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The Value of Title Insurance

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Proponents of new technologies take the position that the current title and escrow process is antiquated. Specifically, they assert that new technologies have the potential to make real estate transactions less complicated and more convenient, while still reducing risk and lowering costs. The question is whether any of these new technologies have the capacity to replace title insurance or eliminate its value. This paper argues that title insurance is a backstop for the shortfalls of the legal systems that govern real property, and that as such, title insurance will remain vital for the inevitable disconnect between new technologies and the laws that control their use. The title insurance industry has consistently proven technological change is simply an opportunity to give better value to its stakeholders. To the extent new technology has value, established title insurance companies are best positioned to integrate it to meet the changing needs of stakeholders. ¹

I. FUNDAMENTALS OF TITLE INSURANCE

Insurance products are about transferring the risk of loss from the insured to an insurance company.² In exchange for assuming this risk, the insurer receives payment, known as a premium.³ The insurance policy delineates the circumstances under which the insurer would be required to indemnify the insured by defining a universe of covered risks to create the insurance and setting forth various exceptions and exclusions to the covered risks.⁴ For example, an automobile

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^{1.} DISCLAIMER: This paper discusses issues relating to title insurance as well as specific examples of claims and their resolution. While the paper relies on the knowledge and experiences of its authors, it is important to note that nothing herein should be relied on for purchasing title insurance or for guidance for how an individual claim might be resolved. Specifically, not all facts of the examples are provided, and broad generalizations may not apply to specific matters.

^{2. 43} Am. Jur. 2D *Insurance* § 1 (2019).

^{3.} See id.; see also see also Raulet v. Nw. Nat. Ins. Co. of Milwaukee, 157 Cal. 213, 224 (1910) (holding that policy contract is formed upon the unconditional delivery and acceptance of the policy with a promise to pay a premium).

^{4.} See Insurance, CORNELL L. SCH. LEGAL INFO. INST.,

insurance policy transfers the risk of damage to a vehicle from the vehicle's owner to the insurer. A covered risk under such a policy may include damage to the vehicle as a result of a collision and exclude against existing damage. As such, an insurance policy could be defined as a payment of a premium covering a specified policy period—in the case of an automobile insurance policy, a monthly payment of a premium covering damage occurring during that month.

Most forms of insurance involve the payment of a recurring premium to obtain continuing coverage, but title insurance operates differently in that one premium is paid at the time of purchase or encumbrance. The reason for this difference is that the risk of loss transferred to the insurer involves existing legal rights rather than future physical damage or loss. In other words, the title insurance policy's universe of covered risks includes defects in title that exist as of the date of the policy that may divest the record owner of title or affect certain aspects of ownership, such as a right of access to the land or the marketability of the title. Likewise, the policy generally excludes defects that first arise after the date of the policy. The retrospective nature of title insurance allows it to be purchased for a single policy premium and last as long as the insured retains their interest in the property.

https://www.law.cornell.edu/wex/insurance (last visited Mar. 15, 2019); *Understanding Your Insurance Policy*, NAT'L Ass'N OF INS. COMM'RS, https://www.scc.virginia.gov/boi/pubs/naic_und_plcy.pdf (last visited Mar. 15, 2019)

- 5. Auto Insurance Deductibles: How Do They Work?, VALUEPENGUIN, https://www.valuepenguin.com/auto-insurance-deductible (last visited Mar. 19, 2019).
- 6. Insurance Information Institute, Insurance Handbook 3 (2010); Commercial General Liability Insurance, Tex. Dep't of Ins., https://www.tdi.texas.gov/pubs/pc/pcgenliab.html (last updated Oct. 14, 2019).
- 7. See Interinsurance Exch. of the Auto. Club v. Super. Ct. of San Diego, 148 Cal. App. 4th 1218, 1230 (2007).
- 8. *Id.* ("It is commonly understood that a premium is the amount paid for certain insurance for a certain period of coverage."); *see also* Raulet v. Nw. Nat'l Ins. Co. of Milwaukee, 157 Cal. 213, 224 (1910); J. BUSHNELL NIELSEN, TITLE AND ESCROW CLAIMS GUIDE § 2.3.4 (2019).
- 9. See Title Insurance, NAT'L ASS'N OF INS. COMM'RS, https://www.naic.org/cipr_topics/topic_title_insurance.htm (last updated Sep. 19, 2019); see, for example, Homeowner's Policy of Title Insurance, AM. LAND TITLE ASS'N, https://www.alta.org/policy-forms/ (last visited Feb. 1, 2020) (stating that which Covered Risk 7 provides coverage in the event any of Covered Risks 1 through 6 occur post-policy).
- 10. See, e.g., Owner's Policy of Title Insurance, Schedule A, Am. LAND TITLE ASS'N., https://www.alta.org/policy-forms/

(last visited Feb. 1, 2020); see also Elysian Inv. Grp. v. Stewart Title Guar. Co., 105 Cal. App. 4th 315, 322 (Cal. Ct. App. 2002) ("Title insurance does not insure against future events.").

- 11. See Loan Policy of Title Insurance, Am. LAND TITLE ASS'N., https://www.alta.org/policy-forms/ (last visited Feb. 1, 2020) (showing that certain covered risks are not subject to the exclusion for post-policy matters, but still follow the concept of insuring defects that existed at the time of the policy. For example, Covered Risk 11 of the 2006 ALTA Loan Policy includes coverage for mechanic's liens that have been recorded post-policy if the work began prior to the policy or was funded by the insured loan).
- 12. ALTA Homeowner's Policy (2013), *supra* note 9 ("This Policy insures You forever, even after You no longer have Your Title.").

discussed in detail throughout this paper, the underwriting process behind the creation of a title insurance policy builds the value of title insurance for both the individual transaction and the broader real property market.¹³

In addition to insuring against the existence of actual title defects, the title insurance policy obligates the insurer to defend any litigation in which a covered title defect is merely alleged. The insurer's duty to defend litigation has been described as "a valuable service paid for by the insured and one of the principal benefits of the liability insurance policy." Generally, the duty to defend extends to allegations in a complaint that have the potential to invoke the policy's insuring provisions, even if a title defect alleged in a complaint has not invoked a present obligation of indemnification under the policy.

II. TITLE INSURANCE VALUE – AN ECONOMIC VIEW

With the fundamentals of title insurance established, it is important to understand the connections between the stakeholders in real estate transactions, and how the operational efficiency of established title insurance companies affects their interests.

A. Investment in Real Estate

1. Individual Ownership

Historically, home ownership is financially beneficial for most families because it reduces housing costs and creates a managed system to build wealth in the home's equity. Additionally, as rising real estate prices increase the accumulated equity, the amount between what is owed on the liens against the property and the property's value increases. This promotes stability by creating a resource for

^{13.} See generally Caroline Banton, Underwriting, INVESTOPEDIA, https://www.investopedia.com/terms/u/underwriting.asp (last updated May 13, 2019) (explaining that underwriting is the process by which the title insurance company researches documents that may affect the property's title and works with the parties to a transaction on eliminating identified exceptions).

^{14.} See ALTA Loan Policy, supra note 11 ("[T]he Company ... shall provide for the defense of an Insured in litigation in which any third party asserts a claim covered by this policy adverse to the Insured."). See, e.g., Buss v. Super. Ct. of L.A.., 939 P.2d 766, 783–84 (Cal. 1997) (explaining that some states require the insurer defend against an entire lawsuit if a portion involves a covered matter); see, e.g., GMAC Mortgage, LLC v. First American Title Insurance Co., 464 Mass. 733, 740–44 (Mass. 2013) (explaining that in many jurisdictions, the title insurer may also resolve its obligations to defend litigation pursuant to the other methods as described in the standard form policies).

^{15.} Woo v. Fireman's Fund Ins. Co., 164 P.3d 454, 459-60 (2007).

^{16.} Laurie S. Goodman & Christopher Mayer, *Homeownership and the American Dream*, 32 J. Econ. Perspectives 31. 32 (2018).

^{17.} Id at 32, 52-53.

individuals if they ever experience financial hardship. 18 Home equity is generally the largest component of an individual's net worth. 19 In 2015, the home ownership rate in the United State stood at 63.7%. 20

Home ownership also has risks.²¹ When an individual buys real property without title insurance, the individual acquires the property without protection against liens, encumbrances, covenants, and other risks that bind a subsequent purchaser.²² Because real property carries tremendous value, these risks can lead to a significant decrease in the value of property.²³ Furthermore, challenging a title issue can be extremely expensive—sometimes topping hundreds of thousands of dollars in litigation fees.²⁴ For example, a lawsuit resulting from an adverse possession claim, even for an inch-wide strip of property, can require expensive discovery in the form of surveys, depositions, and expert witnesses.²⁵ A survey alone can cost over \$10,000.²⁶

Making the situation worse is the fact that property owners are not equipped to handle the cost of defending their title.²⁷ According to the Federal Reserve Board, 40% of Americans cannot cover a \$400 emergency expense, let alone resolve a title defect.²⁸ In the worst scenarios, expensive title litigation can drain resources, which could lead to default on their mortgage and the loss of the home.²⁹ Additionally,

- 18. Id. at 32.
- 19. Id. at 50, 54.
- 20. Id. at 33.
- 21. *Id.* at 50–54 (discussing risks of homeownership including concentration of wealth in a single asset, decreased mobility, and volatility in home prices); *see also* Wenli Li & Fang Yang, *American Dream or American Obsession? The Economic Benefits and Costs of Homeownership*, Bus. Rev., Q3 2010, at 20, https://www.philadelphiafed.org/-/media/research-and-data/publications/business-review/2010/q3/brq310_benefits-and-costs-of-homeownership.pdf (noting that reduced mobility is an
- "economic cost associated with homeownership[.]").

 22. See Kimberly Palmer, Opting Out of Title Insurance, U.S. News & World Rep. (June 18, 2008, 10:54 AM), https://money.uspews.com/money/personal-finance/real-estate/articles/2008/06/18/opting-out-of-title-
- https://money.usnews.com/money/personal-finance/real-estate/articles/2008/06/18/opting-out-of-title-insurance (noting that even relatively new homes can carry risks of mechanic's liens or claims of previous landowners or heirs).
 - 23. Id.
- 24. See Paula Hannaford-Agor & Nicole L. Waters, Estimating the Cost of Civil Litigation, CT. STAT. PROJECTS, Jan. 2013, at 2, 6–7, https://www.srln.org/system/files/attachments/CSPH_online2.pdf (noting that the median cost of real property litigation was \$66,000 in 2013).
 - 25. *Ic*
- 26. How Much Does a Land Survey Cost?, HomeAdvisor, https://www.homeadvisor.com/cost/architects-and-engineers/hire-a-land-surveyor/ (last visited Mar. 19, 2019).
- 27. Anna Bahney, 40% of Americans can't cover a \$400 emergency expense, CNN MoNEY (May 22, 2018, 4:44 PM), https://money.cnn.com/2018/05/22/pf/emergency-expenses-household-finances/index.html.
 - 28. Id.
- 29. See ALTA Loan Policy, supra note 11. In the event of default on a lender's encumbrance, the lender recovers what they can from the property through a foreclosure and eventual sale of the property to a third

the diligence, experience, and resources of title insurance underwriters continue to lower overall claims, thereby ensuring that individuals can buy property with less risk. 30

2. Banks

Lenders currently own \$9.1 trillion in mortgage-backed loans.³¹ The five biggest banks represent about \$1.47 trillion of these assets.³² Lenders face significant risk in a failing real estate market, as individuals are less likely to pay on loans that exceed the value of their homes.³³ Moreover, should the lenders' main recourse be the value of the properties their interests encumber, they could face significant losses in the event of a rise in foreclosures.³⁴ Therefore, institutional lenders have a significant incentive to encourage the continued stability of the real estate market.³⁵

3. Government-Sponsored Enterprises

The Federal Home Loan Mortgage Corporation ("Freddie Mac") and Federal National Mortgage Association ("Fannie Mae") are government-sponsored entities ("GSEs") created to expand the secondary market for mortgages.³⁶ The secondary mortgage market is where loans and servicing rights are sold from the originating lenders to investors.³⁷ Secondary mortgage lenders may keep the loans and service them, or package the loans into mortgage-backed securities to sell to investors such as pension funds, insurance companies, and hedge funds.³⁸

party. Steven Wechsler, Through the Looking Glass: Foreclosure by Sale as De Facto Strict Foreclosure—An Empirical Study of Mortgage Foreclosure and Subsequent Resale, 70 CORNELL L. REV. 850, 852 (1985).

- 30. See infra Section IV, Part 4.
- 31. Quarterly Report on Household Debt and Credit, FED. RES. BANK OF N.Y. (Feb. 2019), https://www.newyorkfed.org/microeconomics/hhdc.html.
- 32. Trefis Team, A Breakdown of the Loan Portfolios of the Largest U.S. Banks, FORBES (June 27, 2018, 1:11 PM), https://www.forbes.com/sites/greatspeculations/2018/06/27/a-breakdown-of-the-loan-portfolios-of-the-largest-u-s-banks-2/.
- 33. Barry Nielsen, *Why Housing Market Bubbles Pop*, Investopedia, https://www.investopedia.com/articles/07/housing_bubble.asp (last updated Sep. 6, 2019).
- 34. Joseph William Singer, Foreclosure and the Failures of Formality, Or Subprime Mortgage Conundrums and How to Fix Them, at 14, https://law.loyno.edu/sites/law.loyno.edu/files/Singer-FFF.pdf (2013).
- 35. Team, supra note 32.
- 36. James H. Carr & Katrin B. Anacker, *The Past and Current Politics of Housing Finance and the Future of Fannie Mae, Freddie Mac, and Homeownership in the United States,* 33 BANKING & FIN. SERV. POL'Y REP. 1, 2–3 (2014).
- 37. Gregory E. Phillips, Everything You Need to Know about the Secondary Mortgage Market, SMARTASSET, https://smartasset.com/mortgage/everything-you-need-to-know-about-the-secondary-mortgage-market (last updated Apr. 26. 2019).
 - 38. Id.; see also Carr & Anacker, supra note 36, at 2.

