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Blockchain Challenges Traditional Contract Law: Just How Smart Are Smart Contracts?

Morgan N. Temte
University of Wyoming College of Law

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COMMENT

Blockchain Challenges Traditional Contract Law: Just How Smart Are Smart Contracts?

Morgan N. Temte*

> The blockchain cannot be described just as a revolution. It is a tsunami-like phenomenon, slowly advancing and gradually enveloping everything along its way by the force of its progression.[1]

I. INTRODUCTION

Blockchain is a ten-year-old technology inducing massive changes in industries all over the world.[2] It fills many niches in high-tech firms, paving the

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[1] WILLIAM MOUGAYAR, THE BUSINESS BLOCKCHAIN: PROMISE, PRACTICE, AND APPLICATION OF THE NEXT INTERNET TECHNOLOGY 17 (John Wiley & Sons, Inc. eds., 2016).

[2] *See* Alan Cohn et al., *Smart After All: Blockchain, Smart Contracts, Parametric Insurance, and Smart Energy Grids*, 1 GEO. L. TECH. REV. 273, 274 (2017); John R. Storino et al., *Decrypting the Ethical Implications of Blockchain Technology*, LEGALTECH NEWS 1, 1 (Nov. 13, 2017), https://jenner.com/system/assets/publications/17556/original/Storino%20Steffen%20Gordon%20LegalTech%20Nov%2013%202017.pdf.

way for better record-keeping and maintenance of insurance policies, contracts, financial ledgers, and more.[3] The legal industry has also found ways to implement blockchain technology as it serves as a medium for "smart contracts"—contracts that self-execute once the parties meet agreed-upon conditions.[4] Under prior frameworks, smart contracts merely simplified traditional contract execution, but the unprecedented incorporation of blockchain technology into legal contracts generates many new questions about the application of existing legal doctrines.[5]

Wyoming has been at the forefront of proactively addressing many of these questions.[6] In 2018, the Wyoming State Legislature passed blockchain legislation.[7] As a result, many blockchain companies expressed interest to local business people about incorporating in the state.[8] With the addition of block-chain technology in Wyoming, it is crucial to address the potential challenges, especially how users are to apply existing legal doctrines to new tools that operate using blockchain technology.[9]

This Comment examines the innovative legal qualities of blockchain smart contracts and their corresponding challenges.[10] Part II provides a brief background on blockchain technology and Wyoming's role in regulating the new tech-nology.[11] Part III discusses the evolution of smart contracts and their adaptation

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[3] *See* Cohn et al., *supra* note 2*, at 273, 277–80, 290–92.

[4] *See* Pierluigi Cuccuru, *Beyond Bitcoin: An Early Overview on Smart Contracts*, 25 Int'l J. L. & Info. Tech. 179, 184–86 (2017).

[5] *See* Max Raskin, *The Law and Legality of Smart Contracts*, 1 Geo. L. Tech. Rev. 305, 306 (2017).

[6] *See* Margaret I. Lyle et al., *State Laws Addressing Blockchain Technology*, *in* Blockchain for Business Lawyers, 185, 187–92 (James A. Cox & Mark W. Rasmussen, eds., 2018) (providing background information on other national leaders, including Arizona, Delaware, and Vermont); Benjamin Bain, *Wyoming Aims to be America's Cryptocurrency Capital*, Bloomberg Businessweek, (May 15, 2018), https://www.bloomberg.com/news/articles/2018-05-15/wyoming-aims-to-be-america-s-cryptocurrency-capital.

[7] During its 2018 Budget Session, the Wyoming State Legislature passed five bills, now codified into law. *See* Wyo. Stat. Ann §§ 17-4-102, -206, 17-16-140 to -142, -626, -720, -724, -730, -1601, 17-29-21, 39-11-105, 40-22-102, -104. -126, 44-22-104 (2018).

[8] *See* Bain, *supra* note 6. For example, David Pope, an accountant and Executive Director of Wyoming Blockchain Coalition, was contacted by over a dozen blockchain companies looking to register in the state. *Id.* James Row, a registered broker for more than two decades who worked with the Wyoming Blockchain Coalition, filed paperwork for a new blockchain finance company in Wyoming immediately after the law changed. *Id.* Row is considering moving at least a few of his eleven other businesses currently registered in Delaware to Wyoming, including some in finance and energy. *Id.*

[9] *See* James A. Cox, *Introduction to Blockchain Technology*, *in* Blockchain for Business Lawyers, *supra* note 6, at 1.

[10] *See infra* notes 150–239 and accompanying text.

[11] *See infra* notes 18–56 and accompanying text.

to blockchain technology.[12] This section further introduces some of the benefits and drawbacks of smart contracts.[13] Part IV provides an in-depth analysis of the legal issues that will likely arise with this new form of contract, including the application of traditional contract law principles, the potential for unauthorized practice of law, jurisdictional challenges in drafting and enforcing smart contracts, and concerns regarding the potential liability for errors in smart contracts.[14] Part V briefly examines Wyoming's recent legislation and assesses potential future regulation of smart contracts.[15] This section concludes by recommending that the Wyoming Legislature (Legislature) pass a legislative finding to show that Wyoming's existing legal structure already consents to the use of smart contracts.[16] The recommendation also urges the Legislature to refrain from passing specific legislation that would restrict the industry before it creates its own standards and before the courts speak to the enforceability of smart contracts.[17]

II. BACKGROUND

A. What is Blockchain?

Cryptocurrency is a "digital currency in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of funds, and which operate independently of a central bank."[18] Blockchain is the trading medium of cryptocurrency, the most popular being Bitcoin.[19] Satoshi Nakamoto, a pseudonymous and publicly-unknown author, created Bitcoin.[20] Mr. Nakamoto introduced cryptocurrency in 2008, along with the platform on which it operates, known today as blockchain technology.[21] Blockchain

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[12] *See infra* notes 57–149 and accompanying text.

[13] *See infra* notes 90–125 and accompanying text.

[14] *See infra* notes 150–239 and accompanying text.

[15] *See infra* notes 240–76 and accompanying text. This Legislature should draft a finding similar to the finding in the Legislature's Working Draft that noted "the legislature finds the following . . . . ." *See* Working Draft Version 5, Act Relating to Smart Contracts, S.F., 65th Leg., Gen. Sess. (Wyo. 2019) (Blockchain Task Force Interim Committee Working Draft, 19LSO-0049), https://www.wyoleg.gov/InterimCommittee/2018/S3-20180924SmartContractsDraftBill[19LSO-0049v.0.5].pdf [hereinafter Working Draft Version 5, 19LSO-0049].

[16] *See infra* notes 260–62 and accompanying text.

[17] *See infra* notes 267–76 and accompanying text.

[18] W. VA. CODE § 61-15-1(3) (2018).

[19] *See* Tsui S. Ng, *Blockchain and Beyond: Smart Contracts*, A.B.A. BUS. L. TODAY (Sept. 2017), https://www.americanbar.org/groups/business_law/publications/blt/2017/09/09_ng.html. Although a deep examination of cryptocurrency is beyond the scope of this Comment, a brief overview of the emerging technology is provided for background. *See infra* notes 21–25 and accompanying text. For a more in-depth discussion of cryptocurrency, see SATOSHI NAKAMOTO, BITCOIN: A PEER-TO-PEER ELECTRONIC CASH SYSTEM, 1–8 (2008), https://bitcoin.org/bitcoin.pdf.

[20] Cox, *supra* note 9, at 1–2.

[21] *Id.*

technology commenced as a means of operating cryptocurrency transactions.[22] A cryptocurrency blockchain encodes debits and credits to cryptocurrency accounts and stores them as transactions "in blocks."[23] Contrary to centralized record-keeping systems, each node in the system evaluates the transaction and maintains its own ledger of all transactions in a decentralized form.[24] The decentralized ledger system reduces the risk of hacking and altering information, since a majority of the nodes must verify a change in data for the ledger to legitimatize the alteration.[25]

Beyond cryptocurrency, dozens of industries use blockchain because of its potential to revolutionize day-to-day activities and record-keeping.[26] The decentralized blockchain ledger allows multiple nodes to keep identical records of given transactions.[27] This decentralized record-keeping system creates a system of extreme transparency that eliminates the need for a third party, solves double-spending problems, and is more resistant to hackers.[28] Businesses use blockchain ledgers to track and maintain financial records, insurance claims, or unambiguous contracts.[29] Media and entertainment companies might benefit from a block-chain ledger used to reduce online music theft and ticket fraud.[30] Implementation of blockchain will improve travel efficiency and reduce duplicity for travel agencies.[31] Blockchain also has potential to transform the healthcare industry by capturing clinical data more efficiently.[32]

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[22] *See* Raskin, *supra* note 5, at 317.

[23] *See id.* at 318.

[24] *See, e.g.*, J. Travis Laster & Marcel T. Rosner, *Distributed Stock Ledgers and Delaware Law*, 73 BUS. L. 319, 321 (2018) (defining a node as a computer on the network which keeps its own copy of the ledger.); Cox, *supra* note 9, at 2, 6.

[25] Laster & Rosner, *supra* note 24, at 325 (explaining how the peer-to-peer system comprised of nodes makes the blockchain reliable and secure); *see* Raskin, *supra* note 5, at 318 ("A block is verified by a large number of computers in a network, called nodes, and then tacked on to the previously verified blocks. This chain of data blocks is known as a blockchain.").

[26] *See infra* notes 29–32 and accompanying text.

[27] *See* Storino et al, *supra* note 2, at 1–2.

[28] *See* Cox, *supra* note 9, at 2.

[29] *See Rewire Your Industry with IBM Blockchain*, IBM, https://www.ibm.com/blockchain/industries (last visited Nov. 12, 2018).

[30] *See Now Playing: Transparency in Media, Entertainment and Advertising with IBM Blockchain*, IBM, https://www.ibm.com/blockchain/industries/advertising-media (last visited Nov. 12, 2018).

[31] *See Move Your Transportation Operations Ahead with IBM Blockchain Solutions*, IBM, https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=48015248USEN& (last visited Nov. 12, 2018).

[32] Devon S. Connor-Green, *Blockchain in Healthcare Data*, 21 U.S.F. INTELL. PROP. & TECH L. J. 93, 98 (2017).

