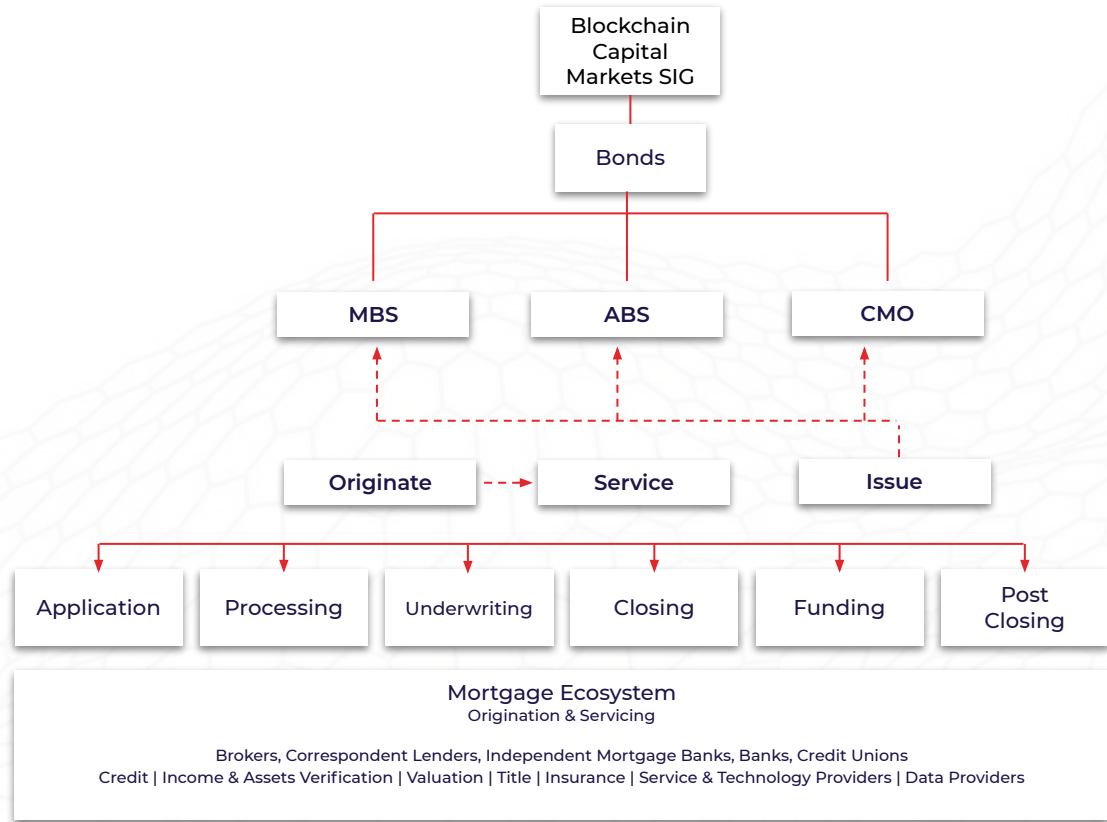- ❏ *Forbearance
- ❏ *Foreclosure

"Lock the Rate"

