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Blockchain Technology: Limited Liability Companies and the Need for North Carolina Legislation

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Blockchain Technology: Limited Liability Companies and the Need for North Carolina Legislation

ABSTRACT

In the last few years, a new, technology-driven organizational structure has arisen in response to changing conceptions of trust: the blockchain-based LLC (BLLC). Much like the LLC from which they take their name, these entities were adapted to provide unique advantages in the modern business environment. By coupling traditional LLC notions with an existence on a peer-to-peer blockchain network as a series of smart contracts, they allow their members and managers to leverage low-cost and intermediary-free interaction with each other and with other customers and businesses. As blockchain networks generally do, instead of grounding stakeholder reliance on the traditional “trust” generated by human relationships, BLLCs rely mostly on the proof-of-work concept embedded within blockchain technology—digital ledgers, circulated to all members as well as interested transactional parties that provide a verified history of all transactions within a particular node’s block—to ensure the validity and accuracy of the organization’s operations. More simply, they allow business to be done faster, cheaper, and safer. These benefits aside, most states do not recognize BLLCs as legal business organizations. And in these states, BLLCs are instead simply known as decentralized autonomous organizations (DAOs). But it is becoming clear that more state legislation is needed to resolve the pressing legal and practical issues of non-recognition and general operations. And North Carolina has a unique opportunity to address these issues by leveraging the insights sure to be gained from its 2021 FinTech and InsurTech “regulatory sandbox” to develop a BLLC Act of its own. Already positioned as a leader in its own right in the technology space, North Carolina should follow the lead of Wyoming and Vermont and take its place at the trailhead for the next evolutionary step of business organizations.

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INTRODUCTION

The legal structures available to businesspeople are the law's evolutionary response to the needs and expectations of market participants and societal stakeholders. Against the backdrop of large-scale changes in society and in the marketplace, these changes are often incremental rather than transformational, accreting over time on the foundations of earlier business structures to address new issues of security and efficiency while continuing to serve the perennial goals of profit maximization and limited liability.

This process of incremental change has followed from developments in commerce over the course of history. The oldest and simplest form of business organizations are sole proprietorships that are owned and managed by one person.¹ A sole proprietorship is not a separate entity from the individual who runs it, but rather is the “same *actual* person and the same *legal* person.”² Because of a lack of formal legal structure, “the individual and the business are one and the same for tax and legal liability purposes.”³

After the sole proprietorship came the partnership. As its name suggests, a partnership involves two or more individuals and is a business entity in which every partner has unlimited liability for the debts of the part-

1. DAVID G. EPSTEIN ET AL., BUSINESS STRUCTURES 61 (5th ed. 2019).

2. *Id.* (emphasis added).

3. *Id.* at 70.

nership, like the individual and his sole proprietorship.⁴ But as larger technological, social, and geopolitical forces transformed the business environment, the kind of capital formation necessary to operate at scale was simply unattainable as a sole proprietorship or a partnership. Thus, through statutory enactment, the joint-stock company, or “corporation,” was born.

The corporation was the commercial genesis of a separate legal entity that is independent of its owners.⁵ In the twentieth century in the United States, as the popularity of the corporation grew, individual states eventually created the limited liability company (LLC) as a mixture between a corporation and a partnership.⁶ Like a partnership, an LLC enjoys pass-through taxation, thus avoiding double taxation because the LLC is not taxed for its profits, but rather the members are taxed individually at the personal income tax rate.⁷ On the other hand, like corporate shareholders, LLC members enjoy limited liability in that they are generally not personally liable for the debts of the business due to its separate legal personality,⁸ but without the many corporate formalities required.

The most recent step in this evolutionary process is the blockchain-based LLC (BLLC) and the related, though distinct, decentralized autonomous organization (DAO). Blockchain-based LLCs are legally-recognized business organizations like traditional LLCs, but that operate and often store assets on a peer-to-peer network.⁹ A “DAO” is, for purposes of this Comment, simply a legally-unrecognized BLLC. The legal recognition and computational structure of a BLLC creates operational efficiencies in transacting and in security by lowering cost while providing legal protection to individual assets (though the latter is something a DAO doesn’t generally have by statute, though it may at common law). Both allow automated contracting without the need for active human involvement, something highly useful in a society that continues to transition into a digital infrastructure, and where human interaction, particularly face-to-face, is likely to decrease. For this reason, fully autonomous organizations are likely to play a more pivotal role once their place in existing legal frameworks is more fully understood. Finally, these entities allow owners and investors to receive financial return on their invest-

4. *Id.* at 71.