The liquidity of that secondary market is dependent on the health of the real estate market.³⁹ If the real estate market fails, Freddie Mac and Fannie Mae are less likely to receive payment on the loans they buy, which reduces capital available to banks to make new loans.⁴⁰ If banks do not have the funds to make new loans, interest rates go up.⁴¹ When interest rates go up, fewer people want to buy homes, which depresses real estate prices.⁴² This vicious cycle is difficult to escape.⁴³ Freddie Mac and Fannie Mae understand this risk and place strict rules on the loans they are willing to buy, which includes a requirement that the loans are covered by a title insurance policy.⁴⁴

4. Government

The Federal Housing Administration (the "FHA") is a self-funded United States government agency and the largest mortgage insurer in the world, with an active insurance portfolio of over \$1.3 trillion. The FHA functions in the mortgage market as a specialized insurance company that guarantees the payment of mortgages made by private lenders. As part of its role, the FHA sets standards for underwriting an FHA-backed loan. The FHA's investment mostly comes in the form of government-backed loans made through private lenders.

- 39. Diana Olick, *Decade After Housing Crash, Fannie Mae and Freddie Mac are Uncle Sam's Cash Cows*, CNBC (Sep. 6, 2018, 4:20 PM), https://www.cnbc.com/2018/09/05/fannie-mae-freddie-mac-are-uncle-sams-cash-cows-a-decade-after-crash.html (discussing how real estate market has recovered and the GSE's are prospering as a result).
- 40. Jeff Andrews, 10 Years After the Financial Crisis, is the Housing Market Still at Risk?, CURBED (Aug. 29, 2018, 11:00 AM), https://www.curbed.com/2018/8/29/17788844/financial-crisis-2008-cause-housing-mortgage-lending; see Olick, supra note 39 (noting that after the housing market collapsed and approximate \$5 trillion in outstanding loan portfolios were in danger of default, Fannie Mae drew \$119.8 billion and Freddie Mac drew \$71.6 billion from the Treasury to survive).
- 41. Barbara Friedberg, When Do Interest Rates Hurt Real Estate Investing?, U.S. News & WORLD REP. (Aug. 1, 2018, 11:42 AM), https://money.usnews.com/investing/real-estate-investments/articles/2018-08-01/when-do-rising-interest-rates-hurt-the-residential-real-estate-market.
 - 42. Id.
 - 43. *Id*.
- 44. Terms of Coverage for B7-2-03: General Title Insurance Coverage, FANNIE MAE: SELLING GUIDE, https://www.fanniemae.com/content/guide/selling/b7/2/03.html (last visited Mar. 6, 2019); Single –Family Seller/Servicer Guide, FREDDIE MAC (Mar. 2, 2016), http://www.freddiemac.com/singlefamily/guide/bulletins/pdf/062916Guide.pdf.
- 45. Federal Housing Administration: Overview, U.S. DEP'T OF HOUS. AND URBAN DEV., https://www.hud.gov/federal_housing_administration (last visited Mar. 19, 2019).
- 46. *Id.*; see The Federal Housing Administration (FHA), U.S. DEP'T OF HOUS. AND URBAN DEV., https://www.hud.gov/program_offices/housing/fhahistory (last visited Mar. 19, 2019).
- 47. What is an FHA Loan? The Complete Consumer Guide, ZILLOW, https://www.zillow.com/mortgage-learning/fha-loan/ (last visited Mar. 19, 2019). See also The Federal Housing Administration (FHA), supra note 46.
 - 48. See The Federal Housing Administration (FHA), supra note 46.

programs provide support for buyers and homeowners who may be turned down for a traditional loan. ⁴⁹ This means that there is little equity for the FHA to rely on in the event of a foreclosure. ⁵⁰ If the FHA faced the burden of title risks on top of the lack of equity, the FHA's economics could fail. ⁵¹ Thus, even though the FHA is self-funded, it is highly leveraged, and its stability depends on the stability and growth of the real estate market. ⁵²

When the FHA runs out of money, it can only turn to a federal government bailout, which uses taxpayer dollars to save the agency from collapse.⁵³ The mechanics behind asking the government for money are challenging and the FHA has a strong interest in refraining from doing so.⁵⁴ The FHA requires title insurance for any FHA-backed loan to satisfy its desire to sustain its institutional longevity.⁵⁵

More generally, the government has an interest in economic stability and economic growth. Fe Real property has historically been one of the largest contributors to the nation's GDP. Therefore, a strong housing market is an indication of a strong economy. Title insurance plays a key role in supporting this critical market.

- 50. Id.
- 51. la

^{49.} See What is an FHA Loan? – The Complete Consumer Guide, ZILLOW, https://www.zillow.com/mortgage-learning/fha-loan/ (last visited Mar. 19, 2019) (noting that the FHA program was created, in part, to make "loans accessible and affordable for people with less than stellar credit ...").

^{52.} See Roberto G. Quercia & Kevin A. Park, The Public Purpose of FHA, 15 CITYSCAPE: J. OF POL'Y DEV. & RES., no. 3, 277, 280–82 (2013) (noting the effects of the housing market collapse on the FHA); see also id. at 278 ("FHA is currently reprising its Great Depression role with an elevated market share symptomatic of the weakness in the private conventional mortgage market.").

^{53.} See id. at 279 ("On September 30, 2013, FHA was required to draw \$1.7 billion from the U.S. Treasury to cover losses on its forward loan and HECM portfolios. FHA needed appropriations to cover its insurance activities for the first time in is history.") (citation omitted).

^{54.} Jim Puzzanghera, *FHA to get \$1.7 billion in its first taxpayer-funded bailout*, L.A. TIMES (Sep. 28, 2013, 12:00 AM), https://www.latimes.com/business/la-xpm-2013-sep-28-la-fi-0928-fha-bailout-20130928-story.html.

^{55.} FHA Requirements, FHA.com, https://www.fha.com/fha_requirements_checklist (last visited Mar. 19, 2019).

^{56.} See Kimberly Amadeo, How Does the U.S. Economy Work?, THE BALANCE (Apr. 24, 2018), https://www.thebalance.com/us-economy-4073968 (noting that the U.S. government uses many tools of fiscal policy to encourage economic stability and growth, including the federal budget and trade policy).

^{57.} See Housing's Contribution to Gross Domestic Product, NAT'L ASS'N OF HOME BUILDERS, https://www.nahb.org/en/research/housing-economics/housings-economic-impact/housings-contribution-to-gross-domestic-product-gdp.aspx (last visited Mar. 19, 2019) (explaining that housing's "contribution to GPD generally averages 15-18% ...").

^{58.} *Id.*

^{59.} See generally infra, Section II, Part 2.

B. Margins

The title insurance market exists to meet a demand for a low, fixed cost against potential title defects. The one-time payment for a policy reduces the risk of incurring a loss that exceeds the value created from the land transaction. Additionally, the loan policy has value for the lender because it transfers the costs of handling title defects to an entity that specializes in title insurance. Very 20% of premiums paid to title insurance underwriters are spent on loss and expenses. So Losses are monies paid out under the policy as resolution of a title defect, such as an actual monetary loss paid directly to an insured, while expenses include attorneys' fees and costs and other overhead.

As explained in more detail below, laws affecting the transfer of real property differ between states and even between individual counties within a state.⁶⁵ The knowledge built internally and through established title insurance companies' network of agents represents billions of dollars in intrinsic value, which would cost individual lenders at least as much to duplicate.⁶⁶ This knowledge allows transactions to progress faster and more accurately, reducing delays and allowing lenders to cycle available capital faster, which generates millions, if not billions of dollars in time capital.⁶⁷

Given these margins, it makes sense that the government and GSEs would not want to consolidate the risk of operating a title insurance company with the risk of

^{60.} See generally James P. McAndrews, History of Title Insurance and ALTA Forms, A.B.A. (June 28, 2017), https://www.americanbar.org/groups/gpsolo/publications/gpsolo_ereport/2012/march_2012/title_insurance_alta_forms/

^{61.} Denny Ceizyk, Cost of Title Insurance, VALUEPENGUIN, https://www.valuepenguin.com/title-insurance/average-cost-of-title-insurance (last visited Mar. 19, 2019) (showing that title insurance cost averages at or less than 1% of the mortgage amount or property value); JOYCE PALOMAR, TITLE INSURANCE LAW § 1:15 (2018); BARLOW BURKE, LAW OF TITLE INSURANCE § 2.01 (3d ed. 2019).

^{62.} See generally ALTA Owner's Policy, supra note 10; ALTA Loan Policy, supra note 11.

^{63.} ALAMO TITLE INSURANCE, ANNUAL STATEMENT FOR THE YEAR ENDED DECEMBER 31, 2018 4 (2019) (showing an expense ratio of 94%); COMMONWEALTH LAND TITLE INSURANCE CO., ANNUAL STATEMENT FOR THE YEAR ENDED DECEMBER 31, 2018 4 (2019) (showing an expense ratio of 93%); CHICAGO TITLE INSURANCE CO., ANNUAL STATEMENT FOR THE YEAR ENDED DECEMBER 31, 2018 4 (2019) (showing an expense ratio of 91%); FIDELITY NATIONAL TITLE INSURANCE CO., ANNUAL STATEMENT FOR THE YEAR ENDED DECEMBER 31, 2018 4 (2019) (showing an expense ratio of 93%); NATIONAL TITLE INSURANCE OF NEW YORK, INC., ANNUAL STATEMENT FOR THE YEAR ENDED DECEMBER 31, 2018 4 (2019) (showing an expense ratio of 92%).

^{64.} See generally NIELSEN, supra note 8.

^{65.} See infra notes 143–147 and accompanying text.

^{66.} Bushnell Nielson, Real Estate Closing, Title Examination and Title Insurance Policy Procedures and Customs in the United States by Region, REINHARDT (Aug. 8, 2018), https://www.reinhartlaw.com/knowledge/real-estate-closing-title-examination-and-title-insurance-policy-procedures-and-customs-in-the-united-states-by-region/.

^{67.} See Olick, supra note 39.

loan repayment.⁶⁸ The government's choices greatly affect the private sector, as real property is mainly bought and sold using loans from banks that either use money from the federal government or are insured by the federal government.⁶⁹ Moreover, one reason title insurance is required is because it provides these entities protection that their investment was vetted and that the property is protected against unknown risk.⁷⁰ Thus, the requirement of title insurance from an established title insurance company provides ongoing confidence to the stakeholders in light of the uncertainties and risks involved in self-insurance and the likely increase in cost that would result.⁷¹

C. Efficient Allocation of Expenses and Losses

In most cases, the insurer has the option under the title insurance policy to pay the insured for their loss without taking remedial measures to fix the issue.⁷² However, because title insurance companies are businesses, they make the economic choice to incur expenses to cure a title issue rather than simply paying a loss. Without pursuing resolution in certain cases, losses would far exceed the expenses that would be spent under the policy. For example, if a prior lender claimed to have an outstanding balance of \$50,000 on their lien, and a title insurance company simply paid the balance, then the loss on the file would be \$50,000.⁷³ However, suppose the statute of limitations had run on that prior lien, rendering it invalid, and hiring an attorney to clear it would only cost \$5,000. In this scenario, the savings to the title insurance company would be \$45,000 (\$50,000-\$5,000).⁷⁴ The savings from this kind of cost-effective resolution by title companies is passed on to the stakeholders in the form of reasonable and stable premium amounts, which are of vital importance to those stakeholders.⁷⁵

III. CURATIVE FREE AND PURE RISK ASSUMPTION OFFERINGS

The stakeholders in real property transactions should be highly motivated to work with established title insurance companies because of the technologies deployed in

- 68. Id
- 69. See supra Section II, Part 1.
- 70. Id.
- 71. *Id*.
- 72. ALTA Loan Policy, ALTA, https://www.alta.org/policy-forms/ (last visited Feb. 1, 2020) ("In case of a claim under this policy, the Company shall have the following additional options...[t]o pay or tender payment of the Amount of Insurance under this policy." When the Company exercises that option, "all liability and obligations of the Company to the Insured under this policy... shall terminate including any liability or obligation to defend, prosecute, or continue any litigation.").
- 73. This example, although simplistic, is illustrative of the type of decisions that claims attorneys regularly make about the path to resolution under the policy.
 - 74. Id
 - 75. See supra Section II, Part 1.

conjunction with their expertise.⁷⁶ However, some start-ups have begun offering discounted escrow services that are advertised as "curative-free" and relatively instantaneous.⁷⁷ These offerings advertise technology itself as a form of *deus ex machina*, whereby risk is reduced to a number and can simply be assumed without further effort.⁷⁸ This proposal is a risk assumption system of insurance which is relied on more heavily in other lines of insurance.⁷⁹ To support the contention that curative-free title insurance is a misnomer and that pure risk assumption is potentially catastrophic to the real estate economy and its stakeholders, this section first explains risk elimination, risk assumption, and the problems with an alleged curative-fee or pure risk assumption model, and concludes by explaining the many barriers that these new entrants face to establish a successful title insurer.

A. Risk Elimination Versus Risk Assumption

1. Risk Assumption

The business model of insurance generally involves assuming and spreading risk among a pool of insureds. State regulations require insurers to set aside a pool of funds, known as reserves, to ensure that the insurer is financially capable of paying claims, and some states even establish accounts funded by taxes on insurance premiums to guaranty payment of claims in the event of insolvency of an insurer. Loss for an individual is also mitigated by spreading the risk among many policyholders, setting premium amounts based on claim history and actuarial tables, and incentivizing risk-reducing behavior. States of the set as a pool of funds, which is a pool of fund

^{76.} la

^{77.} See Title Insurance (C) Task Force, Minutes of the 2017 Fall National Meeting, Nat'L Ass'N OF INS. COMM'RS (Dec. 7, 2017), https://www.naic.org/prod_serv/PRC-ZS-17-03_Combined.pdf.