Because of its novelty, courts are still in the beginning stages of adjudicating blockchain and the various tools that operate using the new technology.[33] Since blockchain is still emerging in the legal world, state legislatures hold a paramount task of drafting and enacting new legislation that will offer the courts guidance on how to treat blockchain.[34] States are making policy choices in hopes of attracting economic growth by creating a competitive edge in drawing business over competing states.[35] Though many states are setting new policies, there has yet to be a consensus on the right way to regulate the modern technology.[36] Many states, including Wyoming, have created blockchain task forces and initiatives to explore how blockchain can help spur economic development.[37]

B. Blockchain's Importance to Wyoming

Many recognize Wyoming as an illustrious state to start a new enterprise because of its low taxes and corporate-friendly laws.[38] As the first state to recognize limited liability companies, Wyoming has long enjoyed a reputation as a state attentive to business needs.[39] Wyoming's capability for accommodating blockchain technology is no concession to its other business incentives.[40] In addition to having a business-minded environment, Wyoming ranks high in the nation for

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[33] Many cases that discuss blockchain technology are specifically concerned with companies that operate with cryptocurrency, fighting for trademark rights and injunctions against similar companies. *See* Alibaba Grp. Holding Ltd. v. Alibabacoin Found., No. 18-CV-2897 (JPO), 2018 WL 2022626, at 7 (S.D.N.Y. Apr. 30, 2018); Telegram Messenger, Inc. v. Lantah, LLC, No. 18-cv-02811 (CRB), 2018 WL 3753748, at 2 (N.D. Cal. Aug. 8, 2018). Some of these courts are left with equivocal options for how to treat virtual currency until Congress speaks on the matter. *See, e.g.,* CFTC v. McDonnell, 287 F. Supp. 3d 213, 220–21 (E.D.N.Y. 2018).

[34] To date, a search in Lexis reveals eight states have codified legislation relating to blockchain legislation in hopes to clear up ambiguities: Arizona, California, Colorado, Nevada, Ohio, Tennessee, Vermont, and Wyoming. *See, e.g.,* Ariz. Rev. Stat. Ann. § 9-500.42 (2018); Nev. Rev. Stat. § 719.045 (2017); Tenn. Code Ann. § 47-10-201 (2018); Vt. Stat. Ann. tit. 12, § 1913 (2018).

[35] Lyle et al., *supra* note 6, at 185.

[36] *See id.* at 185–86. Wyoming, Arizona, and Delaware have embraced the opportunity for economic growth by enacting legislation that intends to attract blockchain technology. *Id.* On the other hand, New York, has enacted heavy regulatory requirements on virtual currency that create a strong compliance component. *Id.* Meanwhile, many states have been completely silent on the issue altogether; for example, California passed "wait-and-see" legislation. *Id.*

[37] *See id.* at 202–13 (explaining how Delaware, Illinois, Vermont, Arizona, and Wyoming have all created some form of an initiative or task force, or both).

[38] *See* Matthew D. Kaufman et al., *Crowdfunding Comes to Wyoming*, Wyo. Law., Aug. 2017, at 44.

[39] *Id.*

[40] *See generally* Arno Rosenfeld & Heather Richards, *Can Blockchain Save Wyoming? Why the Cowboy State is Banking Big on the Technology*, Casper Star Trib. (Apr. 25, 2018), https://trib.com/business/can-blockchain-save-wyoming-why-the-cowboy-state-is-banking/article_20b361fc-06ff-5970-9843-5ccbdc39d5f3.html; Bain, *supra* note 6.

energy production.[41] Availability of affordable energy is a critical consideration for blockchain companies, as transactions using blockchain require high levels of energy.[42] There are also energy companies in Wyoming willing to implement different blockchain pricing structures in an attempt to attract blockchain entities to Wyoming.[43]

Enacting regulatory legislation will incentivize companies who use blockchain technology to incorporate in Wyoming.[44] Though a new regulatory structure might propel some companies to incorporate in the state without a physical presence, policymakers are confident "registration and filing fees alone [will] bring loads of fresh cash into the state."[45] But records indicate that many blockchain companies are already choosing Wyoming as their physical domicile.[46]

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[41] *Wyoming State Profile and Energy Estimates*, U.S. ENERGY INFO. ADMIN. (2017), https://www.eia.gov/state/?sid=WY#tabs-3 (showing Wyoming as a primary source of various types of energy).

[42] *See* Adam J. Kolber, *Not-So-Smart Blockchain Contracts and Artificial Responsibility*, 21 STAN. TECH. L. REV. 198, 228 (2018) (explaining how one bitcoin transaction uses enough energy to heat 1.57 American homes for an entire day); Chrissy Suttles, *Black Hills Applies for New Blockchain Energy Pricing*, WYO. TRIB. EAGLE (Oct. 8, 2018), https://www.wyomingnews.com/news/local_news/black-hills-applies-for-new-blockchain-energy-pricing-options/article_274446da-cabe-11e8-af19-770097f0a7f4.html (explaining how blockchain companies are looking for low-cost energy).

[43] *See* Suttles, *supra* note 42.

[44] *See, e.g.*, Bain, *supra* note 6 (explaining how Charles Dusek, co-founder of Node Haven, a startup hoping to raise as much as $50 million in an initial coin offering, registered in Wyoming in mid-April to take advantage of the new tax incentives); Rosenfeld & Richards, *supra* note 40 (explaining how Wyoming should provide a beneficial regulatory environment to blockchain companies to see growth in the state).

[45] Bain, *supra* note 6.

[46] *See* Daniel Bendsten, *Tech Companies Promise Wyoming Investment at 'Hackathon'*, CASPER STAR TRIB. (Sept. 11, 2018), https://trib.com/news/state-and-regional/tech-companies-promise-wyoming-investment-at-hackathon/article_17dd1507-3e14-5ea7-b4d5-2d1fb761bb03.html (explaining how, at the Wyoming's first WyoHackathon hosted by the University of Wyoming, several blockchain companies announced plans to move to Wyoming). These announcements came from the founder of ActiveAether, a New York-based company who plans to relocate to Jackson Hole, Wyoming, and the founder of Overstock.com, who has plans to open a blockchain development office in the state. *Id.*; *see also generally* Michael del Castillo, *Free-Range Beef Bound by the Blockchain*, FORBES (May 17, 2018, 11:48 AM), https://www.forbes.com/sites/michaeldelcastillo/2018/05/17/free-range-beef-bound-by-the-blockchain/ (explaining how Wyoming Senator Ogden Driskill joined startup BeefChain, which provides for the tracking of livestock so that the owners of the livestock can sell for a higher resale price that reflects their true natural, free range lifestyle). As of the date of this Comment, BeefChain works with five Wyoming ranches who plan to track their livestock using blockchain technology. BEEFCHAIN, https://beefchain.com/ranches/ (last visited Nov. 13, 2018). BeefChain incorporated in Wyoming in July 2018 as a limited liability company, and lists its principal business location as Cheyenne, Wyoming. *See* WYO. SECRETARY OF ST., BEEFCHAIN, LLC FILING (July 18, 2018), https://wyobiz.wy.gov/business/FilingDetails.aspx?eFNum=132016026062029145255250095101151085094016079240.

Policymakers believe Wyoming's prosperity in this lucrative market hinges on the regulatory environment it provides.[47]

Aside from enacting blockchain-related legislation, Wyoming has been proactive in inviting blockchain technology to the state in other ways.[48] Wyoming organized a Blockchain Coalition (Coalition) to educate citizens about blockchain and spur new business in Wyoming using the technology.[49] The Coalition consists of advisors throughout the state with an interest in inviting blockchain companies to Wyoming, and emphasizes the opportunity Wyoming has to foster a blockchain-friendly environment.[50] The Coalition also illustrates specific ways in which Wyoming can use blockchain technology: ranchers and coal producers can certify Wyoming products with ease, healthcare industries can reduce costs by utilizing better data tracking, holders of mineral rights and leases can better track their royalties and severance payments, the government can have easier accessibility of documents and automatic compliance with public-records retention laws, and campaign managers can better show financial transparency of candidates.[51]

The Wyoming Legislature also formed a Blockchain Task Force (Task Force) to determine the best way to regulate the blockchain industry in the state.[52] It is the responsibility of this Task Force to introduce blockchain-related bills for the Legislature's consideration.[53] The Task Force advanced five bills during the 2018

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[47] *See* Rosenfeld & Richards, *supra* note 40.

[48] *See* Lyle et al., *supra* note 6, at 185, 189–90.

[49] *About Us,* WYO. BLOCKCHAIN COALITION, http://wyomingblockchain.io/about (last visited Nov. 13 , 2018) ("The mission of the Wyoming Blockchain Coalition is to educate Wyoming citizens about the power of blockchain technology to cut costs, streamline administrative processes and spur entirely new businesses in Wyoming").

[50] *Id.*; Telephone Interview with David Pope, Principal Officer of DACPA, Executive Director of Wyoming Blockchain Coalition (Oct. 11, 2018) (explaining how the Coalition's goal is to create a block of legislative initiatives that will do more than increase the number of registrations in the state, such as "creat[ing] an ecosystem where the capital that [comes] into the state [will] stay in the state and be utilized within the state").

[51] *Blockchain 101,* WYO. BLOCKCHAIN COALITION, http://wyomingblockchain.io/blockchain-101/ (last visited Nov. 13, 2018).

[52] John Spina, *Task Force Setup to Study Cryptocurrency in Wyoming*, WYO. TRIB. EAGLE (June 2, 2018) https://www.wyomingnews.com/news/task-force-setup-to-study-cryptocurrency-in-wyoming/article_10f0e5b0-65c3-11e8-a3e8-ab78b1e71b64.html. *See generally 2018 Blockchain Task Force*, ST. WYO. LEGIS., http://www.wyoleg.gov/Committees/2018/S3 (last visited Nov. 13, 2018) (stating that the Task Force is a legislative committee comprised of two state senators appointed by the Senate President, two state representatives appointed by the Speaker of the House, and three non-legislative members appointed by the Governor).

[53] *See* Spina, *supra* note 52.