5. *Id.* at 70.

6. *See id.* at 72.

7. *See id.*

8. *See id.*

9. Blockchain technology will be further explained in Part I, *infra*.

ments through an automated system of contracts running on algorithmic code.

This Comment argues that creation of a BLLC act in North Carolina would benefit stakeholders both in this state and elsewhere. First, such legislation will expressly permit development of DAOs in dynamic new areas of economic activity, encouraging their creation. Second, the state's already-existing regulatory sandbox provides a risk mitigation tool for the dangers of such development. Third, by sanctioning the creation of BLLCs, North Carolina is well-positioned to be perceived as friendly to this new type of business organization and thus may attract entrepreneurs and capital investment as an early mover in this space. Part I will introduce blockchain technology and its evolution over the past decades into a technology readily applicable to a variety of business transactions. Part II examines the Wyoming and Vermont blockchain-based LLC laws that have been enacted in recent years. Part III describes the recently enacted North Carolina FinTech Regulatory Sandbox and the implications for the future of blockchain legislation in North Carolina. Finally, Part IV discusses important considerations for a North Carolina BLLC act.

I. ORIGINS OF BLOCKCHAIN TECHNOLOGY

Although the average individual may have little to no knowledge of blockchain technology, he or she has likely been exposed to cryptocurrencies like Bitcoin and Ethereum, the platforms that launched blockchain into the popular lexicon. In 2015, after years of preparation, a Russian-born Canadian named Vitalik Buterin launched Ethereum.¹⁰ Inspired by Bitcoin a few years before, Ethereum was designed as a blockchain technological platform that would enable blockchain to be used outside the realm of cryptocurrency.¹¹

A. *Blockchain History and Fundamentals*

Blockchain is the technological infrastructure that was developed to allow cryptocurrencies to operate, and it is defined as “a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network.”¹² Essentially, blockchain allows for the

10. See Bernard Marr, *Blockchain: A Very Short History of Ethereum Everyone Should Read*, BERNARD MARR & CO., <https://bernardmarr.com/blockchain-a-very-short-history-of-ethereum-everyone-should-read/> [<https://perma.cc/HM3B-725B>].

11. See *id.*

12. *What is Blockchain Technology?*, IBM, <https://www.ibm.com/topics/what-is-blockchain> [<https://perma.cc/5PKW-64CN>].

eradication of intermediaries by enabling users to interact digitally with strangers in a secure manner.¹³ Contributing to the security of blockchain is the presence of a digital ledger that records all transactions that occur in “blocks” in the chain.¹⁴ As noted by IBM, “[v]irtually anything of value can be tracked and traded on a blockchain network, reducing risk and cutting costs for all involved.”¹⁵ Because the digital ledger is permanently recorded and distributed to the various network members, it ensures the accuracy of transactions—and thus, security—by preventing changes to transactions.¹⁶ It is by preventing the need for record-keeping and intermediaries to conduct business between network members that costs are lowered.¹⁷

Satoshi Nakamoto, the pseudonymous person, or persons, who founded Bitcoin, wrote in a now-famous whitepaper that the premise of blockchain technology is to “allow online payments to be sent directly from one party to another without going through a financial institution.”¹⁸ Noting that Internet commerce relies “almost exclusively on financial institutions serving as trusted third parties to process electronic payments[,]” Nakamoto highlighted the weaknesses of such financial institutions in terms of “increase[d] transaction costs, limiting the minimum . . . transaction size” and the inability to establish “non-reversible payments for non-reversible services.”¹⁹ It is the very possibility of reversal of transactions or services that inherently increases the need for trust between the parties.²⁰ With that in mind, blockchain technology allows for “cryptographic proof *instead* of trust” by conducting transactions on a network that would be “computationally impractical to reverse[.]”²¹ In a trustworthy centralized network, such proof of work would be unnecessary. However, in a peer-to-peer network, it is the “blocks”—which are simply packages of timestamped transactions referencing the previous valid block in the chain—that prevents attackers from altering the block-

13. See Kimberley Rust, *Block-chain Reaction: Why Development of Blockchain is at the Heart of the Legal Technology of Tomorrow*, 19 LIM 58, 59 (2019).