^{78.} Blockchain: Enabler for Title Insurance; Not a Replacement, A.M. BEST (Apr. 5, 2019), http://www3.ambest.com/bestweekpdfs/sr774997519211gfull.pdf (last visited Feb. 14, 2020).

^{79.} Interinsurance Exch. of the Auto. Club v. Super. Ct. of San Diego, 56 Cal. Rptr. 3d 421, 433 (2007).

^{80.} U.S. v. South-Eastern Underwriters Ass'n, 322 U.S. 533 (1944); McCarran-Ferguson Act, 15 U.S.C. § 1012(b) (2012); Group Life & Health Insurance Co. v. Royal Drug Co., 440 U.S. 205, 211 (1979); Union Labor Life Insurance Co. v. Pireno, 458 U.S. 119, 120 (1982).

^{81.} See, e.g., CAL. INS. CODE §§ 923.5, 11556 (2019); FLA. STAT. §§ 625.051-111 (2019); N.Y. INS. LAW § 4117 (2019); TEX. INS. CODE § 421.001 (2019); see also New Jersey Property-Liability Insurance Guaranty Association, http://www.njguaranty.org/Funds/pliga.aspx (last visited Mar. 18, 2019); New Jersey Surplus Lines Insurance Guaranty Fund, http://www.njguaranty.org/Funds/sligf.aspx (last visited Mar. 18, 2019).

^{82.} See Cyprian Ondieki Omari et al., Modeling the Frequency and Severity of Auto Insurance Claims Using Statistical Distributions, 8 J. of Mathematical Fin. 137 (2018).

2. Risk Reduction and Risk Elimination

Courts distinguish between spreading assumed risk and risk reduction.⁸³ When an insurer takes action to reduce the likelihood of having to make a payment under a policy, it is known as risk reduction.⁸⁴ For example, an automobile insurance company may incentivize safer driving behavior by adjusting premiums based on the presence of safety features like airbags.⁸⁵ A health insurer may offer premium discounts for people who get blood tested during the policy period.⁸⁶ The goal for these insurers is to reduce the likelihood of an unknowable future event arising under those respective policies.⁸⁷

Title insurance is different from most other lines of insurance in that its core purpose has not been to insure against unknowable future occurrences, but rather knowable existing legal rights. Because the title insurance policy insures the title to land, and defects in title exist in full or not at all, title insurers can eliminate a risk by identifying it and resolving it at closing. This can be through agreements between the parties, obtaining additional assurances, or listing the risk as an exception. Because the surface of the surface

As a result of their extensive knowledge of local land and title law, established title insurers know what they must do to eliminate risk.⁹¹ Resolution may range from paying taxes during a transaction to drafting an easement benefiting a property.⁹² The process of eliminating risks begins with the preliminary report and

^{83.} See Ticor Title Ins. Co. v. F.T.C., 998 F.2d 1129, 1134-1135 (1993) (distinguishing between the risk reducing nature of title search and examination and the risk-spreading nature of title insurance underwriting).

^{84.} See Royal Drug, 440 U.S. at 214–215.

^{85.} See Annmarie Geddes Baribeau, The New Cycle of Pricing Personal Auto, ACTUARIAL REV. (July 1, 2016) https://ar.casact.org/the-new-cycle-of-pricing-personal-auto/; see also Thomas Gage et al., The Increasing Importance of Vehicle-Based Risk Assessment for the Vehicle Insurance Industry, 16 MINN. J. L., Sci. & Tech. 771, 775-76, 784-85 (2015).

^{86.} Associated Press, Chance for Cheaper Employee Health Insurance if Workers Submit to Blood Test, Health Questions, N.Y. Daily News (Oct. 30, 2011), https://www.nydailynews.com/life-style/health/chance-cheaper-employee-health-insurance-workers-submit-blood-test-health-questions-article-1.969281.

^{87.} Interinsurance Exch. of the Auto. Club v. Super. Ct. of San Diego, 56 Cal. Rptr. 3d 421, 433 (2007).

^{88.} PALOMAR, supra note 61.

^{89.} *Title Insurance:* A Comprehensive Overview, AM. LAND TITLE ASS'N, https://www.alta.org/press/TitleInsuranceOverview.pdf (last visited Mar. 18, 2019) [hereinafter Comprehensive Overview] (noting that searching the public records provides a basis for title insurance for mortgages, judgments, assessments, and numerous other matters, and that only a title search has the capability of uncovering serious problems with title).

^{90.} Id.

^{91.} See Jordan Lulich, What Is Title Insurance and Why Is It Important?, FORBES (June 21, 2018, 10:36 AM), https://www.forbes.com/sites/jordanlulich/2018/06/21/what-is-title-insurance-and-why-its-important/.

^{92.} See infra TABLE 1.

may continue long after the transaction has closed.⁹³ For example, occasionally a property will be subject to a risk that an underwriter agrees to insure over with the understanding that the risk will be actively resolved after closing.⁹⁴ This allows the purchaser and lender to complete the transaction on time and under the intended loan terms, while also confirming that the known risk is eliminated for future transactions.⁹⁵

3. Established Title Insurance Companies Still Assume Risk

Established title insurance companies still assume risk because not all risks can be eliminated. Risks that are assumed are typically the more serious and difficult title issues (such as fraud and property transferred by operation of law), but also included are those that cannot be eliminated without extraordinary effort and expense. For example, it is prohibitively expensive to pull documents from every public office relating to a particular property, such as local public works and building departments that are not subject to the same recordkeeping requirements as the public records office. Nonetheless, these documents may support a claim to title to the property even though they are not discoverable under state recordkeeping laws.

B. Problems with a Curative-Free and Pure Risk Assumption Approach

While a transaction may involve no curative work, it is highly unlikely the lack of curative work indicates a lack of defects. For instance, it is common for properties to have covenants, conditions, and restrictions recorded against the property or a recorded easement for utility providers. Offerings that assert a

^{93.} Commercial Escrow Settlement – Information Gathering, Fidelity NAT'L TITLE INS. Co., https://www.fntic.com/commercialescrow.aspx#info (last visited Mar. 19, 2019) (stating that "[i]nsuring over" is a term of art in the insurance world indicating that an insurance company has approved providing affirmative insurance for a known risk).

^{94.} Affirmative Title Insurance, WESTLAW, https://us.practicallaw.thomsonreuters.com/4-508-6001 (last visited Mar. 18, 2019).

^{95.} See supra notes 93-94.

^{96.} See infra TABLE 1.

^{97.} See Burke, supra note 61, § 2.01[B].

^{98.} Id.

^{99.} Second Amended Complaint, McElroy v. McBarnet, No. 17-1-0423(2) (Haw. Cir. July 10, 2018).

^{100.} The form of the title insurance policy itself, by including standard exclusions and exceptions, presupposes the existence of such defects. See Nielsen, supra note 8, § 11, 12 (discussing exclusions, which may involve matters that affect title but do not invoke insurance protection, and exceptions, which fall "within the scope of the covered risks but are removed from coverage.").

^{101.} In recognition of these risks, ALTA has promulgated endorsements that can be appended to the Policy to provide coverage for covenants, conditions, and restrictions. See, e.g., AM. LAND TITLE ASS'N, ENDORSEMENT 9.2-

quick and curative-free closing either senselessly take on the risk of these defects or improperly assume that buyers are willing to purchase, and lenders are willing to loan against, properties subject to serious defects. Thus, a curative-free approach as a business model for title insurance promotes short-term savings over long-term profitability. 103

Additionally, curative-free closings should greatly concern stakeholders to real property transactions. Stakeholders want title insurance at a consistently low price and need properties to rely on as security. By eliminating smaller risks, title insurers are able to focus considerable reserves on resolving more difficult issues. A pure risk-assumption model fails to eliminate such risks, and would likely result in rapid increases in premiums year-over-year as titles become riskier to insure over time. Additionally, the macroeconomic benefits that result from maintaining insurable titles and reducing risk for the stakeholders would be eliminated, including a rich secondary market for loans, low interest rates, and stakeholder confidence. Failure to eliminate risk could be devastating to the long-term stability of a title insurance company and the entire real estate industry as a whole.

C. Barriers to Entry for New Title Insurers, Pure Risk Assumers

New entrants to the title and escrow market face an uphill climb to reach the value proposition achieved by established title insurance companies. These barriers to

06 RESTRICTIONS, ENCROACHMENTS, MINERALS – OWNER'S POLICY – IMPROVED LAND, Westlaw (database updated Aug. 2019).

- 103. If title companies were not fixing issues discovered in the closing process, these errors would go unresolved. See Comprehensive Overview, supra note 89, at 2; Gadow, supra note 102.
- 104. See *supra* Section II for a discussion of the importance of a stable real property market to the stakeholders.
- 105. This need of stakeholders has been at the forefront of the development and expansion of title insurance since its inception. Section II, Part 2, discusses in depth the value provided by title insurance to those stakeholders.
- 106. See generally NIELSEN, supra note 8, § 9.1.
- 107. lc
- 108. See supra Section II, Part 2.

^{102.} See Comprehensive Overview, supra note 89, at 2 (noting that title companies find and fix problems in 25 percent of transactions); see also Sandy Gadow, These Common Title Problems Can Snag Your Home Closing, Wash. Post (June 20, 2016, 9:00 AM), https://www.washingtonpost.com/news/where-we-live/wp/2016/06/20/these-common-title-problems-can-snag-your-home-closing/ ("Title companies report that in more than one-third of all real estate transactions they must undertake 'extraordinary work' to address title issues."); Inman News, Title Problems Found in 35% of Residential Real Estate Deals, AM. LAND. TITLE ASs'N (Apr. 14, 2006), https://www.alta.org/news/news.cfm?20060414-Title-problems-found-in-35-of-residential-real-estate-deals (explaining that when the real estate market is on the rise, more transactions results in the discovery of more title issues).

entry include: (1) title plants;¹⁰⁹ (2) a strong knowledge of local laws;¹¹⁰ (3) a history of trusted service to stakeholders;¹¹¹ (4) challenging margins and high capital reserve requirements;¹¹² and (5) slow adoption rates of technology by the government.¹¹³

1. Title Plants

Generally, title plants duplicate public records for real property, adding information and additional cross-references that are not tracked by public record keepers. ¹¹⁴ In many cases, title companies implement technology at the title plants to make searches of the title plant's records far more comprehensive. ¹¹⁵ This makes title plants the primary source used by title insurance companies and their agents in the process of producing commitments. ¹¹⁶ Creating and maintaining a title plant is a highly capital-intensive requirement. ¹¹⁷ Ten states have statutory title plant requirements. ¹¹⁸ Additionally, other states have marketable title statutes, which require a title company to review title knowledge going back a certain amount of years before producing a policy showing marketable title. ¹¹⁹ For generations, established title insurance companies have been adding information to their title plants, organizing the legal documents in a manner optimized for searching, and identifying legal risks that would be impossible for new entrants to know and account for properly. ¹²⁰

- 109. Martin Boyer & Charles M. Nyce, *Market Growth and Barriers to Entry: Evidence from the Title Insurance Industry*, 78 Ins. & RISK MGMT. 283, 287–88 (2010).
- 110. See infra Section IV, Part 2.
- 111. See Boyer & Nyce, supra note 109, at 286–87.
- 112. Id. at 286.
- 113. See infra Section IV, Part 2.D.
- 114. Boyer & Nyce, supra note 109, at 287–88.
- 115. Id. at 288.
- 116. Id. at 287.
- 117. Id. at 286.
- 118. ALASKA STAT. ANN. § 21.66.200 (West 2019); ARIZ. REV. STAT. ANN. § 20-1562 (2020); IDAHO CODE ANN. § 41-2702 (West 2019) (stating that if a title insurer does not own and maintain tract indexes or abstract records, it must have its title insurance policies countersigned by a person or entity who does own or maintain tract indexes or abstract records); N.M. STAT. ANN. § 59A-12-13 (West 2019); N.D. CENT. CODE ANN. § 26.1-20-05 (West 2020); OKLA. STAT. tit. 36, § 5001 (2019); OR. REV. STAT. ANN. § 731.438 (West 2018); TEX. INS. CODE ANN. art. § 2501.003(13) (West 2019); WASH. REV. CODE ANN. § 48.29.020 (West 2020); Wyo. STAT. ANN. § 33-2-101 (West 2019).
- 119. Jay M. Zitter, Annotation, *Construction and Effect of "Marketable Record Title" Statutes*, 31 A.L.R. 4th 11 (1984).
- 120. See Boyer & Nyce, supra note 109, at 287–88.

2. Expertise

What is even more capital-intensive than establishing a title plant, is the human capital required to run a title insurance company and resolve title insurance claims. Title insurance companies have a network of attorneys and title professionals that are experts in local title law. Between the major title insurance companies, there are over 50,000 trained title and escrow experts. Major title insurance companies have in-house litigation departments that focus exclusively on litigating real property title issues, saving thousands in attorneys' fees. Escrow professionals are trained to ensure that title defects are dealt with in accordance with the escrow instructions, while title experts are skilled at identifying knowable risks and providing guidance on how to cure them when found. New entrants considering skipping this process place endless risk on the stakeholders. Therefore, building and maintaining this base of human capital presents a significant roadblock for new entrants entering the market.