Legislative Session, all of which passed.[54] The implementation of blockchain-related legislation forged a competitive advantage and created a regulatory model for other jurisdictions, as some of the legislation was the first of its kind.[55] This new legislation presents Wyoming with an opportunity to regulate blockchain technology in a way that can directly influence how those technologies operate in other states around the country.[56]

III. SMART CONTRACTS

A. Smart Contracts Before Blockchain

A smart contract is "a set of promises, specified in digital form, including protocols within which the parties perform on these promises."[57] Smart contracts self-execute upon the triggering of pre-determined conditions.[58] A simple vending machine illustrates how a smart contract operates.[59] A vending machine takes in coins and, using a simple mechanism, accurately dispenses the appropriate product and change.[60] Importantly, a party cannot stop the transaction before the vending machine executes the contract completely.[61] The machine cannot return the money once it supplies the product because the software of the machine embeds the terms of the transaction.[62] A smart contract operates in a similar manner: once the software determines that the parties have met the requisite conditions, it automatically executes the contract, acting as a third party, similar to an escrow agent.[63]

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[54] *See* H.B. 19, 70, 101, 126, 64th Leg., Budget Sess. (Wyo. 2018); S.F. 111, 64th Leg., Budget Sess. (Wyo. 2018) (codified at scattered sections of WYO. STAT. ANN. tit. 17, §§ 40-22-102 to 110, 39-11-105 (2018)). *See also supra* note 7 and accompanying text.

[55] *See* Rachel Wolfson, *U.S. State of Wyoming Defines Cryptocurrency 'Utility Tokens' As New Asset Class*, FORBES (Mar 13, 2018), https://www.forbes.com/sites/rachelwolfson/2018/03/13/u-s-state-of-wyoming-defines-cryptocurrency-utility-tokens-as-new-asset-class/#12b41eda4816 ("It's very exciting that Wyoming is the first state to define what a utility token is, setting an example of how this could become a standard under federal law. I do believe the Wyoming approach will work under federal securities law and am optimistic the SEC will agree.").

[56] *See* Lyle et al., *supra* note 6, at 186. "As Justice Brandeis recognized, . . . a 'state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.' The current environment for blockchain and distributed ledger technology may serve as just such a state-law laboratory." *Id.* at 186–87.

[57] Smart contracts commentators recognize Nick Szabo as the creator of the smart contract in 1997. Raskin, *supra* note 5, at 320; Kevin Werbach & Nicolas Cornell, *Contracts Ex Machina*, 67 DUKE L.J. 313, 319 (2017).

[58] Werbach & Cornell, *supra* note 57, at 320.

[59] *Id.* at 348.

[60] *Id.*

[61] NORTON R. FULLBRIGHT, SMART CONTRACTS: CODING THE FINE PRINT 7 (2016).

[62] *Id.*

[63] *See* Cuccuru, *supra* note 4, at 185 (explaining how a smart contract imitates an escrow arrangement).

Although variations of smart contracts existed in the 1990s, lack of the requisite technology prevented widespread implementation.[64] Prior to blockchain, smart contracts were computer programs which facilitated negotiation and verified and enforced performance on a centralized server.[65] Financial institutions used a form of pre-blockchain smart contracts when they eased bookkeeping transactions and option contracts by implementing computer code.[66] Other examples of these pre-blockchain smart contracts include telecom providers locking phones and vehicle manufacturers incorporating automated speed limitations.[67] General uncertainty and concern from users, combined with issues of identity and transaction verification ultimately hindered the use of smart contracts, however.[68] Blockchain technology confronted these obstructions and has since molded the use of smart contracts.[69]

B. Smart Contracts' Evolution Post-Blockchain

Once developed, blockchain streamlined the use of smart contracts, serving as its technological framework and providing security and accuracy.[70] With this technology, a network of nodes distributes the smart contract execution.[71] This more sophisticated execution does not depend on any third party to operate because it is autonomous and independent.[72] Consequently, contracts drafted using blockchain are effectively tamper-proof and protect users from the possibility of unilateral change.[73]

Blockchain technology serves as a decentralized ledger that records transactions using different nodes or computers to verify and legitimize transactions.[74] Ethereum is one of the leading blockchain platforms on which smart contracts

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[64] J. Dax Hansen et al., More Legal Aspects of Smart Contract Applications 3 (2018), https://www.perkinscoie.com/images/content/1/9/v3/199672/2018-More-Legal-Aspects-of-Smart-Contract-Applications-White-Pa.pdf.

[65] Primavera De Filippi & Samer Hassan, *Blockchain Technology as a Regulatory Technology: From Code Is Law to Law Is Code,* First Monday (Dec. 5, 2016), https://firstmonday.org/ojs/index.php/fm/article/view/7113/5657.

[66] Raskin, *supra* note 5, at 321.

[67] De Filippi & Hassan, *supra* note 65.

[68] *See* Scott A. McKinney et al., *Smart Contracts, Blockchain, and the Next Frontier of Transactional Law*, 13 Wash. J.L. Tech. & Arts 313, 317 (2018).

[69] Werbach & Cornell, *supra* note 57, at 330.

[70] Reggie O'Shields, *Smart Contracts: Legal Agreements for the Blockchain*, 21 N.C. Banking Inst. 177, 179 (2017) (explaining how smart contracts provide security and accuracy); *see also* Cuccuru, *supra* note 4, at 184.

[71] *See* McKinney et al., *supra* note 68, at 317–18; *supra* note 24 and accompanying text.

[72] *See* McKinney et al., *supra* note 68, at 323–25.

[73] *Id.* at 317.

[74] *See supra* notes 24–25 and accompanying text.

operate.[75] Designed specifically for smart contracts, Ethereum is capable of carrying data in the form of arguments—variables which contain data or codes—meaning the users can program the platform to take specific action once parties meet certain conditions.[76]

Coders write the terms of a smart contract in blockchain computer code rather than in English or another traditional language.[77] No individual or program can override or change the ledger.[78] Once the parties meet conditions as stated in the ledger, the contract executes automatically without interjection from a third party.[79] Smart contracts often resemble "if-then" propositions, where, if Party A releases money into the blockchain, then the smart contract will self-execute to meet the obligation laid out in the contract.[80] Smart contracts must collect outside information using an external data feed since smart contracts often rely on facts outside of the blockchain to determine if parties have met their requisite obligations.[81] Oracles are the systems that interpret such external feeds and verify contractual performance.[82] Smart contracts use oracles to collect facts outside of the blockchain to help determine if the parties have met their obligations.[83]

Smart contracts that operate using blockchain technology will likely have a profound influence on various industries.[84] In the legal field, smart contracts can drastically shorten litigation settlement times and mitigate risk for the user.[85] Insurance industries can increase efficiency by implementing smart contracts to automate policy agreements.[86] Governmental entities might improve processes if they used smart contracts to manage title recordings, social services, and e-voting.[87] Further, consumers and utility companies can benefit from smart contract

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[75] *See* Ng, *supra* note 19.

[76] *Id.* For a more technical discussion on Ethereum and its capabilities, see Werbach & Cornell, *supra* note 57. *See also* David Gould, COMPLETE MAYA PROGRAMMING 469 (2003) ("An argument to a command or procedure is simply a value given to the command or procedure as input to perform its operation.").

[77] O'Shields, *supra* note 70, at 181.

[78] *See id.* at 180; *infra* notes 110–17 and accompanying text.

[79] *See* O'Shields, *supra* note 72, at 179.

[80] Cohn et al., *supra* note 2, at 281.

[81] Werbach & Cornell, *supra* note 57, at 336.

[82] *Id.*

[83] *See id.*

[84] Ng, *supra* note 19.

[85] *Id.*

[86] *Id.*

[87] *Id.*

use in automatic bill-paying by debiting an account based on predetermined conditions.[88] In manufacturing, smart contracts can replace slow and expensive supply chain processes.[89]

C. Advantages and Disadvantages of Smart Contracts

Smart contracts have numerous advantages: streamlined business operations, heightened speed and efficiency in business transactions, and low-cost enforcement of contracts.[90] Smart contracts are advantageous because they force parties to honor their original agreements.[91] Smart contracts cause the risk of a breach to be more expensive for the breaching party, nearly eliminating the possibility of a breach.[92] If the cost of litigation offsets the probable value of the contract, *ex ante* performance is favorable.[93] To return to the vending machine example, "the amount in the till should be less than the cost of breaching the mechanism," making the cost of breach so high it serves as a deterrent.[94] Avoiding breach altogether reduces the amount parties would spend to oversee enforcement and to litigate a costly dispute.[95]

Smart contracts also have several disadvantages, most of which center on uncontrollability and unregulatabilty, frequently in the form of understandability, rigidity by code, and rigidity by decentralization.[96] Commentators view understandability as a common problem since smart contracts are most often written in code rather than a common language.[97] Consequently, the average person cannot interpret exactly what the contract says.[98] Rather, the contracting parties are at the mercy of the coded language and the programmers who

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[88] *See* Laster & Rosner, *supra* note 24, at 331.

[89] *See* HANSEN ET AL., *supra* note 64, at 16–17.

[90] O'Shields, *supra* note 70, at 183.

[91] Jeremy M. Sklaroff, *Smart Contracts and the Cost of Inflexibility*, 166 U. PA. L. REV. 263, 279 (2017).

[92] *Id.*; *see also* Nick Szabo, *Formalizing and Securing Relationships of Public Networks,* FIRST MONDAY (Sept. 1, 1997), http://journals.uic.edu/ojs/index.php/fm/article/view/548/469 [hereinafter Szabo, *Relationships of Public Networks*].

[93] Raskin, *supra* note 5, at 312. *Ex ante* means "from before" or "[b]ased on assumption and prediction, on how things appeared beforehand, rather than in hindsight." BLACK'S LAW DICTIONARY (10th ed. 2014).

[94] Szabo, *Relationships of Public Networks, supra* note 92.

[95] Sklaroff, *supra* note 91, at 275.

[96] Cuccuru, *supra* note 4, at 188–92 (explaining how smart contracts show a radical shift from natural language to code, which raises questions of understandability since the language is only machine-readable).

[97] *Id.* at 188.