14. See *What is Blockchain Technology?*, *supra* note 12.

15. *Id.*

16. See *id.*

17. See Rust, *supra* note 13, at 58–59.

18. SATOSHI NAKAMOTO, BITCOIN: A PEER-TO-PEER ELECTRONIC CASH SYSTEM 4 (2020).

19. *Id.* at 5.

20. See *id.*

21. *Id.* (emphasis added).

chain.²² Within a network, the longest blockchain is taken as the truth because it is “backed by the largest quantity of proof of work[.]”²³

The archetypal blockchain contains a distributed timestamp, which is public information received by all members of the blockchain network, contains a history of all previously verified transactions. Nodes—simply computers on the network—combine transactions into blocks every ten minutes, thus creating an “ever-growing blockchain, with proof of work” being the method by which nodes gain access to the blockchain network.²⁴ Proof-of-work solves two problems: (1) It provides an effective algorithm allowing network members to collectively agree on updates to the foundational code; and (2) it enables free entry to the consensus process, solving the issue of who influences the consensus by correlating consensus voting power with the “computing power that the node brings.”²⁵

B. The Smart Contract Innovation

As Buterin described in his *Ethereum Whitepaper*, blockchain technology has wide applicability to a variety of products and services as the “ultimate abstract foundational layer . . . allowing anyone to write smart contracts and decentralized applications where [people] can create their own arbitrary rules for ownership, transaction formats and state transition functions.”²⁶ Ethereum has explored and implemented a variety of other uses for blockchain technology like decentralized finance (DeFi), non-fungible tokens (NFTs), and DAOs.²⁷ DAOs integrate this technology because they incorporate “long-term smart contracts that contain the assets and encode the bylaws of an entire organization.”²⁸ Smart contracts open up a world of possibility by allowing users to create “arbitrary state transition functions” by simply implementing a few lines of code to act as the foundation for such functions.²⁹

22. See VITALIK BUTERIN, *ETHEREUM: A NEXT-GENERATION SMART CONTRACT AND DECENTRALIZED APPLICATION PLATFORM* 6–8 (2014).

23. See *id.* at 8.

24. *Id.* at 4.

25. VITALIK BUTERIN, *ETHEREUM WHITEPAPER* 2–3 (2014).

26. *Id.* at 12.

27. See *What Is Ethereum?*, ETHEREUM, <https://ethereum.org/en/what-is-ethereum/> [<https://perma.cc/NCT2-3VVL>].

28. BUTERIN, *supra* note 22, at 1.

29. *Id.*

The smart contract is a contract that “defines the rules of the organization and holds the group’s treasury.”³⁰ A simple real-world example is a vending machine. In exchange for money, the machine produces the exact change and the product at its displayed price, all occurring via a “simple mechanism[.]”³¹ Smart contracts allow for the automatic acceptance of an agreement based on the “fulfillment of specified criteria.”³² But smart contracts go beyond mere vending machines, though, by “proposing to embed contracts in all sorts of property that is valuable and controlled by digital means.”³³ For instance, a smart contract could be created between two network participants based on algorithms alone. Rather than Participant A and Participant B being required to interact with one another, perhaps through an intermediary to reach a valid agreement, they can simply rely on the state or output of a certain algorithm because “[s]mart contracts are simply programs stored on a blockchain that run when predetermined conditions are met.”³⁴

An example: Participant A’s algorithm searches for a specific algorithmic state or output in the network to enter into binding agreements. Once Participant B’s algorithm determines Participant A’s algorithmic state or output is a match, a binding legal agreement is formed. Thus, a smart contract is automatically formed based on the specific code state or output of an algorithm.³⁵ Once this smart-contract code is live within the network, it cannot be modified, even by the members.³⁶

A major benefit of smart contracts is that they obviate the need for individuals to follow through with the terms of the contract.³⁷ By digitizing agreements into computer code that automatically executes binding contracts when certain terms are met, the agreement is controlled by an objective algorithm with no self-interested goals.³⁸ Once again, the need

30. *Decentralized Autonomous Organizations (DAOs)*, ETHEREUM, <https://ethereum.org/en/dao> [<https://perma.cc/FDR5-NMNA>].