3. Historical Experience

Furthermore, a new entrant reliant on a computerized review of title records will take on risks that have already been identified by established title insurance companies or which would be flagged through established underwriting procedures. For instance, if a fraudster had been recording forged encumbrances in Oklahoma, and the title insurance company had already paid prior claims and set procedures to identify those forged instruments in the underwriting process, risk of those claims would be mitigated by underwriting procedures. Thus, after

- 121. See infra note 123.
- 122. See PALOMAR, supra note 61, §§ 2:2-2:3.
- 123. Occupational Employment and Wages Estimates for Title Examiners, Abstractors, and Searchers, Bureau of Labor Statistics, https://www.bls.gov/oes/current/oes_nat.htm (last visited Mar. 26, 2019) (noting that as of May 2018, approximately 52,180 individuals work as title examiners, abstractors, and searchers); Fidelity National Financial, Fortune, http://fortune.com/fortune500/fidelity-national-financial/ (last visited Mar. 26, 2019) (23,436 employees); First American Financial, Fortune, http://fortune.com/fortune500/first-american-financial/ (last visited Mar. 26, 2019) (18,251 employees); Old Republic International, Fortune, http://fortune.com/fortune500/old-republic-international/ (last visited Mar. 26, 2019) (9,000 employees); Stewart Information Services, Fortune, http://fortune.com/fortune500/stewart-information-services (last visited Mar. 26, 2019) (5,960 employees).
- 124. For example, Fidelity National Law Group serves as in-house litigation counsel for Fidelity National Financial.
- 125. Burke, supra note 61, § 13:03(A) (discussing duties of escrow agent).
- 126. See infra Section III (discussing risks of a proposed curative-free approach).
- 127. John McGee & Stephanos Avgeropoulos, *Barriers to Entry and Exit, in* 12 WILEY ENCYCLOPEDIA OF MGMT. 1 (John McGee et al. eds., 2015).
- 128. See infra Section IV, Part 2.
- 129. See generally NIELSEN, supra note 8, § 9.1.

hundreds of years of identifying issues and establishing ways to mitigate risk, established title insurance companies are working at a risk profile far below what any new entrant could match.¹³⁰ As internal computers are updated to reflect such risks, a title insurance commitment created by an established title insurance company becomes significantly more trustworthy than a new entrant's commitment.¹³¹ Thus, a new entrants into the market would face the risks posed by lack of experience, even if they possess the technology to review title records.¹³²

4. Finances

Title insurance is a capital-intensive business with statutory reserve requirements and variations in losses and expenses from year to year.¹³³ This is caused by changing real estate market patterns, added coverage for stakeholders, and other factors.¹³⁴ In order to capture business from the majority of stakeholders, new entrants into the market have to meet these requirements while simultaneously trying to build market share.¹³⁵ This is hard enough without also attempting to create a new business model for title insurance, such as the curative-free approach discussed above.¹³⁶ For example, certain companies use reinsurance as protection for their insureds in case their technology does not perform as expected.¹³⁷ However, even with reinsurance, a title insurance company that does not mitigate risk prior to insuring could face insolvency.¹³⁸ This is because reinsurance premiums could become too expensive after a high-loss year, and without the reinsurance, the business may no longer be able to operate.¹³⁹ Hence, reliance on reinsurance only works if risk mitigation is accurately implemented.¹⁴⁰ On the other hand, established title insurance companies can test new technologies to speed up the

- 130. Id. § 9.1.3.4.
- 131. See supra Section III, Part 3, Subsection 3.B.
- 132. See supra Section III, Part 3B, C.
- 133. See generally Boyer & Nyce, supra note 109 (discussing market barriers faced by title insurance companies).
- 134. Id.
- 135. *Id*
- 136. Id
- 137. See, e.g., Title Insurers Form Reinsurance Alliance with Lloyd's of London, AM. LAND TITLE ASS'N (Jan. 19, 2012), https://www.alta.org/news/news.cfm?20120619-Title-Insurers-Form-Reinsurance-Alliance-with-Lloyds-of-London (listing title insurers who participate in the American Title Reinsurance Alliance). Note, however, that established title insurance companies generally mitigate the risk of having to use their reinsurance with sound underwriting practices.
- 138. See Insuring the Health Insures Reinsurance Explained, NCSL (May 7, 2018), https://www.ncsl.org/blog/2018/05/07/insuring-the-health-insurers-reinsurance-explained.aspx.
- 139. Insurance is a valuable tool to protect shareholders from excessive risk. Governments also have reserve and reinsurance requirements.
- 140. See Insuring the Health Insures Reinsurance Explained, NCSL (May 7, 2018), https://www.ncsl.org/blog/2018/05/07/insuring-the-health-insurers-reinsurance-explained.aspx.

title insurance process because their business model is not based on reinsurance.¹⁴¹ Less established companies betting their entire business model on untested technology do not have that luxury.¹⁴²

5. Technology Adoption by Government

If new entrants to the title insurance market are relying on technology adoption to change the fundamentals of their business, it is likely that they will be waiting a long time. The nation's recording system is based on state law, but is implemented on a county-by-county basis. Many if not most counties do not have the financial ability to improve their property records with technology. This is illustrated by the multitude of jurisdictions without online property records or electronic recording. Moreover, to the extent technology eliminates the need for government employees that currently manage the recorder's offices, local governments would be hard-pressed to resolve the displacement of those employees.

For example, in Hawaii a critical part of a 2018 court case involved whether the creation of a certificate number, without the issuance of a physical certificate, was sufficient under the Hawaiian Torrens system. Due to Hawaii being four years behind on issuing certificates of title, the defendant owner asserted that a foreclosure could not be reflected on a certificate and a certificate number would need to suffice to promote the finality of foreclosures based on the reality of the state's massive backlog. Hawaii had the financial flexibility to implement a new

^{141.} See Am. Land Title Ass'n, 2016 Title Insurance Industry Data Book 36 (2016) (noting title insurance industry statutory premium reserves in excess of \$3.9 billion).

^{142.} *Id*.

^{143.} See infra Section IV, Part 3 (discussing various barriers to adoption of new technology in the industry).

^{144.} See generally SIMPLIFILE, (last visited Apr. 11, 2019) (displaying e-recording is available in over 1900 counties, but there are over 3,100 counties and equivalents in the United States). See How many counties are there in the United States?, USGS, https://www.usgs.gov/faqs/how-many-counties-are-there-united-states (last visited Apr. 11, 2019).

^{145.} See generally THE PEW CHARITABLE TRUSTS, THE STATE ROLE IN LOCAL GOVERNMENT FINANCIAL DISTRESS (2013), https://www.pewtrusts.org/~/media/assets/2016/04/pew_state_role_in_local_government_financial_distress.pdf (discussing local government finances).

^{146.} See E-recording in California, SIMPLIFILE, https://simplifile.com/services/e-recording/e-recording-counties/e-recording-in-California/ (last visited Mar. 26, 2019) (showing that thirty counties in California do not yet have e-recording).

^{147.} Shaila Dewan & Motoko Rich, *Public Workers Face a New Rash of Layoffs, Hurting Recovery*, N.Y. TIMES (June 19, 2012), https://www.nytimes.com/2012/06/20/business/public-workers-face-continued-layoffs-and-recovery-is-hurt.html (noting that the layoffs for local public workers following the financial crisis had effects that were "not just economic — they mean[t] longer response times to fires, larger class sizes, and in some cases lawsuits when short-staffed agencies [were] unable to provide the required services.").

^{148.} Wells Fargo Bank, N.A. v. Omiya, 420 P.3d 370, 380–383 (Haw. 2018).

^{149.} Id

system, it would probably have the financial flexibility to get through the backlog of certifications. Thus, it does not seem likely that local governments have the ability or the desire to implement speculative technologies when they struggle to meet even their basic obligations as it stands today. 151

IV. Future of Title Insurance

As detailed above, title insurance is strongly ingrained in the fabric of the real estate economy because the established title insurance system provides unmatched protection for stakeholders. As a result, stakeholders are confident in the validity of their transactions, and the real estate market benefits as a whole. However, while established title insurance companies' procedures are the stakeholders' trusted method of protection, there is a question as to whether technology might impact what the stakeholders rely on going forward. To match the time and experience involved in proper title insurance underwriting, new market entrants reliant on technology still face a tremendous cost to achieve the needed scale and may resort to shortcuts that do not benefit stakeholders in order to control costs. Contrary to these entrants' marketing, established title insurance companies are best positioned to incorporate new technologies due to their extensive understanding of the law and the market. A discussion of the frontier of technology and its promising applications in the real estate market continues below.

A. New Technologies Changing Real Estate Transactions

New technologies impacting real property transactions include fingerprinting, facial recognition, the cloud, and blockchain, all of which are discussed below in detail.

^{150.} Id. at 384.

^{151.} Id. at 378.

^{152.} See supra Section II.

^{153.} See supra note 63.

^{154.} Frederick Reese, Land Registry: A Big Blockchain Use Case Explored, COINDESK (Apr. 19, 2017), https://www.coindesk.com/blockchain-land-registry-solution-seeking-problem.

^{155.} See supra Section III.

^{156.} See Section III, Part 3.

1. Fingerprinting and Facial Recognition

Fingerprinting is the process of identifying a person by the impressions left from their fingers. It has been used as a method of security for generations. Fingerprinting has traditionally been done physically by taking an ink impression from a finger or object, and more recently through a computer or smartphone taking a digital impression of a user's finger. In the real estate context, fingerprinting is incorporated into the notarization process. As discussed in more detail below, the notarization process is more "security theater" than it is a device for stopping fraud. Is

Facial recognition is the process of authenticating identity using a computer system that can match a face to previously authenticated pictures. Now, facial recognition technology common in new smartphones can verify the user by simply holding the camera up to the user's face. The accuracy of facial recognition has developed to the point that it is trusted for everything from logging into mobile phones, accessing bank accounts, completing payments, and transferring funds. Facial recognition has not been widely adopted in the real estate transaction context, but as explained below, it seems likely that facial recognition and electronic fingerprinting will be incorporated into the process.

Adoption of electronic fingerprinting and facial recognition will likely impact real property transactions because it is successfully being implemented by other

^{157.} Fingerprint Recognition, FED. BUREAU OF INVESTIGATION, https://www.fbi.gov/file-repository/about-us-cjis-fingerprints_biometrics-biometric-center-of-excellences-fingerprint-recognition.pdf (last visited Mar. 15, 2019); History of Fingerprinting, FINGERPRINTING.COM, http://www.fingerprinting.com/history-of-fingerprinting.php (last visited Mar. 15, 2019).

^{158.} *Id.*

^{159.} *Id. See also* Rene Ritchie, *How Touch ID Works: Making Sense of Apple's Fingerprint Identity Sensor,* IMORE (Sep. 14, 2013), https://www.imore.com/how-touch-id-works.

^{160.} CAL. GOV'T CODE § 8206 (a)(2)(G) (1943) (requiring the signer to place their thumbprint in the notary journal).

^{161.} *Id.*; see David Storm, *It is Time to Get Serious About Security Theater*, SECURITYINTELLIGENCE (April 18, 2017), https://securityintelligence.com/it-is-time-to-get-serious-about-security-theater/ ("Security theater refers to security measures that make people feel more secure without doing anything to actually improve their security.").

^{162.} Steve Symanovich, *How Does Facial Recognition Work?*, NORTON, https://us.norton.com/internetsecurity-iot-how-facial-recognition-software-works.html (last visited Mar. 15, 2019)

^{163.} What is Facial Recognition on a Phone?, XFINITY: DISCOVERY HUB (Jan. 31, 2019), https://www.xfinity.com/hub/mobile/facial-recognition-on-phone.

^{164.} See Symanovich, supra note 162; Jessica Gabel Cino, Facial Recognition is Increasingly Common, but How Does it Work?, THE CONVERSATION (Apr. 4, 2017, 9:09 PM) http://theconversation.com/facial-recognition-is-increasingly-common-but-how-does-it-work-61354.

^{165.} See infra notes 167–170, 233, 324 and accompanying text.

businesses for their security and privacy needs. ¹⁶⁶ For example, businesses are actively adopting fingerprint and facial recognition into their employee verification systems in addition to using passwords. ¹⁶⁷ It is projected that widespread adoption of these technologies as a total replacement for usernames and passwords is imminent. ¹⁶⁸ The main hurdle in implementing these two methods in real property transactions is that they are based on possessing previously verified sets of fingerprints or pictures. ¹⁶⁹ Escrow and title insurance companies are working to leverage existing trusted fingerprint and facial recognition databases, or in the alternative, to use other verified information to confirm the identity of their customers. ¹⁷⁰ We expect that title insurance companies will rapidly implement these technologies as soon as a trusted method of verification is developed. ¹⁷¹

2. The Cloud

The cloud describes a network of servers acting as a single ecosystem. ¹⁷² The cloud offers storage and computing services at a much lower cost than it would cost to build and maintain the necessary hardware and software internally. ¹⁷³ Furthermore, major cloud providers also offer a full array of services, which include data analytics, developer tools, application monitoring, and other systems specially built for their customers' needs. ¹⁷⁴

Whereas traditional software had to be accessed from the device where it was installed, the cloud can be accessed from any permissioned device. ¹⁷⁵ Increasingly faster and more reliable internet access has contributed to the rise in popularity of

^{166.} Selena Larson, *Beyond Passwords: Companies Use Fingerprints and Digital Behavior to ID Employees*, CNN Bus. (Mar. 18, 2018, 3:53 PM), https://money.cnn.com/2018/03/18/technology/biometrics-workplace/index.html.

^{167.} Id.

^{168.} *Id.* Peter Tsai, *Data Snapshot: Biometrics in the Workplace Commonplace, but Are They Secure?*, SPICEWORKS (Mar. 12, 2018), https://community.spiceworks.com/security/articles/2952-data-snapshot-biometrics-in-the-workplace-commonplace-but-are-they-secure.

^{169.} See supra notes 157, 162–163.

^{170.} Sid Thomson, *A Key to Reducing Lending Fraud*, FINICITY (Jan. 22, 2018), https://www.finicity.com/digital-verification-reduces-fraud/.

^{171.} Fraud makes up a considerable portion of claims and if this could be resolved with technological advancements it makes practical business sense for title companies to implement.