[98] *Id.*

drafted it.[99] A major question arises in coded language showing up in litigation: whether a court can enforce codable language if the self-execution ends up in litigation.[100] Unfortunately, these questions remain unanswered, as courts have not yet addressed an issue about the readability of code in the smart contract.[101] One strategy users can employ to address these obscurities is to carefully draft the smart contract to address ambiguities *ex ante*.[102] Though this meticulous drafting will mitigate considerable uncertainties between contracting parties, it is difficult for parties to reduce the entirety of their agreement to fully-defined terms *ex ante*.[103]

Another major difficulty of smart contracts for those who intend to contract with flexible terms is the rigidity that code possesses.[104] Parties are often willing to include discretionary contract terms for greater flexibility upon execution.[105] Smart contracts limit the parties' discretion because the automated system self-executes the contract.[106] The blockchain will automatically execute once parties meet the definitive conditions.[107] Because the coding of the smart contract on the blockchain cannot deal with vague or uncertain conditions, smart contracts are more practical when used with concrete rather than abstract conditions.[108] Smart contracts generally do not accommodate flexibility and, as a result, are unlikely to replace contracts that necessitate or contain flexible terms.[109]

Smart contracts possess a high level of immutability, which can serve as a hindrance.[110] As explained previously, the decentralized nature of its transactional ledger is a strong advantage of blockchain.[111] But this decentralization also has

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[99] *Id.*

[100] *Id.* at 189.

[101] *See* Rensel v. Centra Tech, Inc., No. 1:17-CV-24500, 2018 U.S. Dist. LEXIS 100720, (S.D. Fla. Dec. 12, 2017). In *Rensel*, a Federal Magistrate for the Southern District of Florida accepted a definition of "smart contract," as "self-executing contracts with the terms of the agreement between buyer and seller being directly written into lines of code. Once a smart contract has been created, computer transaction protocols will execute the terms of a contract automatically based on a set of conditions." *Id.* at 26. However, the parties did not dispute the smart contract's enforceability. *Id.* at 5–6.

[102] *See* Werbach & Cornell, *supra* note 57, at 359, 374.

[103] Sklaroff, *supra* note 91, at 280.

[104] *See* Cuccuru, *supra* note 4, at 189–90.

[105] *See id.*

[106] *Id.*

[107] *See id.*

[108] *See id.*

[109] *See id.*

[110] *See* Dickson C. Chin, *Smart Code and Smart Contracts*, *in* Blockchain for Business Lawyers, *supra* note 6, at 110.

[111] *See infra* note 73 and accompanying text.

drawbacks—the largest being the lack of opportunity for parties to modify once the smart contract executes.[112] The perpetual nature of this technology creates particular concern if the parties mutually agree to alter or reverse the contract.[113] Because of the decentralization feature of the smart contract, users cannot change the smart code once they insert it onto the blockchain.[114] However, this immutability does not mean the parties are completely without recourse.[115] The parties can include a self-destruct feature in the smart code, which will delete the language from the block if the precise address on the blockchain calls for it.[116] While the smart contract can terminate itself, the ability to exercise these actions requires careful planning and drafting.[117]

Hesitant commentators of smart contracts also question the possibility of impeding the execution of a smart contract which a party or third party realizes is fraudulent or illegal.[118] For example, if a smart contract properly executes and releases access keys to pornographic material online, it is unclear what recourse is available.[119] Whether law enforcement or another authority has the ability to stop the automatic trade is unclear. Currently, software developers are trialing prototypes of "permissioned" or private blockchains—hybrid blockchains which address this issue.[120] As the technology develops, rigidity appears less of an issue since the use of recent, more regulated blockchain technology can allow for human intervention to prevent fraudulent or illegal uses of smart contracts.[121]

Blockchain services are likely to remain somewhat uncontrollable, especially with the stronger presence of smart contracts.[122] However, there is a strong advantage in the parties' inability to intervene in smart contracts.[123] With a smart contract, human intervention is not necessary.[124] When courts and authorities

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[112] *See* Cuccuru, *supra* note 4, at 190.

[113] *See* Chin, *supra* note 110, at 110.

[114] *Id.* at 111.

[115] *See id.*

[116] *Id.* (explaining how agreements can also require additional conditions to approve a termination). *See also generally Introduction to Smart Contracts*, SOLIDITY, https://solidity.readthe docs.io/en/v0.4.25/introduction-to-smart-contracts.html (last visited Nov. 14, 2014) (explaining how the only way to remove code from the blockchain is by way of the self-destruct feature).

[117] *See* Chin, *supra* note 110, at 112.

[118] *See* Cuccuru, *supra* note 4, at 191.

[119] *Id.*

[120] *Id.* at 192.

[121] *See id.*

[122] *See id.*

[123] *See supra* notes 71–73 and accompanying text.

[124] *See supra* note 72 and accompanying text.

require human intervention to moderate challenges of enforcement, it lessens the anticipated utility of smart contracts.[125]

D. Smart Contract Examples

In consumer transactions, the use of smart contracts as purchasing agents puts consumers on a more even playing field with those in positions with higher bargaining power, such as corporations.[126] A consumer can use a smart contract to negotiate an online transaction with a vendor, creating a situation where smart contracts exchange with each other on behalf of their principals.[127] One example of a consumer transaction utilizing a smart contract is a car lease:

> Suppose that Bob has a fleet of cars, one of which he wants to lease to Alice. Further suppose that in this world, cars can be operated by a digitally-enabled "key" such as a smartphone app, QR code, or fingerprint, which can be activated and terminated remotely. According to the smart contract, Alice provides down payment to Bob in exchange for use of his car for a set amount of time. Both Alice and Bob have pre-specified a bargaining logic based on their desired terms, such as lease length, interest rate, size of down payment, and car specification. Bob runs a blockchain program that monitors his accounts and inventory, analyzes Alice's proposed terms, and then autonomously negotiates terms acceptable to both. Alice runs a similar blockchain program that monitors her personal accounts to ensure sufficient funds to pay for the lease. Both applications are authorized to bargain and enter into a smart contract for their respective owners. Once the agreement is formed, Bob's smart contract discovers Alice's payment, chooses a car that matches her desired specifications, and instructs that car to accept her digital key.[128]

A more multifaceted example is the smart contract to buy or sell stocks when a price reaches a certain threshold.[129] Not only can a smart contract be told to execute once a price reaches a certain level, it can also contract to execute only

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[125] Cuccuru, *supra* note 4, at 192 (explaining how increasing external control over smart contracts downplays the advantages of a decentralized ledger); *see also* O'Shields, *supra* note 70, at 190 ("The central idea of a smart contract is that it is self-executing and eliminates the need to resort to human intervention, so some of these challenges in enforcement may reduce the prospective benefits of smart contracts.").

[126] O'Shields, *supra* note 70, at 182.

[127] *See id.* at 182–83.

[128] Sklaroff, *supra* note 91, at 273–74.

[129] Cuccuru, *supra* note 4, at 185.

if parties meet regulatory compliance conditions.[130] In a corporate setting, stock ledgers with blockchain capability can also benefit from a smart contract.[131] Coders can program features of a stock ledger into the smart contract before a corporation releases additional shares.[132] These features can differentiate between voting rights, payment rights, and other features.[133] If the corporation decides to issue more shares, the smart contract can require the stock ledger to hold the corporation from issuing shares until it achieves the mandatory vote.[134]

Another instance of smart contracting is an insurance claim.[135] Insurance claims take weeks, sometimes months, to process due to the requirement of human "involvement."[136] This requirement adds administrative cost and oftentimes litigation expense.[137] When an insurance company writes its policies in the form of a smart contract, the input conditions change in the case of an insured event.[138] In the event of a hurricane or other natural disaster, an oracle can input data such as wind speed, location of a hurricane, or magnitude of an earthquake onto the blockchain.[139] If and when those parameters meet or exceed the pre-arranged limits, the smart contract automatically triggers the claims process and delivers the exact amount of financial payout without human involvement.[140]

In the modern industry of sports management, athletes utilize traditional contracts and oftentimes employ sports agents to represent their interests in the drafting and contracting process.[141] Commonly, though, the use of these agents results in additional time and expense, excessive fee charging, and inadequate representation.[142] The incorporation of smart contracts into the sports industry will both simplify the contract-drafting process and result in fewer contract disputes.[143] For instance, employment contracts for professional athletes usually

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[130] *See* Christina Batog, *Blockchain: A Proposal to Reform High Frequency Trading Regulation*, 33 CARDOZO ARTS & ENT. L.J. 739, 759 (2015).

[131] Laster & Rosner, *supra* note 24, at 331.

[132] *Id.*

[133] *Id.*

[134] *Id.*

[135] *Smart Contracts Application Examples and Use Cases*, DRAGLET, https://www.draglet.com/blockchain-services/smart-contracts/use-cases/ (last visited Nov. 15, 2018).

[136] *Id.*

[137] *See id.*

[138] *Id.*

[139] *Id.*

[140] *Id.*

[141] Joshua Bernstein, *Smart Contract Integration in Professional Sports Management: The Imminence of Athlete Representation*, 14 DEPAUL J. SPORTS L. 88, 94 (2018).

[142] *Id.* at 93.

[143] *Id.* at 95.

require athletes to adhere to conditions associated with making appearances at corporate events and endorsing certain products.[144] These conditions repeatedly lead to disputes about a player not attending a required event, ending in a sponsor suing for breach of contract.[145] With the use of a smart contract, parties can set the number of appearances, time of appearance, payment amount, and endorsements as predetermined conditions that, if met, require payment to the player.[146] The satisfying conditions can combine GPS location information, time-stamps, or social media appearances.[147] The oracle can then comb the internet and verify the data to a level of certainty agreed to in the contract.[148] If the player fails to show up to the required event or fails to meet another requisite condition, the smart contract will not execute and, will therefore not trigger the payment to the player.[149]

IV. Legal Issues With Smart Contracts

A. Application Under Traditional Contract Law

Because of the uniqueness and complexity inherent in smart contracts, it is difficult to discern where and how they fit within the legal frameworks of traditional contract law.[150] Courts and policymakers thus far have not assessed the full potential of smart contracts, making it difficult to place them within a regulatory scheme.[151] As of yet, no court has provided guidance for the enforceability of smart contracts, nor has there been a smart contract market

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[144] John Southurst, *E-Rugby Star: Smart Contracts Could Prevent Legal Disputes in Sports,* coindesk (Jan. 22, 2015), https://www.coindesk.com/ex-rugby-star-smart-contracts-prevent-legal-disputes-sport/.