31. Nick Szabo, *The Idea of Smart Contracts*, NICK SZABO’S PAPERS AND CONCISE TUTORIALS, <https://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/idea.html> [<https://perma.cc/25QB-5W27>].

32. See Rust, *supra* note 13, at 59.

33. Szabo, *supra* note 31.

34. *Smart Contracts Defined*, IBM, <https://www.ibm.com/topics/smart-contracts#:~:text=Smart%20contracts%20are%20simply%20programs,intermediary’s%20involvement%20or%20time%20loss> [<https://perma.cc/G8PW-T6XM>].

35. See SHAWN BAYERN, *AUTONOMOUS ORGANIZATIONS* 58–59 (2021).

36. See *Introduction to Smart Contracts*, ETHEREUM, <https://ethereum.org/en/smart-contracts/> [<https://perma.cc/2U8A-S369>].

37. *Id.*

38. See *id.*

for trust dissipates and is replaced by a digital overseer.³⁹ Furthermore, smart contracts do not give rise to differing interpretations of contract terms because the contracts “execute precisely based on the conditions written within the contract’s code.”⁴⁰ Once the code is implemented, it will continue to produce the same results given the same circumstances in perpetuity.⁴¹

C. *Decentralized Autonomous Organizations*

An aggregation of smart contracts can form a democratized organization in which decisions are made amongst all members.⁴² These “DAO’s” operate according to the rules within the smart contracts, thereby allowing the DAO to run without a centralized leader.⁴³ Furthermore, when smart contracts “are used to automate the execution of an agreement[,]” the parties to the contract are immediately made aware of the outcome and whether it was successful.⁴⁴

There are several reasons smart contracts have been implemented rather than traditional methods of transactional work that typically involve third parties. To begin with, smart contracts provide heightened speed and efficiency. Once the “if/when . . . then” conditions are met, the contract is automatically executed.⁴⁵ There is no paperwork to review and no human error to fix.⁴⁶ Trust is another crucial aspect of these contracts. Because smart contracts operate on conditional codes, participants on the blockchain need not worry about the potential for altered information from a third party.⁴⁷ Smart contracts, and blockchain transaction records in general, are heavily encrypted, making it difficult for hackers to infiltrate the system.⁴⁸ Even if the system was hacked, it would be extremely difficult to alter the blockchain records due to the digital ledger’s distribution to all participants and the requirement of altering the entire chain in a block to

39. *See id.*

40. *Id.*

41. *See id.*

42. *See* Robbie Morrison et al., *The DAO Controversy: The Case for a New Species of Corporate Governance?*, 3 FRONTIERS IN BLOCKCHAIN 1, 5 (2020).

43. *See id.* at 6.

44. *Smart Contracts Defined*, *supra* note 34.

45. Gulshanpreet Singh, *What are Blockchain-Based Smart Contracts and Why Should You Care?*, COPPERPOD INTELL. PROP. (May 11, 2021), <https://www.copperpodip.com/post/blockchain-based-smart-contracts> [<https://perma.cc/MV2L-Q4F6>].

46. *Smart Contracts Defined*, *supra* note 34.

47. *See id.*

48. *Id.*

alter a single record.⁴⁹ Lastly, because there is no need for a third-party intermediary, time and costs spent in executing agreements are substantially lower.⁵⁰

D. DAOs and LLCs

DAOs have “no CEO who can authorize spending based on their own whims” and no “CFO [who can] manipul[at]e the books.”⁵¹ In terms of the overall financial benefit, DAOs prevent the headache that so many businesses have experienced: someone on the inside skimming off the top at the expense of the company. The beauty of a DAO is everything is public. Neither the rules of the organization nor the individual transactions themselves can be tampered with by a network member. The smart contract is public knowledge once live; therefore, no member can alter the code prior to it being distributed to all the other network members. The immense amounts of time and effort a bad actor would have to invest to achieve even a minute alteration in the blockchain’s transactional history both disincentivizes bad actors and creates trust that transactions are accurate.