^{172.} Gaurav Pendse, Cloud Computing: Industry Report & Investment Case, NASDAQ (June 22, 2017, 9:49 AM), https://business.nasdaq.com/marketinsite/2017/Cloud-Computing-Industry-Report-and-Investment-Case.html.

^{173.} Id.

^{174.} *Id.*

^{175.} Jake Frankenfield, *Cloud Computing*, INVESTOPEDIA (May 18, 2019), https://www.investopedia.com/terms/c/cloud-computing.asp.

the cloud because it can now be accessed as seamlessly as local storage.¹⁷⁶ The trend now is for companies providing SaaS to have that technology stored, serviceable, and scalable on the cloud.¹⁷⁷ This is allowing companies that sell SaaS and those that use it for their business to grow faster than ever before.¹⁷⁸

3. Blockchain

Blockchain is a type of distributed ledger technology. ¹⁷⁹ This means the subject data is distributed across a network of computers rather than being held at a single location. ¹⁸⁰ Each place where the ledger is held is called a node. ¹⁸¹ Blockchain technology uses cryptography (turning data into a format that can only be read by an authorized person) to secure each transaction. ¹⁸² Each transaction generates a hash, which is a set of numbers and letters. ¹⁸³ The hash depends not only on the current transaction, but also the previous hash. ¹⁸⁴ Blockchain technology allows for transactions and data to be recorded, shared, and synchronized across all of the nodes, but only if a transaction is approved by the nodes. ¹⁸⁵ Each participant on the blockchain receives a private password or key where ownership of a portion of the blockchain is recorded. ¹⁸⁶ When a participant enters into a transaction, the nodes can confirm that the key is the correct key and finalize the transaction, creating the next block in the blockchain. ¹⁸⁷

Blockchain has been one of the most sought after areas of investment for Fortune 500 companies since 2018. Blockchain is being called Cloud 2.0, as it allows users to leverage the computing power and storage of computers all over

^{176.} John Zanni, *Faster Global Internet Speeds Good News for Cloud Users*, Acronis (Dec. 27, 2017), https://www.acronis.com/en-us/blog/posts/faster-global-internet-speeds-good-news-cloud-users/.

^{177.} Steve Ranger, What is Cloud Computing? Everything You Need to Know About the Cloud, Explained, ZDNET (Dec. 13, 2018, 12:24 PM), https://www.zdnet.com/article/what-is-cloud-computing-everything-you-need-to-know-from-public-and-private-cloud-to-software-as-a/.

^{178.} la

^{179.} HARISH NATARAJAN ET AL., DISTRIBUTED LEDGER TECHNOLOGY (DLT) AND BLOCKCHAIN (WORLD BANK GROUP 2017).

^{180.} Id.

^{181.} Id. at IV.

^{182.} *Id.* at 2.

^{183.} *Id.* at 8–9.

^{184.} *Id.* at 9.

^{185.} HARISH NATARAJAN ET AL., DISTRIBUTED LEDGER TECHNOLOGY (DLT) AND BLOCKCHAIN (WORLD BANK GROUP 2017).

^{186.} *Id.* at IV.

^{187.} How Blockchain Technology Works. Guide for Beginners, COINTELEGRAPH, https://cointelegraph.com/bitcoin-for-beginners/how-blockchain-technology-works-guide-for-beginners#hash-function (last visited Jan. 26, 2020).

^{188. 80+} Corporations Working On Blockchain. and Distributed Ledgers, CBINSIGHTS (Jan. 26, 2020), https://www.cbinsights.com/research/organizations-corporates-test-blockchains-distributed-ledgers/.

the world. ¹⁸⁹ Companies like Storj are building networks for decentralized cloud storage. ¹⁹⁰ Storj operates by separating or "sharding" a stored file into smaller pieces on a blockchain, which can then be used to locate all of the shards of the original file. ¹⁹¹ From the user's perspective, the shards appear the same as they would on a centralized cloud. ¹⁹² However, unlike a cloud, the shards are duplicated throughout the network to greatly reduce the chances of ever losing access to data as a result of an individual server going down. ¹⁹³ Also, from a security standpoint, the only person that can access a user's data in a decentralized cloud is the user, because the information is encrypted when it is added to the Storj blockchain, and the user is the sole owner of the encryption key. ¹⁹⁴ Not even Storj can view a user's information. ¹⁹⁵

Storj is just one example of an active blockchain project. Even from this limited example, the benefits of privacy, security, and reliability are evident. ¹⁹⁶ For these reasons, blockchain is also being considered for real property projects, such as land registries, insurance policy maintenance, and smart contracts in escrow applications. ¹⁹⁷

a. Blockchain-Based Land Registries

A blockchain-based land registry requires all real estate transactions to be completed through recording on a blockchain. ¹⁹⁸ In a video posted in September 2018, Chris Chrysostom, a senior software engineer at Overstock's Medici Ventures, presented a discussion of the value of Overstock's Medici Land Governance, a blockchain-based land registry system. ¹⁹⁹ The system requires a map, a place to enter the property name or Assessor's Parcel Number ("APN"), a place to enter the

^{189.} Ben Noble, *Why Blockchain is Cloud 2.0: Expert Take*, COINTELEGRAPH (Mar. 11, 2018), https://cointelegraph.com/news/why-blockchain-is-cloud-20-expert-take; *What is a Blockchain?*, MICROSOFT AZURE, https://azure.microsoft.com/en-us/solutions/blockchain/ (last visited Jan. 26, 2020).

^{190.} Bennett Garner, *What is Storj?* | *Beginner's Guide*, COINCENTRAL (Feb. 14, 2018), https://coincentral.com/storj-beginners-guide/; B: STORJ, https://storj.io/ (last visited Jan. 26, 2020).

^{191.} Garner, supra note 190.

^{192.} Id.

^{193.} Id.

^{194.} *Id.*

^{195.} Id.

^{196.} Garner, supra note 190.

^{197.} See infra notes 198–223.

^{198.} See supra note 155 (explaining why a future real estate system should incorporate blockchain technology).

^{199.} Open Index Protocol, *Overstock's Medici Land Governance, a property rights registry on OIP, Chris Chrysostom DWeb18*, YouTube (Aug. 23, 2018), https://www.youtube.com/watch?v=SWkXCn0JMIQ; Open Index Protocol, *Overstock's Medici Land Governance's Chris Chrysostom Q&A at DWeb 2018*, YouTube (Aug. 30, 2018), https://www.youtube.com/watch?v=fHaZHMzycok.

property description, and evidence the owner has of their ownership. 200 Chrysostom revealed that the goals of the blockchain-based land registry system are currently aimed toward digitizing unrecorded land rights or paper rights that are subject to manipulation. 201 Ultimately, the original value addition of a blockchain-based land registry appears to be electronic storage, the open-source nature of the rights, the alleged immutability of the record, and the confirmation of the transactions (which will be confirmed by an as-yet undefined type of voting system). 202

For a more established public records system, like in the United States, blockchain registries could still have multiple benefits. ²⁰³ For instance, a title report or preliminary report is produced using the latest title records available prior to the closing of the real estate transaction for both sales and refinances. ²⁰⁴ This means that items recorded during the gap in time between when the title report is produced and the date of closing, which can be days or even weeks, become the risk of the title insurance company. ²⁰⁵ With blockchain registries, title companies could become nodes with instantaneous access to fully up-to-date property records, reducing the gap period to minutes rather than days. ²⁰⁶ Thus, a blockchain-based land registry could virtually eliminate the risk of gap recordings. ²⁰⁷

b. Blockchain-Based Smart Contracts

In addition to blockchain-based land registries, blockchain has also been proposed as a solution for the challenges with smart contracts.²⁰⁸ Smart contracts are digital agreements that can be enforced automatically without the use of third parties or

^{200.} Open Index Protocol, *Overstock's Medici Land Governance, a property rights registry on OIP, Chris Chrysostom DWeb18*, YouTube (Aug. 23, 2018), https://www.youtube.com/watch?v=SWkXCn0JMIQ.

^{201.} la

^{202.} Id.

^{203.} See infra notes 204–207; see supra note 154.

^{204.} *Title & Escrow,* DAVE HOISINGTON REALTY, http://www.athensohiohouses.com/tools-title-escrow.htm (last visited Apr. 1, 2020); Brian Fitzgerald, *Covering the Recording Gap: How Does Title Insurance Protect a Lender?*, N.Y. REAL EST. J. (Feb. 4, 2008), http://nyrej.com/covering-the-recording-gap-how-does-title-insurance-protect-a-lender.

^{205.} Brian Fitzgerald, *Covering the Recording Gap: How Does Title Insurance Protect a Lender?*, N.Y. REAL EST. J. (Feb. 4, 2008), http://nyrej.com/covering-the-recording-gap-how-does-title-insurance-protect-a-lender.

^{206.} The Real Estate Deal, Decluttered: Blockchain & Deed Recording, Deeds.com (Jan. 28, 2019), https://www.deeds.com/articles/the-real-estate-deal-decluttered-blockchain-and-deed-recording/; James Johnson, Blockchain and real estate: A global revolution in the making?, White & Case (Sep. 10, 2018), https://www.whitecase.com/publications/insight/blockchain-and-real-estate-global-revolution-making.

^{207.} Marc Shaw, Will the Power of Blockchain Mean the End of Title Insurance Companies in 20 Years?, FORBES (June 22, 2018), https://www.forbes.com/sites/forbesrealestatecouncil/2018/06/22/will-the-power-of-blockchain-mean-the-end-of-title-insurance-companies-in-20-years/.

^{208.} Alan Morrison, *Blockchain's blue-sky vision*, LINKEDIN (May 11, 2016), https://www.linkedin.com/pulse/blockchains-blue-sky-vision-alan-morrison/.

manual intervention.²⁰⁹ Blockchain-enabled smart contracts can help simplify complex transactions by limiting how many requirements are overseen by people.²¹⁰ Among these requirements are price negotiations, signature and identity verification, loan approvals, and remittance of funds, which can all be completed by the stakeholders, verified by nodes, and instantaneously updated on the blockchain.²¹¹ Smart contracts can involve as many stipulations as needed to satisfy the participants that the task will be completed satisfactorily.²¹² To establish the terms, blockchain platform participants must determine how transactions and their data are represented, agree on the rules that govern those transactions, explore all possible exceptions, and define a framework for resolving disputes.²¹³ It is usually an interactive process that involves both developers and business stakeholders.²¹⁴

An important question must be asked about this proposal: why does this have to be on a blockchain? The best answer is that blockchain provides an element of trust that is not otherwise available on a platform controlled by a third party.²¹⁵ The smart contract would be shared across all participants and would not be changeable by one participant without confirmation from the other participants.²¹⁶ Blockchain proponents argue that on the blockchain, there is no question about whether the terms originally agreed to are the same terms that are being performed later in the contract because the parties to the agreement are constantly getting updated ledgers.²¹⁷ However, it is unclear whether the stakeholders will feel safer given that the node agreement protocol (the computer code that controls how the transaction

^{209.} Ameer Rosic, Smart Contracts: The Blockchain Technology That Will Replace Lawyers, BLOCKGEEKS (2017), https://blockgeeks.com/guides/smart-contracts/.

^{210.} Johnson, supra note 206.

^{211.} Chrisjan Pauw, How Significant is Blockchain in the Mortgage Industry?, COINTELEGRAPH (Oct. 23, 2018), https://cointelegraph.com/news/how-significant-is-blockchain-in-the-mortgage-industry;

J. Michael Graglia & Christopher Mellon, *Blockchain and Property in 2018*, 12 INNOVATIONS: TECH., GOVERNANCE & GLOBALIZATION 90, 92-93 (2018), https://www.mitpressjournals.org/doi/pdf/10.1162/inova00270.

^{212.} Graglia & Mellon, supra note 211.

^{213.} Id.

^{214.} Nigel Gopie, *What are smart contracts on blockchain?*, IBM (July 2, 2018), https://www.ibm.com/blogs/blockchain/2018/07/what-are-smart-contracts-on-blockchain/.

^{215.} Rachel Botsman, *How the Blockchain is Redefining Trust*, WIRED (Dec. 27, 2017), https://www.wired.com/story/how-the-blockchain-is-redefining-trust/.

^{216.} Gopie, *supra* note 214.

^{217.} Id.

operates) is like a foreign language to the participants.²¹⁸ If and how blockchain-based smart contracts in real estate transactions will be adopted is yet to be seen.²¹⁹

c. Blockchain-Based Insurance Policy Storage

Title companies are starting to explore the benefits of blockchain. ²²⁰ Specifically, one proposal is to have a shared blockchain system to store and share the decisions made on prior title insurance policies. ²²¹ This seems like a natural progression of the paper-based system used between title companies now. ²²² The title companies working on this have shared little information about why blockchain technology is preferred for policy storage. ²²³ However, interpreting the concepts that are discussed above, the benefits of a blockchain system provide a potentially trustworthy and nearly immutable ledger that could lead to greater transparency, efficiency, and accountability between title insurance underwriters. ²²⁴ Additionally, if such a system can establish trust across multiple underwriters, more title companies will likely agree to participate.

B. Legal Barriers to Technology

The legal barriers to blockchain implementation stem from the foundations of property transfer laws in the United States. ²²⁵ The legal barriers include the laws governing the recording systems, laws governing the validity of property transfers, state-specific regulatory schemes governing the unauthorized practice of law, the requirement that courts and governments have the ability to amend property records, and monoline insurance laws.

^{218.} Luis Aureliano, Will Smart Contracts Solve the Trust Issues Between Financial Parties?, EQUITIES.COM (Mar. 14, 2018), https://www.equities.com/news/will-smart-contracts-solve-the-trust-issues-between-financial-parties; see also Daniel B. Garrie, Mediators Need to Become 'Bilingual' to Resolve Smart Contracts, LEGALTECH NEWS (Dec. 5, 2018), https://www.law.com/legaltechnews/2018/12/05/mediators-need-to-become-bilingual-to-resolve-smart-contracts/.