[145] *Id.*

[146] *See id.*

[147] *Id.*

[148] *Id.* The idea of oracles combing the internet for verifiable data does raise a host of privacy concerns, as do many other new blockchain operations. Adam Waks, *Blockchain and Privacy*, Nat'l L. Rev, (Dec. 2017) https://www.natlawreview.com/article/blockchain-and-privacy. For a more in-depth discussion on such concerns, see *id.* However, some commentators note that privacy concerns will lessen once the novelty of the latest technology wears off. *See, e.g.*, Jerry Brito et al., *Bitcoin Financial Regulation: Securities, Derivatives, Prediction Markets, and Gambling,* 16 Colum. Sci. & Tech. L. Rev. 144, 220 (2014); *infra* notes 82–83 and accompanying text.

[149] *See* Southhurst, *supra* note 144.

[150] *See* Trevor I. Kiviat, *Beyond Bitcoin: Issues in Regulating Blockchain Transactions*, 65 Duke L.J. 569, 607 (2016).

[151] Jakub J. Szczerbowski, *Place of Smart Contracts in Civil Law. A Few Comments on Form and Interpretation, in* Proceedings of the 12th Annual International Scientific Conference: New Trends 2017, at 335 (Priv. C. of Econ. Stud. Znojmo ed., 2017), *available at* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3095933 (follow "Open PDF in Browser" hyperlink).

with standardized practices established.[152] The absence of authority and direction causes conflicting views about the enforceability of smart contracts.[153]

Some analysts characterize smart contracts as an alternative to legally enforceable contracts.[154] The presumption in this analysis is that the contracts are not legally enforceable because, once the parties activate the smart contract, the parties have no entitlements beyond those written in code.[155] The code executes robotically without any consideration of other factors.[156] Proponents of this analysis believe that the smart contract does not create obligations in the legal meaning of a contractual obligation.[157] This theory claims that smart contracts are developing in a technical universe not yet touched by the legal realm, similar to the early stages of the Internet.[158] This analysis falls short, because it is unlikely courts and legislatures will allow smart contracts to be out of the reach of the law.[159]

Traditional contracts implicate future performance by creating an obligation for one or more parties.[160] Smart contracts do not create a future obligation, as neither party is legally obligated to take any action after they form the contract.[161] For example, if parties form a smart contract that requires an airline to send its escrowed cryptocurrency to a customer if the airline delays the customer's flight, neither party has a future obligation to act after formation.[162] If the airline delays the flight, the smart contract will self-execute and send the escrowed money to the party who experienced a delayed flight.[163]

Others contend that smart contracts simply fit into the existing legal doctrines that govern traditional contract law.[164] These proponents believe that the

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[152] McKinney et al., *supra* note 68, at 325.

[153] *Compare* Raskin, *supra* note 5, at 322 (arguing that smart contracts are straightforward and governed by traditional contract law), *with* Werbach & Cornell, *supra* note 57, at 367 (articulating that smart contracts are so succinctly different from traditional contracts that we cannot view them as contracts).

[154] Stephen M. McJohn & Ian McJohn, *The Commercial Law of Bitcoin and Blockchain Transactions*, 47 UNIF. COM. CODE L.J. 187 (forthcoming July 2017).

[155] *Id.*

[156] *Id.*

[157] *See* Alexander Savelyev, *Contract Law 2.0: Smart Contracts as the Beginning of the End of Classic Contract Law*, 26 INFO. & COMM. L. 116, 128 (2017).

[158] *Id.* at 16.

[159] *See* Raskin, *supra* note 5, at 340

[160] Kolber, *supra* note 42, at 221.

[161] *See id.*

[162] *See id.*

[163] *See id.*

[164] *See* Raskin, *supra* note 5, at 340.

new form of contracts is best analyzed under traditional contract law until more smart contract-specific guidance develops.[165] Through this lens, a smart contract fulfills the offer requirement through a posting on the blockchain ledger which occurs in an effort to elicit acceptance.[166] Acceptance and consideration are both confirmed through the act of performance of the self-executing smart contract.[167] If the contract executes, it meets the requisite elements of offer, acceptance, and consideration; if the contract does not execute, there is no legally binding contract, only an offer.[168] Since the smart contract outlines the obligations that it automatically triggers, this theory proposes that smart contracts do not require external interpretation and intervention.[169] Additionally, these proponents generally trust that users intend smart contracts for simplistic transactions that do not compel a high level of flexibility.[170]

The analysis that recognizes smart contracts strictly under traditional contract law is stronger than the assertion that smart contracts are not legally binding for two reasons.[171] First, this analysis recognizes that a smart contract can be analogous to a traditional contract.[172] Second, it recognizes the opportunity to legally enforce smart contracts absent new regulations.[173] However, this theory also limits the potential future use of smart contracts by assuming all smart contracts ought to operate like traditional contracts.[174]

Because of the varying treatment of smart contracts and their legal status, a more legally sound suggestion is to enact regulations specific to smart contracts by means of the coding language used to draft smart contracts themselves.[175] Due to their complex nature, smart contracts require more technical regulation than those currently in place.[176] But instead of policymakers

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[165] McKinney et al., *supra* note 68, at 325–26 (explaining how traditional principles of formation, execution, and enforcement apply to smart contracts).

[166] *See* Paul Catchlove, Smart Contracts: A New Era of Contract Use 10 (Dec. 1, 2017) (unpublished independent research paper, Queensland University of Technology, Faculty of Law), https://ssrn.com/abstract=3090226 (follow "Open PDF in Browser" hyperlink).

[167] *See id.* at 11.

[168] *See id.* at 11–12.

[169] *See id.*

[170] McKinney et al., *supra* note 68, at 329.

[171] *See infra* notes 172–73 and accompanying text.

[172] *See* Raskin, *supra* note 5, at 322.

[173] *See id.* at 306.

[174] *See* Werbach & Cornell, *supra* note 57, at 348 ("The distinctive aspect of smart contracts is not that they make enforcement easier, it is that they make enforcement unavoidable. In order to do so, they change the nature of the contract itself.").

[175] *See* De Filippi & Hassan, *supra* note 65.

[176] *See* Werbach & Cornell, *supra* note 57, at 377.

writing the regulation, software builders and device producers should express this regulation in the code language they draft, progressively turning law into code.[177] Regulatory code would proclaim blockchain as a type of regulatory technology—"a technology that can be used both to define and incorporate legal or contractual provisions into code, and to enforce them irrespectively of whether or not there subsists an underlying legal rule."[178] These technical rules can ensure a court will enforce any smart contract on its technical credibility rather than whether it meets the requirements of a valid contract under the law.[179] The coded rules omit the possibility that legal safeguards might invalidate the contract as a result of failure to comply with specific formalities.[180]

In the last several years, the idea of regulation through code has gained broad interest among analysts, though not all agree with it.[181] Opponents worry about the ramifications of using blockchain code to assume conventional legal procedures.[182] Similarly, some worry about the overall elimination of a democratic debate, a task necessary for the legislative branch.[183] To mitigate these concerns, proponents suggest coding existing law into smart contracts.[184] Coders can insert law into a smart contract as parameters that would require the smart contracts to follow existing law in order to execute.[185] This idea of "regulatory coding" provides additional regulatory certainty and lowers the costs of supervision and enforcement.[186] Regardless of what technical specialists think about the legal standing of smart contracts, however, it is likely that the general principles of contract law will apply to agreements memorialized in code until legislatures or other authoritative bodies say otherwise.[187]

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[177] *See* De Filippi & Hassan, *supra* note 65.

[178] *Id.*

[179] *Id.*

[180] *See id.*

[181] *See* Jamil Khan, Comment, *To What Extent Can Blockchain Be Used as a Tool for Community Guidance*, 3 EDINBURGH STUDENT L. REV. 114, 121–22 (2017).

[182] *See id.* at 125–26 (explaining that removing the law from smart contracts can mean risks of accountability, transparency, and consumer protection); Usha Rodrigues, *Law and the Blockchain*, 104 IOWA L. REV. (forthcoming 2018) (showing how some commentators point to The Decentralized Autonomous Organization (DAO) Hack in 2016 to caution others about limits in using the "code is law" concept).

[183] *See* De Filippi & Hassan, *supra* note 65.

[184] Wulf A. Kaal & Craig Calcaterra, *Crypto Transaction Dispute Resolution*, 73 BUS. LAW. 109, 140 (2017).

[185] *See id.*

[186] *Id.* (referring to regulatory coding as a hybrid approach that involves programming existing legal doctrines and rules into smart contract code).

[187] *See* Chin, *supra* note 110, at 97.

B. Unauthorized Practice of Law

Smart contracts implicate the potential of the unauthorized practice of law.[188] Legal ethics prohibit lawyers from aiding in the unauthorized practice of law.[189] Some authorities have suggested that a non-attorney computer coder preparing a will or contract, or selecting which terms to include in a legal agreement on behalf of a party to the contract, constitutes the unauthorized practice of law.[190]

To determine whether smart contract drafting will create the possibility of coders practicing law without a license, it is important to define what actions constitute the practice of law.[191] The definition of "practice of law" varies by state.[192] Wyoming has carefully defined "practice of law" and thoroughly outlines specific authorized and unauthorized practices through the state's court rules.[193] Though Wyoming does have a statute prohibiting the unauthorized practice of law, Wyoming case law indicates scarcity of enforcement against wrongdoers.[194]

Wyoming's court system provides more guidance on the subject in the Rules Governing the Wyoming State Bar and the Unauthorized Practice of Law.[195] Rule 7 specifically authorizes the practice of law and sets out a careful definition of what it means to practice law:

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[188] *See* MODEL RULES OF PROF'L CONDUCT r. 5.5 (AM. BAR ASS'N 2015).

[189] The American Bar Association's Model Rule of Professional Conduct 5.5 restricts the unauthorized practice of law. *Id.* r. 5.5(a) ("A lawyer shall not practice law in a jurisdiction in violation of the regulation of the legal profession in that jurisdiction, or assist another in doing so.").

[190] Storino et al., *supra* note 2, at 2.

[191] *See id; infra* note 192 and accompanying text.