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"Blockchain applications use technology to replace the functions traditionally performed by institutions, such as **verifying identities**, making sure accounts are funded before transferring value and **attesting to the authenticity of an asset**, giving blockchain the potential to make business processes **more trustworthy, efficient and secure**."
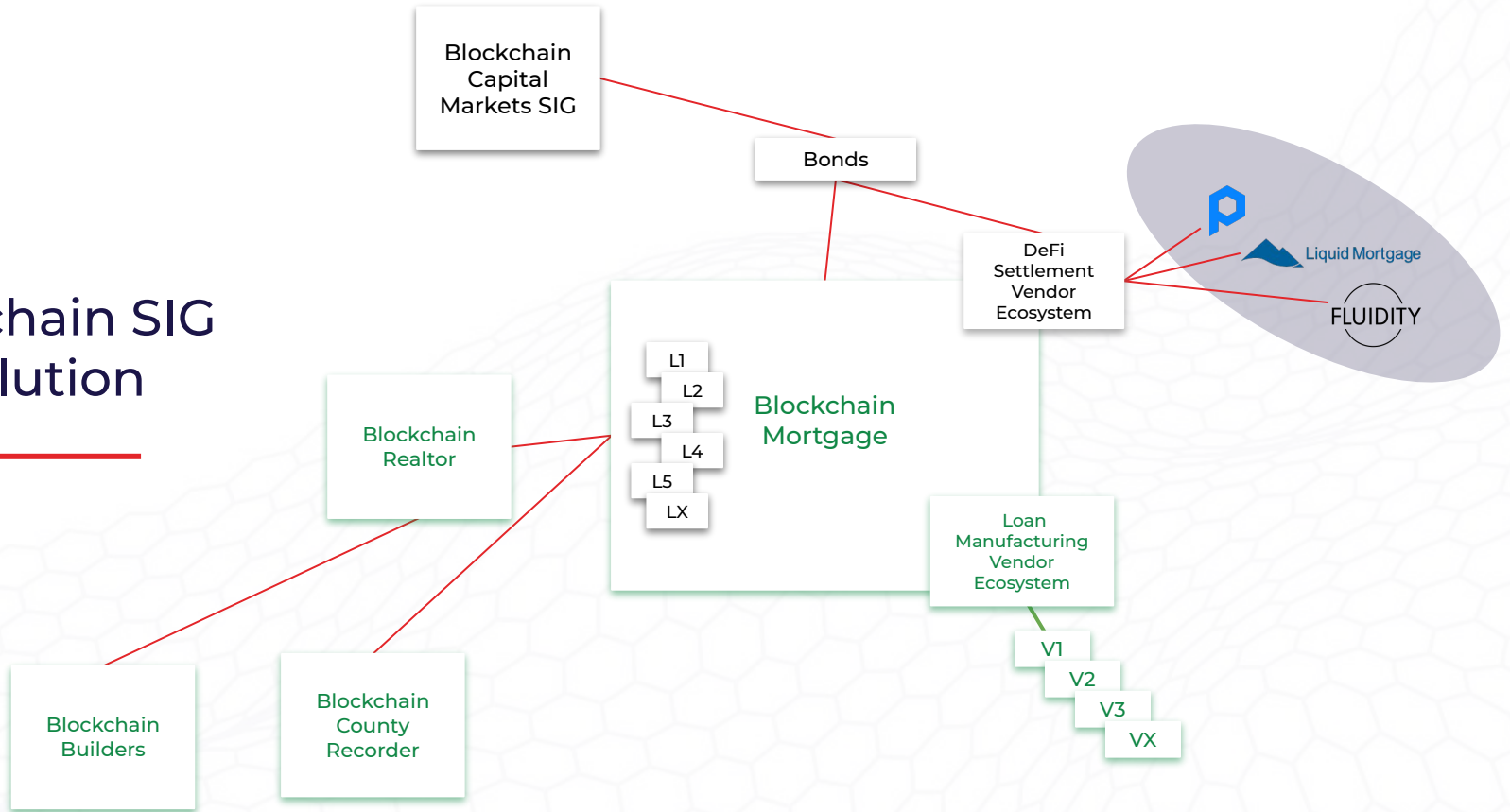
Dr. Mary C. Lacity
Director, Blockchain Center of Excellence and Professor of Information Systems, Sam M. Walton College of Business

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Capital Markets SIG relationship to Mortgage Origination & Servicing

Blockchain Capital Markets SIG
Bonds

MBS   ABS   CMO

Originate → Service   Issue

Application | Processing | Underwriting | Closing | Funding | Post Closing

Mortgage Ecosystem
Origination & Servicing

Brokers, Correspondent Lenders, Independent Mortgage Banks, Banks, Credit Unions
Credit | Income & Assets Verification | Valuation | Title | Insurance | Service & Technology Providers | Data Providers

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Blockchain SIG Evolution

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Benefits of Blockchain

Reduced servicing costs

- ❏ Between 2008 and 2013, the cost of servicing a performing residential mortgage increased 264%, a non performing loan increased 489%
- ❏ Easy access to better and more timely data and potential for greater automation
- ❏ Downstream participants can more easily follow a loan and/pool of loans from issuance through maturity

Faster and easier securitization

- ❏ For example, during securitization, a smart contract can identify those loans that meet a predetermined criteria.
  This would eliminate the double-pledging of collateral

Regulatory compliance becomes easier

- ❏ Transparency dramatically simplifies regulatory compliance

Source: https://www2.deloitte.com/us/en/insights/topics/understanding-blockchain-potential/global-blockchain-survey.html

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Smart Contract Benefits

Accuracy

Transparency

Security

Communication

Efficiency

Paper Free

Trust

Savings

Backup

Speed

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US Mortgage: Potential Blockchain Use Case

Simple.

Step 1:
Any loan, anytime, anywhere secure login

Secure.

Step 2:
Review and sign your loan documents online

Convenient.

Step 3:
Documents are recorded and delivered for investor delivery...

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