^{219.} Sarah Wheeler, EXOS Tech connects you with borrowers from origination through servicing, HousingWire (Feb. 1, 2019), https://www.housingwire.com/articles/48051-exos-technologies-lets-you-connect-with-borrowers-from-origination-through-servicing.

^{220.} First American Launches Blockchain System, First American (Nov. 28, 2018), http://investors.firstam.com/default.aspx?SectionId=5cc5ecae-6c48-4521-a1ad-480e593e4835&LanguageId=1&PressReleaseId=4bd46c23-64f9-4c6e-94a3-9cdb5e8d390a.

^{221.} Id.

^{222.} Id.

^{223.} See generally Ben Lane, First American, Old Republic Title Bringing Blockchain to Title Insurance, HOUSINGWIRE (Nov. 28, 2018, 5:58 PM), https://www.housingwire.com/articles/47515-first-american-old-republic-title-bringing-blockchain-to-title-insurance.

^{224.} See generally supra notes 180–222.

^{225.} See infra notes 226–280; see generally Maksymilian Ewendt, Leveraging Blockchain Technology in Property Records: Establishing Trust in a Risk-Filled Market, 19 N.C. J.L. & TECH. 99, 120–122 (2018).

1. The Recording Systems

There are two main types of recording systems: a race-notice system and a Torrens/Land Court system. 226 The purpose of recording a document in a non-Torrens jurisdiction conflicts with the benefits promulgated by the proponents of a blockchain recording system.²²⁷ Specifically, blockchain proponents argue that, because the only person able to transfer or encumber the property is the owner of record, the title chain will become more accurate and accessible, which in turn will reduce fraud.²²⁸ However, imagine that an owner in a race-notice jurisdiction agreed in a signed writing to convey a portion of the property to Person A, and this agreement is known to Person B, but the document is not recorded. Later the owner records a second document conveying the property to Person B and this document is recorded. In the race-notice system, Person A would have the better claim to the property because Person B had knowledge of the earlier document. However, blockchain technology does not have the capacity to account for circumstances involving personal knowledge, as only Person B would have a recorded document, and only Person B would be able to convey the property again to fix the transaction.²²⁹

Additionally, states require most documents submitted for recording to be notarized.²³⁰ As a blockchain system does not provide for gatekeeping of documents in this way, the existing laws would need to change.²³¹ It is likely the laws will be updated whether or not blockchain is implemented.²³² Facial recognition, fingerprinting, and other identity verification procedures are simply better at preventing fraud than notarization.²³³

^{226.} See infra notes 227–236 and accompanying text.

^{227.} Graglia & Mellon, supra note 211, at 95.

^{228.} See generally Michael Graglia, Can the Blockchain Reduce Property Fraud?: Interview with Todd Miller from ChromaWay, New America (May 30, 2017), https://www.newamerica.org/future-property-rights/blog/can-blockchain-reduce-property-fraud; Ragnar Lifthrasir, What is Blockchain and How Does It Apply to Real Estate?, Realcomm Edge (2016), https://www.realcomm.com/edge/issues/2016-10/files/basic-html/page24.html.

^{229.} Graglia & Mellon, supra note 211, at 103.

^{230. 1} AM. Jur. 2D, Definition of Acknowledgment § 1 (Feb. 2019) ("Acknowledgment consists of two aspects: an oral declaration of the party executing the instrument and a written certificate, prepared by a public official, usually a notary public, attesting to the oral declaration."); see also 1 AM. Jur. 2D at § 71, Recording of Instrument, Generally ("A principle function of an acknowledgment is to entitle an instrument to be recorded. The acknowledgment furnishes formal proof of the authenticity of the execution of the acknowledged instrument when it is presented for recording. The recording statutes generally entitle a duly acknowledged instrument to be recorded while forbidding the registration of instruments not bearing a certificate of acknowledgment.").

^{231.} Graglia & Mellon, supra, note 211, at 94–98.

^{232.} Id

^{233.} See generally Lauren Silverman, Notaries Are Starting to Put Down the Stamp and Pick Up a Webcam, NPR (June 12, 2017, 4:23 PM),

The other main type of recording system is a Torrens or Land Court system.²³⁴ Each time an owner transfers property, a master certificate maintained by a central office is updated to reflect new ownership information.²³⁵ Only information that is currently relevant to title is shown; these are called memorials or recitals on the certificate.²³⁶ Proponents of blockchain compare it to the Torrens and Land Court systems, in that the status of title on the blockchain is considered conclusive.²³⁷ However, blockchain would exhibit the same problems as the Torrens and Land Court systems when the record keeper fails to properly recognize documents on the certificate and stakeholders rely on the conclusive nature provided by the certificate.²³⁸ As illustrated by the example below, "conclusive" is not always conclusive.

One Hawaii claim involved spouses who owned property in a way that automatically transferred to the other upon death.²³⁹ The Hawaii Land Court, which is the record keeper under a Torrens-style recording system, recognized this ownership interest per the certificate as of 1999.²⁴⁰ In 2000, the husband was accused and convicted of murdering the wife.²⁴¹ The wife's daughters from a previous marriage filed lawsuit against the husband to get back the property and recorded notice of the action against the property ("NOPA"). With the litigation pending, the husband got his conviction thrown out.²⁴² In 2005, the Land Court reissued the certificate without recognizing the NOPA.²⁴³ After taking out multiple loans, the Land Court later re-evaluated the NOPA and would not recognize the liens that were recorded post-NOPA.²⁴⁴ The Land Court decided that the first wife's death had not been reflected on the certificate, and both the second marriage and the 2015 mortgage would not be recognized until the NOPA was removed.

https://www.npr.org/sections/alltechconsidered/2017/06/12/532586426/notaries-are-starting-to-put-downthe-stamp-and-pick-up-a-webcam; see generally Michael Lewis, Webcam Notarizations. Redefining Personal Presence Or Opening the Door to Fraud?, NAT'L NOTARY ASS'N (July 13, 2016), https://www.nationalnotary.org/notary-bulletin/blog/2016/07/webcam-notarizations.

234. See generally Gary W.B. Chang, Land Court: Demystifying an Enigma, Haw. BAR J. 5 (Sept. 2017) (noting that the "land court" refers generally to the Torrens System, and was first adopted in Hawaii in 1903; Hawaii actually uses both the land court and race-notice recording system).

235. Scott M. Lucas et al., *A Torrens Law Primer* 4-5, OLSON & LUCAS, PA (Feb. 12, 2015), http://olson-law.com/wp-content/uploads/2011/12/A-Torrens-Law-Primer-MSPS-2.12.15.pdf.

- 236. *la*
- 237. Ewendt, supra note 225, at 110.
- 238. *Id.* at 111.
- 239. HAW. REV. STAT. § 509-2 (providing for the creation and operation of a tenancy by the entirety).
- 240. Land Court, State of Hawaii, Certificate of Title, No. 477599 (Sept. 1, 2011).
- 241. State v. Wakisaka, 2002 WL 35073582 (Haw. Cir. Ct. Sept. 3, 2002), vacated by 78 P.3d 317, 320 (2003).
- 242. State v. Wakisaka, 78 P.3d 317, 321, 331 (Haw. 2003).
- 243. State of Hawaii, Petition for Amendment of Certificate of Title Nos. 477,599 and 878,476 at No.4, In the Matter of the Application of the Estate of Campbell, No. 1L018-1-0787 (Haw. Land Ct Mar. 7, 2018).
- 244. Id.

Thus, even a technological system aiming to achieve a high degree of definiteness will face challenges due to the multitude of laws that affect title to property.²⁴⁵ And, to restate the point illustrated by the example set above, the governing law for Torrens and Land Court jurisdictions would require a massive overhaul to allow for blockchain to be implemented either in concert with the existing system or a complete overhaul.²⁴⁶ In addition, from a public policy perspective, the lack of human oversight of a blockchain system is the opposite of the complete oversight exercised by Torrens record keepers and the Land Court.²⁴⁷ Thus, it does not seem likely that these jurisdictions would give up their decision-making role to a decentralized blockchain.

2. Legal Description

In the United States, the same property can be identified several different ways, including by legal description, assessor's designation, and government maps. All states have a codified "statute of frauds," which generally require that a transfer of property must provide a means to identify the property with reasonable certainty. However, "reasonable certainty" is a nebulous standard that can be established without a legal description at all, so long as a person can identify the land. As such, property descriptions can be vague and yet still provide constructive notice. Surveyors have encountered legal descriptions with calls measured in "smokes." Smokes" obviously is not a legal term of art used by

- 245. la
- 246. Graglia & Mellon, supra note 211, at 105-06.
- 247. See supra notes 226–228 and accompanying text.

248. See Federal Land Records, U.S. DEP'T OF THE INTERIOR BUREAU OF LAND MGMT., https://www.blm.gov/services/land-records (last visited Mar. 16, 2019) (providing access to images of more than five million federal land title records from 1820 onwards). Most locales that provide GIS or tax assessment maps of property in their jurisdiction expressly disclaim any liability for the accuracy of those maps. Assessor Parcel Maps, Tulsa County, OK, https://www.assessor.tulsacounty.org/assessor-maps-agree.php (last visited 3/16/19); see also, e.g., Property Assessment Information System, Los Angeles Cty. Off. of the Assessor, http://maps.assessor.lacounty.gov/GVH_2_2/Index.html?configBase=http://maps.assessor.lacounty.gov/Geo cortex/Essentials/REST/sites/PAIS/viewers/PAIS_hv/virtualdirectory/Resources/Config/Default (last visited Mar. 16, 2019); HCAD Parcel Viewer, HARRIS Cty., TX, https://arcweb.hcad.org/parcelviewer/ (last visited Mar. 16, 2019).

249. Kathleen J. Hopkins & Evan L. Loeffler, *Real Estate Legal Descriptions*, Am. Bar Ass'n (Nov. 1, 2012), https://www.americanbar.org/groups/gpsolo/publications/gpsolo_ereport/2012/november_2012/real_estat e_legal_descriptions/ ("the intent of the parties to the transaction cannot be honored with certainty unless the legal description precisely locates the land that is the subject of the agreement.").

Some examples of individual state requirements are set out in Wiegand v. Gissal, 28 Wis.2d 488, 492, (Wis. 1966); Selby v. Roggow, 975 P.2d 379, 384 (N.M. Ct. App. 1999).

- 250. Anderson v. Quinn, 306 Wis. 2d 686, 702-03 (Wis. Ct. App. 2007).
- 251. See ia
- 252. WALTER G. ROBILLARD & DONALD A. WILSON, BROWN'S BOUNDARY CONTROL AND LEGAL PRINCIPLES 3.20 (2013).

experts, but instead a rough measurement system based on how many hand-rolled cigarettes can be smoked, possibly on horseback, while proceeding to the next call in the legal description.²⁵³ While the use of "smokes" as a measurement would be perplexing to any proponent of precision in legal descriptions, state law may consider it reasonably certain if a party could identify the land using the description.²⁵⁴

Blockchains are inherently "yes or no" answering systems, which makes confirming title to property with ambiguous legal descriptions impractical.²⁵⁵ Ambiguous legal descriptions are subject to drawn-out litigation, which would seem to undercut the idea of a sophisticated, peer-to-peer, real estate blockchain transferring system, since boundaries could not truly be certain.²⁵⁶ Thus, without the technological ability to allow the nodes to confirm the land described, the blockchain system of recording is nothing more than a convenient place to store records electronically.²⁵⁷

Moreover, given the "smokes" example mentioned above, it appears unlikely that some jurisdictions will ever be capable of transferring to a blockchain-based recording system. To update a modern recording system with blockchain, the land records need to be accurate, standardized, and digitized. Then, in order for blockchain to be useful, the land records and an indisputable mapping system would need to be reflected on the blockchain and universally used. In other words, precision and accuracy between legal descriptions and geographic information would be needed to make the goals of blockchain practical. Based on the technological abilities we have today, the utility of transitioning to such a venture would likely do more harm than good in the form of a rapid rise of lawsuits claiming title to previously unknown descriptions. As most Americans are not financially capable of defending lawsuits, this transition would be catastrophic to stakeholders.

^{253.} *Id.*; see also George Ellison, *Old-Time Surveyors Used Some Interesting Tools, Markers*, SMOKY MOUNTAIN NEWS (Feb. 22, 2017), https://www.smokymountainnews.com/archives/item/19411-old-time-surveyors-used-some-interesting-tools-markers.

^{254.} See ROBILARD & WILSON, supra note 252, at 252.

^{255.} Graglia & Mellon, supra note 211, at 94–98.

^{256.} Id.

^{257.} See supra Section IV.2.

^{258.} Graglia & Mellon, supra note 211, at 94–98.

^{259.} *Id.* at 94–95 (explaining that neighbors will sue over inches, but not usually millimeters).

^{260.} Id. at 95–96; see also notes 198–202 and accompanying text.

^{261.} Graglia & Mellon, *supra* note 211, at 96–97; *What is GIS?*, ESRI, https://www.esri.com/en-us/what-is-gis/overview (last visited Mar. 19, 2019).

^{262.} Graglia & Mellon, supra note 211, at 96–97.

^{263.} Bahney, supra note 27.