[192] *See* WYO. R. PROF'L CONDUCT r. 5.5 cmt. 2 (2006) ("The definition of the practice of law is established by law and varies from one jurisdiction to another."). "Whatever the definition, limiting the practice of law to members of the bar protects the public against rendition of legal services by unqualified persons." *Id.* ("This Rule does not prohibit a lawyer from employing the services of paraprofessionals and delegating functions to them, so long as the lawyer supervises the delegated work and retains responsibility for their work. . . ."); *see also Practice of law*, BLACK'S LAW DICTIONARY, *supra* note 93 ("The professional work of a lawyer, encompassing a broad range of services such as conducting cases in court, preparing papers necessary to bring about various transactions from conveying land to . . . preparing legal opinions on various points of law, drafting . . . estate-planning documents, and advising clients on legal questions.") "The term also includes activities that comparatively few lawyers engage in but that require legal expertise, such as drafting legislation and court rules." *Id.*

[193] *See* WYO. R. BAR. AUTH. PRAC. r. 7 (2018).

[194] WYO. STAT. ANN. § 33-5-117 (2018) ("It shall be unlawful, and punishable as contempt of court, for any person not a member of the Wyoming state bar to hold himself out or advertise by whatsoever means as an attorney or counselor-at-law."). Only a few Wyoming cases reference this statute. *See, e.g.*, Breen v. Pruter, 679 Fed. Appx. 713, 726 (10th Cir. 2017); Dewey Family Trust v. Mountain West Farm Bureau Mut. Ins. Co., 3 P.3d 833, (Wyo. 2000).

[195] *See* Mark W. Gifford & Jeremiah N. R. Sandburg, *Overhauling Wyoming's Unauthorized Practice of Law System,* WYO. LAW., June 2014, at 40 ("Wyoming's UPL system dates back to 1986, when the Wyoming Supreme Court adopted its Rules of Procedure Governing Unauthorized Practice of Law.").

> "Practice law" means providing any legal service for any other person, firm or corporation, with or without compensation, or providing professional legal advice or services where there is a client relationship of trust or reliance, including appearing as an advocate in a representative capacity; drafting pleadings or other documents; or performing any act in a representative capacity in connection with a prospective or pending proceeding before any tribunal.[196]

Rule 7(c) provides for specific exemptions of activities that the rule does not prohibit, even if the activities fit the definition provided in Rule 7(b).[197] These exemptions include allowing nonlawyer employees of financial institutions, landmen, title insurance companies, and CPAs to conduct work within their regular course of business without fear of violating the court rules or the statute which prohibits the unauthorized practice of law.[198]

Notably, there are fifteen exemptions that apply to occupations in varying industries.[199] To circumvent the prospect of a coder practicing law by coding a smart contract, the committee charged with adopting new rules governing the unauthorized practice of law must recommend a new exemption to the Court to accommodate smart contract coders.[200] This exemption would be advantageous, as it would serve as protection for smart contract coders who desire to perform their duties without concern of practicing law without a license.[201] The addition to the rules should reflect existing exemption language by allowing licensed smart contract coders to code contracts, but requiring the coders to stay within the scope of coding and prohibiting them from giving legal advice regarding the legal effect of the smart contract.[202]

An exemption for smart contract coders is one solution to the uncertainty of unauthorized practice of law claims in Wyoming, though there is a sense of hesitation in considering whether other states would allow for such an exemption.[203] If other states choose not to adopt this court rule exemption, the rules of professional responsibility permit attorneys to assist third-parties in the

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[196] WYO. R. BAR. AUTH. PRAC. r. 7(b).

[197] *Id.* r. 7(c).

[198] *Id.* r. 7(c)(1), (2), (4), (13).

[199] *Id.*

[200] Telephone Interview with Mark Gifford, Bar Counsel, Wyoming State Bar (Oct. 4, 2018) (explaining how the governing committees propose rule changes to the Wyoming Supreme Court, which becomes effective if the Court issues an order accepting the rule change).

[201] *See supra* notes 188–91 and accompanying text.

[202] *See supra* notes 197–98 and accompanying text.

[203] *Id.* (noting the governance of unauthorized practice of law varies state-by-state, and how it is unclear whether other states would adopt Wyoming's approach).

practice of law, such as an attorney assisting a computer coder to draft a smart contract for a client.[204] However, the rule requires a lawyer to "make reasonable efforts to ensure that the [nonlawyer's] conduct is compatible with the professional obligations of the lawyer."[205] If parties strictly follow this rule, an attorney would have to work closely with the computer coder to ensure the coding does mirror the agreed-upon conditions.[206] Therefore, if an attorney is not proficient in reading or drafting code, they would be required to hire a third-party to ensure the language reflects the agreement to avoid malpractice claims.[207] While this scenario might create a need for attorneys who specialize in smart contracts, it also detracts from smart contracts' appeal of shorter transactional time and lower cost.[208]

C. Jurisdictional and Choice-of-Authority Challenges

Contract law varies by state and is a central focus of comparative study.[209] To mitigate the dissimilar laws, courts have developed the choice of law doctrine over time.[210] This doctrine allows courts to consider the application of another jurisdiction's laws.[211] The general rule provides that parties to a contract can choose the applicable law that governs the contract.[212] Absent an explicit term from the contracting parties, the rule defers to local law of the state which has the most significant relationship to the transaction and the parties.[213]

This choice of law provision also passes over to electronic contracts, though not without complication.[214] While most states have adopted the choice of law doctrine as a general rule, parties can still encounter problems in an electronic contract that does not specify the jurisdiction.[215] If, in litigation, the court applies the "most significant relationship" test which refers to the geographic locations of discussions, performance, construction, and place of the content, the smart

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[204] *See* MODEL RULES OF PROF'L CONDUCT r. 5.3 (AM. BAR ASS'N 2015).

[205] *Id.*

[206] O'Shields, *supra* note 70, at 193.

[207] McKinney et al., *supra* note 68, at 334.

[208] *See* McKinney et al., *supra* note 68, at 325 (explaining how human intervention removes "smart" from the smart contract).

[209] Mariana Pargendler, *The Role of the State in Contract Law: The Common-Civil Law Divide*, 43 YALE J. INT'L L. 143, 143 (2018).

[210] *See* Aristotle G. Mirzaian, *Y2K Who Cares? We Have Bigger Problems: Choice of Law in Electronic Contracts*, 6 RICH. J.L. & TECH. 20, ¶ 105 (2000).

[211] *Id.* ¶ 106.

[212] RESTATEMENT (SECOND) OF CONFLICT OF LAWS § 187 (AM. LAW INST. 1971).

[213] *Id.*

[214] *See* Donnie L. Kidd, Jr. & William H. Daughtrey, Jr., *Adapting Contract Law to Accommodate Electronic Contracts: Overview and Suggestions*, 26 RUTGERS COMPUTER & TECH. L.J. 215, 272 (2000).

[215] *See id.* at 273.

contract might execute under laws that neither party considered due to the extensive geographic nature of electronic transactions.[216]

When dealing with traditional contracts, the best practice in choosing a governing authority is for parties to include a choice of law provision, but this practice does not necessarily apply to smart contracts.[217] The nuances of jurisdictional authority in traditional contracts look vastly different than those in smart contracts.[218] The parties of traditional internet transactions are usually identifiable, unlike parties using blockchain-based smart contracts that operate on a decentralized network.[219] A location for the blockchain does not exist, making it impossible to apply traditional choice of law rules to a smart contract in which at least one transacting party remains anonymous.[220]

Analysts have proposed alternatives to applying a traditional choice of law clause to a smart contract.[221] Rather than parties identifying the jurisdictional authority, the smart contract itself can determine the most appropriate governing authority.[222] If the smart contract transacts for a piece of property, then the jurisdiction would fall at the location of the property.[223] Parties may also choose a governing jurisdiction in a particular area where the court will apply well-developed legal standards.[224] Eventually, there will likely be a need for specialized courts to adjudicate smart contract disputes, similar to the specialized courts that review patent appeal litigation.[225]

D. Questions of Liability

Ideally, coders write the smart contract so that it will perfectly execute the intentions of the parties.[226] But users of smart contracts should not assume

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[216] *Id.*

[217] Kaal & Calcaterra, *supra* note 184, at 134.

[218] *See id.* at 133.

[219] *Id.*

[220] *See id.*

[221] *See* Gabriel Jaccard, *Smart Contracts and the Role of Law*, *in* JUSLETTER IT 20 (Nov. 23, 2017), *available at* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3099885 (follow "Open PDF in Browser" hyperlink).

[222] *See id.* (explaining how a jurisdiction might depend on an object in the smart contract).

[223] *Id.*

[224] Larry D. Wall, *"Smart Contracts" in a Complex World*, FED. RES. BANK OF ATLANATA (July 2016), https://www.frbatlanta.org/cenfis/publications/notesfromthevault/1607 (explaining how some financial contracts often stipulate a legal code of the United Kingdom or New York since these jurisdictions have a reputation for predictable and fair decisions).

[225] Chin, *supra* note 110, at 113–14.

[226] David Zaslowsky, *What to Expect When Litigating Smart Contract Disputes*, LAW360 (Apr. 4, 2018), https://www.law360.com/articles/1028009/what-to-expect-when-litigating-smart-contract-disputes.

coders writing the contract are faultless.[227] Generally, enough human intervention creates error, and humans will write the software code that informs the smart contract of the conditions that are required to self-execute.[228] A software coder could make an error, or an operator could bug the code with a virus which misinforms the smart contract.[229] Courts have not yet had the opportunity to resolve these liability questions, though it is likely the issues will eventually reach the courts.[230] Alternatively, a hacker could identify a vulnerability in the smart contract and use the vulnerability for their own benefit.[231] This situation already occurred once with the first decentralized autonomous organization, which lost over $50 million when hackers exploited a vulnerability in the code of an investment fund.[232]

To avoid misallocation of liability of a smart contract, parties should allocate risk in a prior agreement or in the smart contract itself.[233] The way the parties allocate risk will depend on whether the contracting parties or a third party attribute to the coding error.[234] This prior agreement would allow the parties to introduce extrinsic evidence to determine the intent if there were a dispute over the intended function of the code without the mistake.[235] In this circumstance, a court can restructure the writing to reflect the original intention of the parties.[236] This proposition is analogous to traditional contract law, which supports the court's consideration of evidence of surrounding circumstances to determine the parties' intent.[237] If the parties want to avoid a court allocating liability in the case

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[227] *See id.*

[228] *See id.* ("[T]here is an inherent contradiction between [the] assumption [that code will perfectly execute] and the reality that code is rarely perfect. Indeed, software engineers are not trained to write perfect code; it is expected that bugs will be identified and fixed.").