With blockchain serving as the technological infrastructure of DAOs, it has an “incredible potential to transform legal technology.”⁵² Shawn Bayern highlights just one example of how autonomous organizations and traditional business structures merge together: the zero-member LLC.⁵³ The LLC is created by a member-manager who files the appropriate paperwork with the state and pays the appropriate filing fee.⁵⁴ The individual, who is a sole member, then creates the operating agreement which specifies the LLC will take actions consistent with the autonomous system’s algorithmic code, and that it will continue to exist even if all members dissociate.⁵⁵ Finally, the individual transfers all relevant property associated with the autonomous system and withdraws from the LLC, leaving it with no members.⁵⁶ Acting as just one example, Shawn Bayern demonstrates the futuristic applications of smart contracts and the ability for entities to operate almost entirely independent of human interaction.

49. *Id.*

50. *Id.*

51. *Decentralized Autonomous Organizations (DAOs)*, *supra* note 30.

52. Rust, *supra* note 13, at 58.

53. *See* BAYERN, *supra* note 35, at 58.

54. *Id.* at 59.

55. *Id.* at 60–62.

56. *Id.* at 62.

II. A LOOK AT TWO BLLC ACTS

Effective on July 1, 2018, Vermont became the first state to recognize the creation of a limited liability company that runs in part or in whole on blockchain technology.⁵⁷ To qualify as a blockchain-based limited liability company, a handful of requirements must be addressed in the operating agreement, including (1) whether the BLLC will be fully or partially decentralized; (2) whether the digital ledger will be public or private; (3) the voting procedures on the blockchain; (4) the protocol for responding to a potential security system breach; and (5) how an individual becomes a member of the BLLC, as well as the rights and obligations that accompany such an interest.⁵⁸

In providing for its governance, a BLLC may “adopt any reasonable algorithmic means for accomplishing the consensus process for validating records, as well as requirements, processes, and procedures for conducting operations, or making organizational decisions”⁵⁹ This form of governance resembles the methods employed by blockchain technology that were discussed earlier. Rather than require hands-on interaction, the day-to-day operations are handled by algorithmic code that is implemented to reflect the desires of the members of the LLC.

Interestingly, the Vermont Legislature provided that “this subchapter does not exempt a BLLC from any other judicial, statutory, or regulatory provision of Vermont law”⁶⁰ This raises the question of how traditional concepts such as fiduciary duties will apply to organizations that are primarily autonomous. As noted in the Nevada Law Journal, the Vermont statute “appears to expect some human involvement in the organization.”⁶¹ Perhaps then, Vermont has envisioned a scenario where the LLC is owned and operated by human individuals in a traditional manner while the technological infrastructure is founded on blockchain technology. The first Vermont BLLC, “dOrg LLC,” operates in such a way that the blockchain technology merely coordinates the economic activity of the business.⁶²

Rather than to immediately open the doors to fully autonomous organizations—like the zero-member LLC described by Shawn Bayern—Vermont aims to first judge how the BLLC incorporates into the existing legal framework with the help of human intervention. This is sensible in

57. See VT. STAT. ANN. tit. XI, § 4173 (2018).

58. *Id.* § 4173(2).

59. *Id.* § 4175(1).

60. *Id.* § 4176.

61. Carla L. Reyes, *Autonomous Business Reality*, 21 NEV. L.J. 437, 454–55 (2021).

62. *Id.* at 455.

comparison to creating a DAO that operates completely free of human interaction once it has been set up by the secretary of state. If and when the time comes where BLLCs operate entirely autonomously, statutory law will have to be adjusted to address such changes in governance.

Similar to Vermont, Wyoming implemented the “Decentralized Autonomous Organization Supplement” which was made effective on July 1, 2021.⁶³ Wyoming defines a DAO as “a limited liability company whose articles of organization contain a statement that the company is a decentralized autonomous organization[.]”⁶⁴ Wyoming also defines “open blockchain[.]” “smart contract[.]” and other terms that operate within these DAOs.⁶⁵

Management of a Wyoming DAO can either be “vested in its members or the members and any applicable smart contracts.”⁶⁶ Further, “[a]ll smart contracts utilized by a decentralized autonomous organization shall be capable of being updated, modified or otherwise upgraded.”⁶⁷ Although probably intended to ensure additional safety, this provision has several effects. First, it may impact the efficiency of smart contracts, because they are typically intended to be executed agreements not subject to change once the specified condition is met. Second, this provision may serve the purpose of preventing the entry of uncontrollable DAOs into the state’s economy: corrupted algorithmic code could latch itself onto various transactions within the blockchain and potentially jeopardize the assets and smart contracts of other business entities. Third, a degree of human control and centralization to provide updates, modifications, or upgrades as well as interaction with BLLCs during formation—especially in the first phase of adoption or in markets to which they are new—will enhance their adoptability by reducing some of these risks.