3. Unauthorized Practice of Law

Roughly twenty percent of states require that an attorney be involved in a real estate closing, while some specifically require that the closing attorney perform nearly all aspects of the closing.²⁶⁴ For example, the Supreme Court of Georgia has said it is the unauthorized practice of law for someone other than a licensed Georgia attorney to close a real estate transaction or to prepare or facilitate the execution of deeds for the benefit of a seller, borrower, or lender.²⁶⁵ The State of Georgia understands this adds to the cost of the transaction, but stands by the importance of attorneys in real property transactions.²⁶⁶

For blockchain to be used in real estate closings, the nodes would need to review elements of the transaction (i.e. the parties, the property, and potentially even a full commitment) and then approve the transaction.²⁶⁷ However, approving elements of real estate transactions requires a licensed attorney in attorney-agent states.²⁶⁸ Thus, the parties hosting the nodes may be considered to be unlawfully practicing law.²⁶⁹ Further, anyone using the blockchain platform, including the creators of the platform, could be considered to be assisting with the unauthorized practice of law.²⁷⁰ Thus, either the nodes need to have a more limited function (which would limit the utility of a blockchain platform) or the legal framework would need to be changed prior to implementing blockchain.²⁷¹

4. Courts, Registries, and Government Oversight

The idea of enhanced technologies making property more accessible and transferable has its limitations.²⁷² Both the courts and the registrar need the ability to adjust the blockchain ledger to resolve disputes.²⁷³ For instance, if bad data was

^{264.} Closing Reference Map – By State, STEWART TITLE, https://online.stewart.com/sites/consumer/Home/Pages/ClosingReferenceMap.aspx (last visited Apr. 10, 2019) (showing that Alabama, Georgia, South Carolina, Delaware, New York, Connecticut, Rhode Island, Massachusetts, and Vermont all require the involvement of an attorney in the closing process).

^{265.} GA. CODE ANN. § 15-19-50 (2019); *In re* UPL Advisory Opinion 2003-2, 588 S.E.2d 741 (Ga. 2003).

^{266.} UPL Advisory Opinion, 588 S.E.2d at 741.

^{267.} Graglia & Mellon, supra note 211, at 94–98.

^{268.} Closing Reference Map, supra note 264.

^{269.} Burke, *supra* note 6161, §§ 16.01–02.

^{270.} Id.

^{271.} MP McQueen, *Is A National Strategy on Blockchain Technology Needed?*, CORP. COUNS., (Feb. 28, 2019, 5:23 PM), https://www.law.com/corpcounsel/2019/02/28/is-a-national-strategy-on-blockchain-technology-needed/?slreturn=20190310214829 (noting the push by the Chamber of Digital Commerce for a comprehensive national strategy for blockchain).

^{272.} Zachary Kammerdeiner & Ashley Sadler, *Blockchain Can't Protect Property Rights, But Title Insurance Can,* Am. LAND TITLE ASS'N (Apr. 19, 2018), https://www.alta.org/news/news.cfm?20180419-Blockchain-Cant-Protect-Property-Rights-but-Title-Insurance-Can.

^{273.} Graglia & Mellon, supra note 211, at 95-96.

entered and discovered, someone would need the ability to change it.²⁷⁴ Legal actions are often asserted against people who are either unavailable or unwilling to engage in transacting property.²⁷⁵ The courts need the ability to adjust the blockchain to reflect the status of title through the power of a court order.²⁷⁶ In addition, the government has eminent domain power and can transfer property from a private individual to itself.²⁷⁷ Presently, a blockchain transaction requires each party to a transaction to approve it through the application of their private key.²⁷⁸ In other words, a court could not unilaterally alter an existing blockchain transaction.²⁷⁹ A procedure for government entities to create and update the blockchain would have to be in place before a blockchain-based system could govern titled property.²⁸⁰

5. Other Legal Considerations

As title insurance policies inevitably change moving forward, title insurance companies maintain the core focus of their policies on title-related defects.²⁸¹ Laws placing consumer protections on monoline insurance limit the places available to buy title insurance to companies that specialize in title insurance.²⁸² This has been considered necessary because of the risk that financial instability has had on multiline insurance companies and the importance of the stability of title insurance companies.²⁸³ If searching the title were to require less specialization, it could give multiline carriers an opportunity to convince regulators that the monoline

^{274.} *Id.*; see *also* Randall Mardus, *The Blockchain's "Bad Data" Problem and Possible Solutions*, MEDIUM (May 15, 2018, 12:15 PM), https://medium.com/coinmonks/the-blockchains-bad-data-problem-and-possible-solutions-60bc1145efac; Shannon Vaillancourt, *Blockchain: Only As Good As Its Data*, FORBES (July 17, 2018, 7:15 AM), https://www.forbes.com/sites/forbestechcouncil/2018/07/17/blockchain-only-as-good-as-its-data/.

^{275.} Kammerdeiner & Sadler, *supra* note 2722 (noting the existence of "off-record" title defects like failing to name lienholders as defendants in a lawsuit).

^{276.} Graglia & Mellon, supra note 211, at 95–96.

^{277.} Eminent Domain, CORNELL L. SCH. LEGAL INFO. INST., https://www.law.cornell.edu/wex/eminent_domain (last visited Mar. 16, 2019).

^{278.} Leon Di, Why Do I Need a Public and Private Key on the Blockchain?, WETRUST (Jan. 29, 2017), https://blog.wetrust.io/why-do-i-need-a-public-and-private-key-on-the-blockchain-c2ea74a69e76.

^{279.} A court could hold a non-cooperative party in contempt. However, in the case of a court determining ownership of land free of the heirs of a deceased owner, only the court would have an operative key.

^{280.} See Graglia & Mellon, supra note 211, at 94–98.

^{281.} See HUD Off. OF POL'Y DEV. AND RES., WHAT EXPLAINS VARIATIONS IN TITLE CHARGES? 5 (2012), https://www.huduser.gov/portal/publications/variation_in_title_2012_v5.pdf [hereinafter Title Charges].

^{282.} Nelson R. Lipshutz, *The Role of The Monoline Requirement in Assuring Title Insurance Effectiveness*, Res. Corp., http://www.regulatoryresearch.com/wp-content/uploads/2015/08/The-Role-of-the-Monoline-Requirement-in-Title-Insurance-Effectiveness.pdf (last updated June 20, 2007) (noting that today, title insurers have a 1-2% insolvency rate, but that during the Great Depression "[*m*]ultiline title insurers, which wrote title and mortgage guaranty insurance, suffered a 72% insolvency rate...").

^{283.} Id. See also Title Charges, supra note 281, at 5.

restrictions are no longer necessary to ensure consumer protection.²⁸⁴ Should monoline restrictions fail and the competitive landscape change, title insurance could become a race to the bottom and put stakeholders at risk.²⁸⁵

C. Blockchain Versus Cloud-based Software Solutions

Even if blockchain can overcome all the challenges imposed by the legal landscape, whether it will be implemented in the title and escrow context depends on whether it is better than a traditional cloud-based solution at making the process faster, cheaper, safer, and more convenient. Before technology is implemented, the technology providers must show that the technology will resolve a problem or provide efficiency unavailable through other means. Blockchain companies have not demonstrated how their technology improves the title process or why it is better than the cloud. Carrently, different jurisdictions in the United States have digitized and non-digitized registries. In jurisdictions with only paper records, title plants have made a good portion of those areas technologically capable. For currently digitized title records, title companies already have the technology to create nearly instantaneous commitments. There does not appear to be any current proposal that explains why a non-blockchain software system is less effective at creating commitments.

At the escrow level, the same question exists as to whether blockchain makes the system faster, cheaper, or more convenient. The best argument for blockchain is that all stakeholders will be able to automatically contribute their part of the transaction simultaneously to the other parties, thereby reducing delay from a person collecting documents, reviewing the information, and communicating it to the parties. However, these potential benefits are not unique to blockchain and can be attained using cloud-based software. The reason fully automated transactions are not more widely used is because of the inconsistency in software among stakeholders and the inability to form a consensus. Blockchain projects

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Lipshutz, supra note 282, at 21–22.
 284.
 285.
        See infra notes 287-292 and accompanying text.
 286.
 287.
        Graglia & Mellon, supra note 211, at 94-98.
 288.
       See infra notes 289–2922 and accompanying text.
 289.
 290.
        See supra Section III, Part 3.
 291.
        Review of extant scholarly articles and web sources did not reveal any such claim.
        See infra notes 294-299 and accompanying text.
        Graglia & Mellon, supra note 211 at 92-93.
       See supra Section IV. Part 1.
        See Ross Garcia, A Truly Digital Mortgage: Are We There Yet?, FORBES (Feb. 5, 2018, 8:00 AM),
https://www.forbes.com/sites/forbesfinancecouncil/2018/02/05/a-truly-digital-mortgage-are-we-there-yet/
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focusing on smart contracts are built within a particular proprietary blockchain environment.²⁹⁷ More precisely, these blockchain smart contract systems are still software-based solutions, and software varies between providers.²⁹⁸ Thus, it does not appear that blockchain resolves the agreement issue at this time.²⁹⁹

Safety and security may be the strongest case for the adoption of blockchain.³⁰⁰ Blockchain ledgers are stored at multiple locations, which significantly reduces the risk that the ledger can be fraudulently changed.³⁰¹ In the recording context, unlike a traditional recording system where anything can be recorded and identity verification is dependent on the honesty of a notary, blockchain's consensus requirement could lead to a stricter evaluation of what can be added to the blockchain, compared to the traditional recording process and software-based solutions.³⁰² Similarly, with blockchain policy storage, the safety of policies is better

(discussing the challenges to implementing full automation); See Sarah Wheeler, Disruptive mortgage automation technology from SoftWorks AI increases lender profitability, HousingWire (Mar. 12, 2019, 9:22 AM), https://www.housingwire.com/articles/48405-disruptive-mortgage-automation-technology-from-softworks-ai-increases-lender-profitability (discussing new proposals for automation and explaining that "'[a]utomating all aspects of the mortgage lifecycle is still a challenge that we'll need to tackle one use-case at a time.'").

297. See, e.g., A Next-Generation Smart Contract and Decentralized Application Platform, ETHEREUM/WIKI, https://github.com/ethereum/wiki/wiki/White-Paper (last updated June 17, 2019) (describing how Ethereum can build "a blockchain with a built-in Turing-complete programming language, allowing anyone to write smart contracts and decentralized applications"); see also Alyssa Hertig, What is Ethereum?, CoinDesk, https://www.coindesk.com/information/what-is-ethereum (last visited Mar. 19, 2019); Fabric, The Linux Found. Projects, https://www.hyperledger.org/projects/fabric (last visited Mar. 19, 2019) (explaining that the Hyperledger Fabric is a blockchain framework implementation hosted by The Linux Foundation); Shawn Gordon, What is Ripple?, BITCOIN MAG., https://bitcoinmagazine.com/guides/what-ripple/ (last visited Mar. 19, 2019) (explaining that Ripple, another smart contract project, is a "real-time gross settlement system (RTGS), currency exchange, and remittance network", a protocol "meant to enable the near instant and direct transfer of money between two parties.").

298. See supra note 297 and accompanying text.

299. Id.

300. See Michelle Drolet, 4 reasons blockchain could improve data security, CSO (June 5, 2018, 9:55 AM), https://www.csoonline.com/article/3279006/4-reasons-blockchain-could-improve-data-security.html; see Andrew Gazdecki, How Secure Is Blockchain Technology?, FORBES (Oct. 12, 2018, 8:15 AM), https://www.forbes.com/sites/forbestechcouncil/2018/10/12/how-secure-is-blockchain-

technology/#7adadeed72f0; see Alex Momot, How Blockchain Can Be Used To Dramatically Improve Cybersecurity, CYBERSECURITY VENTURES (July 23, 2018), https://cybersecurityventures.com/how-blockchain-can-be-used-to-improve-cybersecurity/; see Rachel Wolfson, How A Leading Cybersecurity Company Uses Blockchain Technology To Prevent Data Tampering, FORBES (July 3, 2018, 2:00 PM), https://www.forbes.com/sites/rachelwolfson/2018/07/03/how-a-leading-cyber-security-company-uses-blockchain-technology-to-prevent-data-tampering/.

301. See Gazdecki, supra note 300; see also Naveen Joshi, 4 Benefits of Using Blockchain Over Traditional Data Security Technologies, Allerin (Oct. 1, 2018), https://www.allerin.com/blog/4-benefits-of-using-blockchain-over-traditional-data-security-technologies.

302. See Graglia & Mellon, supra note 211, at 98–102.

kept on multiple nodes, as prior policies are often lost when title companies cease to operate or suffer technological failures. ³⁰³

D. Effect of Technology Adoption on Title Insurance

In a world where money is not a factor and the legal system could instantaneously adapt to get the most out of improved technology, the technologies discussed herein could lower the possibility of claims and reduce transaction costs.³⁰⁴ However, viewing these technologies practically, it is not likely that they will impact the value of title insurance any differently than previous technological improvements. As this paper has reiterated, the value of title insurance is that it allows for the continued free flow of real estate by giving buyers and lenders the information to understand the title risks of their investment and protection against the unknown risks.³⁰⁵ Unknown risks come in the form of discoverable risks, undiscoverable risks, and related risks like access and encroachments.³⁰⁶ The technologies discussed herein aim to create easier ways to obtain information regarding the status of title, connect property stakeholders in a way that reduces the likelihood of unknown risks, create commitments faster, and expedite the escrow process.³⁰⁷ In this Section, Subsection 1 reviews why blind faith in technology is not a good business practice for a title insurance company, Subsection 2 reiterates why the value of title insurance will remain strong, even with technological development, and Subsection 3 articulates the improved value that title insurance will have as new technology is implemented.

1. Risk Assumption and Technology

As discussed above, risk-assumption-model startups suggest that technology will impact title-related information to such an extent that an accurate title report could be created by anyone at the press of a button, making a title insurance policy less valuable. However, the creation of the title commitment has always been based on information freely available to the public, and the limiting factor of time and expense has been steadily decreasing. Therefore, the focus should not be on the

^{303.} See supra notes 220–224 and accompanying text.

^{304.} Fitzgerald, supra note 204.

^{305.} See supra Section I.