[229] *See id.*

[230] *See id.*

[231] *Id.*

[232] Rodrigues, *supra* note 182; *see also* Richard J. Johnson et al., *Blockchain Technology, Security, and Privacy*, *in* Blockchain for Business Lawyers, *supra* note 6, at 120 (explaining how the first Decentralized Autonomous Organization, launched by the Ethereum founder to serve as an investment fund, raised $150 million before hackers exploited a vulnerability in the software, permitting them to take $55 million worth of cryptocurrency).

[233] Eliza Mik, *Smart Contracts: Terminology, Technical Limitations and Real World Complexity*, 9 L., Innovation & Tech. 269, 279 (2017).

[234] *Id.*

[235] *See* Chin, *supra* note 110, at 109 (noting that parties might need to rely on outside evidence to determine intent if a dispute were to ever occur); *Extrinsic evidence,* Black's Law Dictionary, *supra* note 93 (defining extrinsic evidence as "[e]vidence relating to a contract but not appearing on the face of the contract because it comes from other sources, such as statements between the parties or the circumstances surrounding the agreement").

[236] Chin, *supra* note 110, at 109.

[237] *See, e.g.*, Ultra Res., Inc. v. Hartman, 2015 WY 40, ¶ 56, 346 P.3d 880, 889–900 (2015) ("As we have stated before, even when a contract is unambiguous, evidence of the circumstances surrounding its execution may be considered to determine the parties' intent."); Madison v. Marlatt,

of a coding mistake or breach, parties can choose to program dispute resolution into the code.[238] This would limit the need to resolve matters in court and could help facilitate innovative responses in light of the complexity of a new market.[239]

V. Wyoming's Blockchain Legislation
and A Recommendation for Future Legislation

With blockchain technology emerging as a strong intermediary for trans-actional recordkeeping, the original idea behind smart contracts is modernizing and developing into an entirely new area of transactional regulation.[240] Wyoming was among the first states to pass blockchain legislation.[241] In the 2018 Budget Session, the Legislature passed sweeping legislation embracing blockchain as an engine of economic growth.[242] The members of the Blockchain Task Force (Task Force) proactively introduced legislation that impacts overall blockchain technology and blockchain companies.[243] The five new statutes

> "(1) exempt utility blockchain tokens from state securities laws; (2) exempt virtual currency from the state's money transmitter statute; (3) authorize corporate recordkeeping by distributed or electronic records; (4) exempt virtual currency from state property taxation; and (5) authorize 'series' LLC's, a corporate form considered especially conducive to blockchain-related business."[244]

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619 P.2d 708, 714 (Wyo. 1980) ("However, when the terms of the contract are unclear on their face and doubt arises from the contract itself as to what the parties mean, then extrinsic evidence becomes admissible in order to establish the parties' original intent and thus aid the court in construing the contract accordingly.").

[238] Catchlove, *supra* note 166, at 15.

[239] *See* Chin, *supra* note 110, 115 (explaining how smart contract dispute resolution could mirror strategies adopted by the derivatives industry, a sector with significant and complex disputes, similar to that expected in the blockchain industry).

[240] *See* O'Shields, *supra* note 70, at 184–85.

[241] *See* Wyo. Stat. Ann §§ 17-4-206, 17-16-140 to -142, -626, -720, -724, -730, -1601, 17-29-21, 39-11-105, 40-22-102 to 110 (2018).

[242] Lyle et al., *supra* note 6, at 185.

[243] *UW, State Blockchain Efforts Boosted by Technology Pioneer*, Univ. Wyo. (June 5, 2018), http://www.uwyo.edu/uw/news/2018/06/uw,-state-blockchain-efforts-boosted-by-technology-pioneer.html ("The new legislation will allow Wyoming to be the first U.S. state and one of the only places in the world to create a legally distinct asset class for blockchain, and positions the state to be a leader in the blockchain sector.") "Lawmakers have touted Wyoming as an ideal place for blockchain, given Wyoming's need for economic diversification." *Id.*

[244] Lyle et al., *supra* note 6, at 185. For a more in-depth look into the legislation passed, see Eden L. Rohrer et al*., Understanding the Effect of Wyoming's Blockchain and Cryptocurrency Legislation*, K&L Gates (June 4, 2018), http://www.klgates.com/understanding-the-effect-of-wyomings-blockchain-and-cryptocurrency-legislation-06-04-2018/.

This legislation shows Wyoming's willingness to fully embrace blockchain.[245] Moving forward, the Legislature and the Task Force are discussing potential legislative proposals.[246] One proposal defines smart contracts and addresses the legal recognition of smart contracts.[247]

The Task Force was considering a new bill pertaining to smart contracts for the upcoming session.[248] The draft of the bill defined smart contracts as automated transactions "comprised of code or programming language that executes the terms of the contract, which may include taking custody or transferring assets, or issuing legally executable instructions for these actions, based on the occurrence or non-occurrence of specified conditions" that are carried out on the blockchain.[249]

Besides defining smart contracts, the proposed bill addressed how the Uniform Electronic Transactions Act would apply to blockchain technology.[250] The proposed bill also uniquely proposed a resolution plan requirement for smart

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[245] *See* Lyle et al., *supra* note 6, at 185.

[246] Chrissy Suttles & Katie Kull, *Wyoming Blockchain Task Force to Introduce 2019 Legislation*, Wyo. Trib. Eagle (Sept. 28, 2018), https://www.wyomingnews.com/news/local_news/wyoming-blockchain-task-force-to-introduce-legislation/article_9b281856-c2e4-11e8-bc63-3fc89e873cf2.html.

[247] *See* Working Draft Version 5, 19LSO-0049, *supra* note 15. Wyoming would not be the first state to legally recognize or define smart contracts. *See* Ariz. Rev. Stat. § 44-7061 (2018); Tenn. Code. Ann. § 47-10-202 (2018); Vt. Stat. Ann. tit. 11, § 4173 (2018); Nev. Rev. Stat. §§ 719.090, .250 (2017); Gayle M. Hyman & Matthew P. Digesti, *New Nevada Legislation Recognizes Blockchain and Smart Contract Technologies*, Nev. Law., August 2017, at 13–17.

[248] *See* Working Draft Version 5, 19LSO-0049, *supra* note 15; *Blockchain Task Force September Meeting Agenda*, 64th Leg., Joint Interim Comm., at 2, https://www.wyoleg.gov/InterimCommittee/2018/S3-20180924AgendaPreview.pdf (last updated Sept. 24, 2018).

[249] *See* Working Draft Version 5, 19LSO-0049, *supra* note 15, at § 40-28-101(a)(iv)(A)–(C). There was some commentary on the Bill about whether subparagraph (C) was limiting in that it "ties smart contracts to blockchain technology and may not account for future innovations." *Id.* The draft also mentioned subparagraph (B) was generally borrowed from Tennessee's legislation. *Id.*

[250] *See id.* sec. 1. "The legislature finds the following: . . . ."

(iv) The existing standards of the Uniform Electronic Transactions Act, W.S. 40-21-101 through 40-21-119, are wide-ranging and likely already govern blockchain-based transactions, including smart contracts;

(v) The provisions of this act provide legal certainty for parties who transact business through smart contracts, underscoring the enforceability of smart contracts and ensuring that smart contracts above a certain monetary threshold contain a resolution plan memorializing the intent of the parties in the event of specified contingencies or emergencies . . . .

Id.

contracts with values exceeding a certain threshold amount.[251] The legislative staff comment about the required resolution plan provides a substantive summary of the proposed sections:

> Subsections (b) and (c) of this section state that a smart contract which exceeds a specified value threshold must have some kind of resolution plan which addresses one or more of the factors above. The Task Force requested that it not be prescriptive, but that it ensure that the parties to a smart contract have thought somewhat about how they want the contract resolved in an emergency, without having to obtain judicial relief to terminate the smart contract. Smart contracts can perform contractual duties without human direction, and as a result, lengthy judicial resolution can be inefficient, complicated and costly because of the need to unwind the smart contract. This section is meant as a "living will" to avoid the need for judicial resolution or to simplify a judge's task dramatically by memorializing the intent of the parties regarding emergency situations, i.e., facilitating a quick temporary restraining order or preliminary injunction.[252]

During discussion between members of the Task Force and the public, the complexities of smart contracts' regulation remained apparent.[253] Some commentators questioned the need to regulate smart contracts at all, while others begged for clearer and more comprehensive language.[254] The discussion about smart contracts, combined with the public commentary, revealed many unanswered questions and the need for more work before moving forward with the proposed legislation.[255]

Different states' laws and regulations are creating a patchwork in the blockchain landscape.[256] For some commentators, current smart contract legislation

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[251] *See id.* § 40-28-102 ("Required Resolution Plan for Specified Smart Contracts; Characteristics").

[252] *See* Working Draft Version 3, Act Relating to Smart Contracts, S.F., 65th Leg., Gen. Sess. (Wyo. 2019) (Blockchain Task Force Interim Committee Working Draft, 19LSO-0049) (available with author).

[253] *See September 24 AM Audio 2: Blockchain Task Force Meeting*, at 2:27:43 (2018), https://www.wyoleg.gov/InterimCommittee/2018/Blockchain%20Sept%2024%20AM-2.mp3.

[254] *See id.* at 2:27:52, 2:39:37.