Unlike Vermont, whose statutory provision made no mention of the impact on fiduciary duties for members other than referencing the applicability of the “Vermont Limited Liability Company Act[.]”⁶⁸ Wyoming’s statutory provision mentions fiduciary duties.⁶⁹ The Decentralized Autonomous Organization Supplement provides that “[u]nless otherwise provided for in the articles of organization or operating agreement, no member of a decentralized autonomous organization shall have any fiduciary duty to

63. WYO. STAT. ANN. § 17-31-101 (2021).

64. *Id.* § 17-31-104(a).

65. *See id.* § 17-31-102.

66. *Id.* § 17-31-109.

67. *Id.*

68. *See* VT. STAT. ANN. tit. XI, § 4176 (2017).

69. *See* WYO. STAT. ANN. § 17-31-110 (2021).

the organization or any member except that the members shall be subject to the implied contractual covenant of good faith and fair dealing.”⁷⁰ This is in contrast to Wyoming’s Limited Liability Company Act, which states members of a member-managed LLC owe “fiduciary duties of loyalty and care” to the company and other members.⁷¹ Exclusion of fiduciary duties from *all* DAOs sidesteps practical questions about how to transfer traditional corporate law concepts to autonomous entities, some of which raise more difficult issues than others.

Although the concepts of fiduciary duties would translate more smoothly into a member-managed DAO, the difficulty would arise with algorithmically-managed entities, whose very purpose is that no human beings manage the operation of the organization. The software developers who wrote the smart contracts *could* be held to have fiduciary duties, considering they would play a substantial role in the final development of the code. But this is unlikely. As DAOs become more common and their capabilities expand, the traditional methods in which the law requires that principals and agents deal with each other in and amongst business entities will either need to be altered, or perhaps even abandoned. Perhaps that is why Wyoming’s Decentralized Autonomous Organization Supplement—with its measured approach—appears to be better equipped to handle a issues arising from a possible wave of BBLLCs in the state.

III. THE NORTH CAROLINA REGULATORY SANDBOX

In 2016, U.S. congressman Patrick McHenry introduced the “Financial Services Innovation Act” to the U.S. House of Representatives.⁷² Although the initiative remains stagnant, it was an attempt at establishing a federal regulatory sandbox.⁷³ The states have been more successful: five years later, on October 15, 2021, Governor Roy Cooper signed the North Carolina Regulatory Sandbox Act of 2021 into effect.⁷⁴ North Carolina is now the tenth U.S. state to establish a regulatory sandbox for new “FinTech or InsurTech offerings.”⁷⁵ The move marks North Carolina’s

70. *Id.*

71. *Id.* § 17-29-409(a).

72. Luke G. Thomas, *The Case for a Federal Regulatory Sandbox for Fintech Companies*, 22 N.C. BANKING INST. 257, 268 (2018).

73. *See id.*

74. Richard B. Levin et al., *Hardly Child’s Play: North Carolina Joins the Growing Number of States with a FinTech Regulatory Sandbox*, THE NATIONAL LAW REVIEW (Oct. 19, 2021), <https://www.natlawreview.com/article/hardly-child-s-play-north-carolina-joins-growing-number-states-fintech-regulatory> [<https://perma.cc/9K9G-3D4S>].

75. *Id.*

participation in the Brandeisian laboratory of blockchain-based regulations and technology.

A. *Regulatory Sandboxes in General*

The first regulatory sandbox was instituted by the United Kingdom “in 2015 through an initiative called Project Innovate.”⁷⁶ The goal of the project was to enable “fintech companies to introduce their innovative products, services, business models, and delivery mechanisms to the financial market, outside the full set of regulatory constraints”⁷⁷ Regulatory sandboxes create a controlled environment that simulates a real market in the form of “time-limited pilots to test emerging technology, services, and business models in a live marketplace.”⁷⁸ North Carolina’s “regulatory sandbox” allows “a person or entity to temporarily test an innovative financial or insurance product or service and make it available to consumers on a limited basis without being subject to certain licensing or other regulatory obligations imposed under applicable State law.”⁷⁹ Thus, while businesses can test their new technologies with guardrails, regulators can study the effects of such technologies in the open market.