^{306.} Owner's Policy of Title Insurance, Schedule A, Am. LAND TITLE ASS'N., https://www.alta.org/policy-forms/(last visited Feb. 1, 2020); see Loan Policy of Title Insurance, AMERICAN LAND TITLE ASS'N., https://www.alta.org/policy-forms/ (last visited Feb. 1, 2020).

^{307.} See supra Section IV, Part 4.

^{308.} See supra note 77.

^{309.} See Title Insurance (C) Task Force, Minutes of the 2017 Fall National Meeting, NAT'L Ass'N OF INS. COMM'R (Dec. 7, 2017), www.naic.org /meetings1712/; Title Search vs. Title Report vs. Title Insurance, TITLE

potential cost reduction of retrieving the title information, but the impact of title insurance after the creation of the commitment.³¹⁰

2. Technology Will Not Eliminate the Value of Title Insurance

The title insurance policy protects against risks not listed in the commitment (unidentified risks and unknowable risks), which will be true regardless of whether people or machines create the commitment.³¹¹ Specifically, as shown in TABLE 1, only 25% of claims result from an error searching the title records.³¹² This means that even if title records were 100% accurate and instantaneous commitments were available with perfect prevision, 75% of claims would still exist.³¹³

Risks not identified in the search escape detection because documents may contain errors and be mis-indexed or misinterpreted. For example, some deeds contain automatic reversion interests that are triggered by the occurrence of an action by the new owner, like selling alcohol on the premises. The legal system has a shortfall in that the automatic legal rights vest regardless of the chain of title. Similarly, joint tenancy (whereby one owner takes title automatically upon the death of the other joint tenant) operates the same way. Thus, ownership by grantor-grantee transfer in the record chain of title does not take into account how these properties are owned and how they can be transferred outside the record chain of title.

PARTNERS OF SOUTH FLORIDA INC., https://titlepartnersofsofl.com/blog/title-search-vs-title-report-vs-title-insurance/(last visited Mar. 9, 2020).

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310. See supra Section II.
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^{311.} Why Title Insurance?, GENERATIONS TITLE, http://www.generationstitle.com/whytitleins.htm (last visited Mar. 7, 2020).

^{312.} See infra Table 1.

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^{314.} See supra Section III, Part 1.

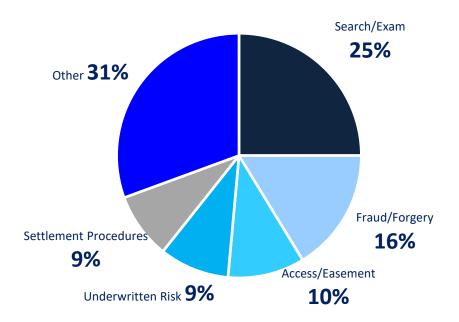
^{315.} See 28 Am. Jur. 2D Estates § 189 (2019).

^{316.} *Id*

^{317.} See generally JOYCE PALOMAR, PATTON AND PALOMAR ON LAND TITLES § 223 (3d ed. 2019) (describing how a joint tenancy operates).

^{318.} Id.

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Other risks are not knowable because they arise from information that is not publicly available; however, modern policies still cover those risks. ³²⁰ For example, state statutes allow for mechanic's liens to be recorded up to a certain amount of time after construction work has been completed on a property. ³²¹ Work is often finished shortly before closing, but the mechanic's lien is not recorded until weeks later. ³²² Due to this shortfall of the legal system, title insurance has stepped in to

^{319.} This is based on data collected by Fidelity National Financial for 2018. *Fidelity National Title Insurance Company 2018 Annual Statement*, FIDELITY NAT'L TITLE INSURANCE Co., https://www.investor.fnf.com/static-files/42720a89-7efe-43ae-9089-303e83698e2d (last visited Jan. 29, 2020).

^{320.} See supra note 311. Owner's Policy of Title Insurance: Discussion Draft of Revisions, AM. LAND TITLE ASS'N. (Jan. 24, 2020), https://www.alta.org/policy-forms/ (showing that policies continue to adapt to business needs of lenders and the latest updates include clarification for repudiation of contracts due to electronic signing).

^{321.} Blake Nelson, Construction Liens: A National Review and Template for a Uniform Lien Act, 34 Wm. MITCHELL L. REV. 245, 260-61 (2007).

^{322.} Michael A. DiSabatino, Annotation, *Liability of purchaser of real estate on mechanic's lien based on goods or labor supplied to vendor but filed after title passed*, 33 A.L.R. 4th 1017 (1984).

mitigate this risk for stakeholders and protect what would be considered a *bona fide* purchaser under any other circumstance.³²³

Furthermore, there is the ever-present risk of fraud and manipulation, and fraudsters will likely invent new ways to facilitate fraud despite additional technological improvements.³²⁴ Fraud often occurs when a notary is complicit in falsifying a document.³²⁵ For example, an owner of a property financed his purchase by receiving a loan from his father, secured by a mortgage in favor of the father.³²⁶ The son found himself with deep financial issues and forged his father's signature on a document purporting to release the mortgage as fully satisfied.³²⁷ He then brought the forged document to a friend who had recently received a notary license.³²⁸ The son convinced his friend to notarize the release, and the friend agreed.³²⁹

Blockchain would not directly resolve fraud problems like this.³³⁰ Existing legal structures would still govern how new transactions would be entered into the blockchain, including notary, acknowledgement, and deed requirements.³³¹ If a document has all of the elements to create the next block in the blockchain, it will still be recorded in the blockchain.³³² This is because the blockchain solely memorializes the fact that the transaction has occurred, but does not verify the

^{323.} See Mechanics' Liens and Title Insurance, LAKESIDE TITLE CO. (Feb. 8, 2016), https://lakesidetitle.com/mechanics-liens-and-title-insurance/ (stating that most title insurance companies protect against mechanic's liens).

^{324.} See Mike Orcutt, How secure is blockchain really?, MIT TECH. REV. (Apr. 25, 2018), https://www.technologyreview.com/s/610836/how-secure-is-blockchain-really/ ("[t]he security of even the best-designed blockchain systems can fail in places where the fancy math and software rules come into contact with humans, who are skilled cheaters, in the real world, where things can get messy.").

^{325.} Steps to Proper Notarization, AMERICAN ASS'N. OF NOTARIES, https://www.notarypublicstamps.com/members/news/643 (last visited Feb. 7, 2020).

^{326.} Shields v. Deutsche Bank National Trust, No. 342-271479-14 (Tex. Dist. Ct. filed Mar. 2, 2005) (portraying the facts of this example from a claim administered by FNF on behalf of the lender of the home equity loan).

^{327.} Id.

^{328.} *Id.*

^{329.} lc

^{330.} See generally Natarajan, supra note 179 (discussing the key characteristics and risks of blockchain).

^{331.} Rohan Pinto, A Blockchain-Based Digital Notary: What You Need To Know, FORBES (Nov. 12, 2019, 09:15 AM), https://www.forbes.com/sites/forbestechcouncil/2019/11/12/a-blockchain-based-digital-notary-what-you-need-to-know/#2a91b42f4557; Mercedes Tunstall et al, Real Property Transfers Ripe for Blockchain Disruption: Laws in the U.S. Must Follow the Technology, PILLSUBRY (last visited Mar. 31. 2020), https://www.pillsburylaw.com/images/content/1/1/v2/117145/AR-Real-Property-Transfers-Ripe-For-Blockchain-Distribution.pdf.

^{332.} See Natarajan, supra note 179, at 6 (discussing the consensus mechanism for blockchain).

validity of the transaction.³³³ Therefore, fraud, forgery, and incompetence are not necessarily resolved by the blockchain process.³³⁴

Even if new requirements were set up to resolve potential fraud on the blockchain, it is likely that people will come up with new ways to perpetuate fraud and abuse the system.³³⁵ For example, fraudsters may discover ways to deceive the identity verification procedures that are put in place to allow for fully automated and online transactions.³³⁶ For instance, imagine that a party was operating under a fraudulently created power of attorney. The verification process would verify the holder of the power of attorney, but not that the power of attorney document itself was sufficient. In such a case, the current policy would still provide coverage for the unenforceability of the lender's loan.³³⁷ Thus, the title insurance policy retains its value in protecting against fraud.³³⁸

3. Technology Will Improve Title Insurance Value

Furthermore, title insurance is a regulated industry, so margin expansion as the result of technological improvement is more likely to result in lower costs or more value for customers.³³⁹ Title insurers have done this throughout their history.³⁴⁰

^{333.} Id.

^{334.} See Danika Wright, How the blockchain will transform housing markets, THE CONVERSATION (Apr. 12, 2017), https://theconversation.com/how-the-blockchain-will-transform-housing-markets-75691 (noting that "[b]lockchain's advantage in restricting any changes to historical records becomes a disadvantage when incorrect or fraudulent entries are added.").

^{335.} See, e.g., Jeremy Thackston, Fraud and privacy problems on the blockchain, CSO (Nov. 7, 2016, 11:25 AM), https://www.csoonline.com/article/3138869/fraud-and-privacy-problems-on-the-blockchain.html ("[a] second person can steal passwords or second-factor tokens and then execute a blockchain transaction using the private key assigned to the first person. A first person could voluntarily give passwords and tokens to another person in the course of engaging in criminal activity.").

^{336.} Id.

^{337.} See Marc Shaw, Will The Power Of Blockchain Mean The End Of Title Insurance Companies In 20 Years?, FORBES (Jun. 22, 2018, 8:30 AM), https://www.forbes.com/sites/forbesrealestatecouncil/2018/06/22/will-the-power-of-blockchain-mean-the-end-of-title-insurance-companies-in-20-years/#ff347fc342a2.

^{338.} Id.

^{339.} See Title Charges, supra note 281, at 5 (noting that title insurance is primarily regulated at the state level, but the federal government is also involved for certain statutes governing real estate transactions). ALTA provides a state-by-state analysis of applicable laws and regulations. Title Insurance Regulatory Survey, Am. LAND TITLE ASS'N., https://www.alta.org/title-insurance-regulatory-survey/ (last visited Mar. 19, 2019). Likewise, the National Association of Insurance Commissioners provides a similar document, highlighting the breadth and variance of title insurance regulation. Survey of State Insurance Laws Regarding Title Data and Title Matters, NAT'L ASS'N OF INS. COMMISSIONERS (Nov. 2015), https://www.naic.org/documents/committees_c_title_tf_related_title_survey.pdf.

^{340.} See The History of Title Insurance, AMROCK (Jul. 28, 2017), https://www.amrock.com/history-title-insurance/(See The History of Title Insurance, AMROCK (Jul. 28, 2017), https://www.amrock.com/history-title-insurance/("After more than 100 years, title insurance continues to help ensure those purchases can be made efficiently, securely, and safely.").

Major changes include the proliferation of endorsements for the Loan Policy, which provide additional insurance at little to no cost for lenders. Additionally, most title insurers offer an entirely new policy to protect homeowners, called the Homeowner's Policy of Title Insurance, which provides increased protections, such as coverage for forced removal as the result of permit failures and encroachments, despite these issues not being available in the public records. 342

ALTA is already considering proposals that include changes in preparation for additional technological improvements in title and escrow, such as coverage for attacks on title based on the invalidity of electronic signatures under applicable statutes.³⁴³ Thus, there is no indication that the value of title insurance will ever be eliminated as most claims are not resolved by the technologies discussed herein.³⁴⁴

CONCLUSION

Most of the technologies proposed herein are in their infancy, especially blockchain.³⁴⁵ The companies that are supposedly revolutionizing the title insurance industry are not proposing solutions that will add value to the modern automated title search that currently exists today.³⁴⁶ Until a company can demonstrate that it is financially and practically feasible to use blockchain, the status quo will continue to dominate.

Additionally, to the extent these technologies advance in a way that make them financially and practically feasible, it is possible that title insurance companies will need to adapt to maintain market share.³⁴⁷ However, as the theme throughout this

^{341.} See Everything You Need to Know About Title Endorsement – And Whether You Need It, QUICKENLOANS (Jul. 8, 2019), https://www.quickenloans.com/learn/title-endorsement (reasoning that although such endorsements may not cost a lot, owners need to inquire into the potential benefits).

^{342.} See Homeowner's Policy of Title Insurance, FIDELITY NAT'L TITLE INSURANCE CO., https://www.fntic.com/HomeOwnerspolicy.aspx (last visited Feb. 15, 2020).

^{343.} The History of Title Insurance, AMROCK (July 28, 2017), https://www.amrock.com/history-title-insurance/.

^{344.} See Kammerdeiner & Sadler, supra note 272 ("Blockchain technology holds infinite possibilities that could help make current processes in our industry and society more efficient; however, it will never be able to do what title insurance professionals do each day: provide peace of mind and protect property rights. Homeowners and lenders have relied on our services for generations. Emerging technologies will not replace the assurances that title insurance provides.").

^{345.} See Bernard Marr, A Very Brief History of Blockchain Technology Everyone Should Read, FORBES (Feb. 16, 2018, 12;28 AM), https://www.forbes.com/sites/bernardmarr/2018/02/16/a-very-brief-history-of-blockchain-technology-everyone-should-read/ (discussing how Bitcoin debuted blockchain technology in 2008, but exploration of other uses for blockchain did not take off until 2014).

^{346.} See supra notes 198–202.

^{347.} See Title Insurance Companies Focusing on Tech like Their Lives Depend on It, PROPMODO (Mar. 8, 2018), https://www.propmodo.com/title-insurance-companies-focusing-tech-like-lives-depend/. Established title insurance companies have increased the value of title insurance for stakeholders over time. Title Insurance:

paper suggests, because established title insurance companies are practically and economically positioned to protect the interests of real property stakeholders, they will continue to be uniquely prepared to negotiate the challenges of incorporating technology into the existing business and legal structure.³⁴⁸

a Comprehensive Overview, ALTA, https://www.alta.org/press/TitleInsuranceOverview.pdf (last visited Mar. 31, 2020).

^{348.} See supra Parts IV, V.