[255] *See id.*

[256] *See* Lyle et al., *supra* note 6, at 187–202; Carla Reyes, *Moving Beyond Bitcoin to an Endogenous Theory of Decentralized Ledger Technology Regulation: An Initial Proposal*, 61 VILL. L. REV. 191, 211 (2016) (explaining how regulatory bodies like courts and legislators "have acted independently resulting in a regulatory mishmash of guidance, clarification, extension and ongoing discussion").

falls short for its failure to adequately define important terms like "contract" and "executed."[257] Wyoming should learn from this failure, and carefully define and draft legislation to reduce ambiguity. At the same time, the Legislature should resist comprehensively regulating smart contracts until the industry standards are clear and courts have addressed the many uncertainties.[258]

Commentators agree that nothing in Wyoming's current legislation would prohibit the use of smart contracts.[259] For this reason, the Legislature should declare a legislative finding that the Uniform Electronic Transactions Act already permits the use of legally enforceable smart contracts.[260] This finding will demonstrate Wyoming's hospitality to the use of smart contracts and avert the Legislature from enacting specific regulations that inadvertently use limiting language.[261] This finding will also provide the judiciary with enough guidance to enforce the use of smart contracts that adhere to traditional contractual principles and decline to enforce those that do not adhere to such principles until further regulation allows for them.[262]

After the Legislature passes a legislative finding, it should work closely with the Blockchain Coalition and the Task Force to observe standards in the smart contracts industry to help craft future legislation.[263] These groups should monitor existing smart contracts legislation to see how courts adjudicate smart contracts in other states.[264] These observations will certify that the Legislature

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[257] Mike Orcutt, *States That Are Passing Laws to Govern "Smart Contracts" Have No Idea What They're Doing*, MIT TECH. REV. (Mar. 29, 2018), https://www.technologyreview.com/s/610718/states-that-are-passing-laws-to-govern-smart-contracts-have-no-idea-what-theyre-doing/ (commenting on how the Tennessee definition of smart contracts was limiting because it only provided for smart contracts using blockchain technology); *see also September 24 AM Audio 2: Blockchain Task Force Meeting*, *supra* note 253, at 2:55:30 (commenting on how smart contracts should be defined in a statute to avoid the danger of being classified as clickbait contracts, where users agree to terms that often include questionable enforceability).

[258] *See supra* notes 36, 101, 151, 230 and accompanying text.

[259] *See September 24 AM Audio 2: Blockchain Task Force Meeting*, *supra* note 253, at 2:13:43.

[260] This legislative finding would benefit from similar language as used in Working Draft Version 5, 19LSO-0049, sec. 1, *supra* note 15. *See supra* note 250 and accompanying text.

[261] *See supra* note 257 and accompanying text (illustrating how easily it is for the Legislature to enact limiting language when they draft bills to conform with a specific technology).

[262] *See supra* notes 179–80, 186 and accompanying text.

[263] *See generally* DIGITAL ASSET TRADE ASSOC., https://digitalasset.org (last visited Nov. 18, 2018) (showing how The Digital Asset Trade Association is the leading advocacy group that sets policy considerations for the industry, including smart contracts and digital currency); Shlomit Azgad-Tromer, *Crypto Securities: On the Risks of Investments in Blockchain-Based Assets and the Dilemmas of Securities Regulation*, 68 AM. U.L. REV. 69, 133–34 (2018) ("The facts provided to the court in any single particular case would rarely suffice to resolve a blockchain litigated case. Norms and industry standards require broader understanding of the unique and almost peculiar dynamics of the crypto markets."); *see also supra* note 258 and accompanying text.

[264] *See supra* note 247.

only passes regulations that adhere to such standards and serve to bring capital to Wyoming.[265] This prudent monitoring of standards will also preclude the Legislature from passing hasty legislation solely in response to the actions of other states.[266]

Though the resolution requirement plan proposed in the working draft is distinctive, the Legislature should pause on enacting such legislation until the industry decides further standards.[267] The reality is, "[i]t is too early to say how smart contracts should be understood by the law and how, if at all, they should be regulated."[268] Legislative provisions so exclusive to Wyoming, like the resolution requirement plan, may bear unintended hindrances in the use and execution of smart contracts, which would arguably deter blockchain companies.[269]

In some instances, existing rules can apply to the use of smart contracts, but in other instances, policymakers will need to adapt the rules to the new context of smart contract transactions.[270] Smart contracts that operate in the traditional contractual framework, which necessitates offer, acceptance, and consideration, are likely not worth regulating.[271] But more broadly, smart contracts will pilot legal issues that courts and legislatures must address to provide a framework for parties interested in using them.[272] Legislators and Task Force members should consider new regulatory techniques, like using code as the legal regulatory scheme of smart contracts, asking the judiciary to recognize a new exception for smart contract coders to prevent the unauthorized practice of law, and considering decisions that

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[265] *See supra* note 50.

[266] *See, e.g.*, Adrianne Jeffries, *Blockchain Laws Tend to be Hasty, Unnecessary, and Extremely Thirsty*, VERGE (Mar. 29, 2018), https://www.theverge.com/2018/3/29/17176596/blockchain-bitcoin-cryptocurrency-state-law-legislation ("Most laws have definitions for terms like 'blockchain' and 'smart contract,' and those definitions could end up causing problems in the future . . . , if some future iteration of a blockchain or a smart contract doesn't strictly meet the definition set out in the law."); *see also supra* notes 247, 256 and accompanying text.

[267] *See* Kolber, *supra* note 42, at 226–30.

[268] *Id.* at 226; Azgad-Tromer, *supra* note 263, at 137 (explaining how certain groups of regulators, scholars, judges, and industry players have not fully grasped blockchain technology or the best way to regulate it; rather, there is an absence of structural analysis at this time, a necessity for establishing laws to govern blockchain and its emerging markets).

[269] Lyle et al., *supra* note 6, at 187 (explaining how uniformity brings higher cost of compliance for blockchain companies doing business in more than one state).

[270] *See* Maya Chilaeva & Pia Dutton, *Smart Contracts: Can They be Aligned with Traditional Principles or are Bespoke Norms Necessary?*, 8 J. INT'L BANKING & FIN. L. 479 (2018).

[271] *See supra* notes 150–87 and accompanying text.

[272] *See supra* notes 150–239 and accompanying text.

specialized courts make when adjudicating smart contract disputes.[273] Because smart contracts are such an innovative mechanism, blockchain companies planning to utilize smart contract technology would better receive regulation that echoes advancement in modernization.[274] Policymakers should encourage regulations designed to mitigate risk, but should exercise thoughtfulness and accuracy in creating the scope of regulation.[275] This thoughtfulness in enacting smart contracts legislation should motivate smart contract developers to work with the legal landscape instead of against it.[276]

VI. Conclusion

Blockchain and smart contracts are distinctive, multifaceted technologies that generate much-needed innovation in states such as Wyoming.[277] Because Wyoming has such an inherent capability to attract blockchain companies, it should recognize the importance of creating an amicable environment for them.[278] Smart contracts have evolved remarkably over time, beginning as simple computer verification processes and progressing into sophisticated, self-executing programs with potential to transform industries as a result of blockchain technology.[279] Smart contracts possess several advantages, providing for more efficient business operations, aiding transactional transparency, and yielding less risk of breach.[280] Alongside their advantages, smart contracts pose various limitations, including uncontrollability, inflexibility, and overall uncertainty.[281] Aside from general concerns, smart contracts have raised a myriad of legal issues that courts and legislatures must eventually address.[282] Courts and legislatures have hesitated to determine the legal enforceability of smart contracts under traditional contract law principles.[283] Smart contract coders could

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[273] *See supra* notes 180, 203, 225 and accompanying text. Though it is unlikely Wyoming will be home to such specialized courts due to an overall absence of specialized courts within the state, Wyoming can still look to other states' specialized courts when considering how to adjudicate such claims.

[274] *See* Elizabeth S. Ross, Comment, *Nobody Puts Blockchain in a Corner: The Disruptive Role of Blockchain Technology in the Financial Services Industry and Current Regulatory Issues*, 25 Cath. U.J.L. & Tech 353, 374–76, 380–81 (2017) ("[O]verly broad regulations and vague administrative guidance that do not directly address blockchain technology stifle innovation. . . .").

[275] Kiviat, *supra* note 150, at 607.

[276] *See* Jaccard, *supra* note 221, at 25.

[277] *See supra* notes 38–56 and accompanying text.

[278] *See supra* notes 6–9, 38–47 and accompanying text.

[279] *See supra* notes 57–89 and accompanying text.

[280] *See supra* notes 90–95 and accompanying text.

[281] *See supra* notes 96–125 and accompanying text.

[282] *See supra* notes 150–239 and accompanying text.

[283] *See supra* notes 150–87 and accompanying text.

potentially practice law without a license simply by way of writing smart contract code.[284] Users feel uncertain about which law governs the smart contract due to the ambiguous choice of law provisions as they apply to electronic agreements.[285] Authorities have yet to clarify the liability of parties when a coder mis-codes a smart contract or when a smart contract executes according to mistaken terms.[286]

Wyoming is embarking on a sophisticated regulatory path that requires thoughtful consideration and innovation.[287] Due to blockchain's highly complex nature, Wyoming should avoid hurriedly passing smart contract legislation until it realizes the bulk effects of other states' smart contracts legislation.[288] Rather, the Legislature should pass a legislative finding, confirming that the state's existing laws are conducive to the use of smart contract technology.[289] Wyoming should enact further legislation that follows the trajectory of the industry standards as they become clearer.[290] Innovative regulations will demonstrate Wyoming's eagerness to appeal to smart contract users, which will in turn stimulate the economy, revolutionize current industries, and expand new industries within the state.[291] As noted by one blockchain-sector advisor, state-by-state regulation of blockchain technology is "a relay race, not a sprint," and more achievable innovation occurs as one state takes the baton from another.[292]

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[284] *See supra* notes 188–208 and accompanying text.

[285] *See supra* notes 209–25 and accompanying text.

[286] *See supra* notes 226–39 and accompanying text.

[287] *See supra* notes 256–58, 274–76 and accompanying text.

[288] *See supra* notes 262, 264–66 and accompanying text.

[289] *See supra* notes 260–62 and accompanying text.

[290] *See supra* notes 258–69 and accompanying text.

[291] *See supra* notes 274–76 and accompanying text.

[292] Gary Miller, *Blockchain Valley: Wyoming is Poised to Become the Cryptocurrency Capital of America*, NEWSWEEK (Mar. 2, 2018), https://www.newsweek.com/wyoming-cowboy-state-poised-today-become-blockchain-valley-828124 (quoting former director of the Delaware blockchain initiative, Andrea Tinianow).