While this type of regulatory scheme alerts communities to potential investment opportunities in FinTech services, it also helps alert regulators to any technologies that may have a harmful impact on the state’s existing economic makeup. In North Carolina, for example, any adverse impacts on its citizens or on its large and valuable banking and technology industries—such as the Research Triangle Park—may be mitigated or avoided entirely before the process of formal rulemaking or legislating begins, thus saving possibly substantial costs in money, time, and manpower. Furthermore, the national interest is served because “FinTech sandboxes are all working to generate evidence for similar issues that could help build a consensus for national standards.”⁸⁰ Finally, regulatory sandboxes also provide accelerated “learning and course correction[,]” allowing firms and regulatory agencies to quickly adjust, thereby maintaining public interest while addressing real issues.⁸¹

76. Thomas, *supra* note 72, at 262.

77. *Id.*

78. Levin et al., *supra* note 74.

79. N.C. GEN. STAT. § 169-1(b)(11) (2021).

80. Levin et al., *supra* note 74.

81. Brian R. Knight & Trace E. Mitchell, *The Sandbox Paradox: Balancing the Need to Facilitate Innovation with the Risk of Regulatory Privilege* 7 (Geo. Mason Univ., Working Paper, Mar. 26, 2020).

Like in other areas of the law, much of the issue regarding FinTech solutions relates to the dissimilarities between state and federal regulation. But the implementation of reciprocity provisions could help to solve this issue in the form of uniform regulation.⁸² States realize that as they undertake new initiatives that a “lack of regulatory uniformity across state lines functions as a *barrier* to innovation rather than as a safeguard for consumers.”⁸³ North Carolina’s Act provides that sandbox participants are “deemed to possess an appropriate license under the laws of this State for purposes of any provision of federal law” which enables them to operate in other jurisdictions.⁸⁴ The Act also allows for entities authorized or licensed in other jurisdictions to be recognized as participants in North Carolina’s sandbox program.⁸⁵ These authorizations reflect an attempt to reconcile the varying restrictions in different states.

Despite the hesitancy of some states to embrace FinTech and associated emerging technologies, there are efficiencies to be gained in those states whose markets are positioned to leverage these technologies. Noting specifically “that the banking and insurance industry is a major economic driver for the State,”⁸⁶ the North Carolina legislature’s enactment of the regulatory sandbox signals that it believes FinTech developments like blockchain—and the increased efficiency and accuracy of transactions it occasions—will add value to its citizens and to its traditional in-state industries.

B. Administration of the Regulatory Sandbox Act

Established to oversee the regulatory sandbox is the North Carolina Innovation Council.⁸⁷ The Council’s purpose “is to support innovation, investment, and job creation within North Carolina by encouraging participation in the regulatory sandbox.”⁸⁸ Furthermore, the Council has power to admit participants in the regulatory sandbox program as well as to assign of “selected participants to the applicable State agency.”⁸⁹ When deciding whether to grant or deny admission to the program, the Innovation Council will, among other things, consider the following: “[a]ssessment of the innovation’s risk to consumers”; “[c]onsumer protection and complaint

82. *See id.* at 8.

83. Thomas, *supra* note 73, at 265 (emphasis added).

84. *See* N.C. GEN. STAT. § 169-12(a) (2021).

85. *Id.* § 169-12(c).

86. *Id.* § 169-2(a).

87. *Id.* § 169-4(a).

88. *Id.*

89. *Id.*

process”; “[b]usiness plan”; “[m]anagement’s expertise”; “[c]riminal history related to financial or securities fraud”; and “[f]lexible catchall[.]”⁹⁰

To aid in regulatory and technical services, the Act allows for a designated nonprofit organization, authorized by the Secretary of State’s office, to “help sandbox applicants navigate the regulatory sandbox application process.”⁹¹ Other nonprofits can “assist sandbox participants with the design and implementation of products and services” as well as “explore, provide input, analyze, and make recommendations with respect to innovations . . . that would additionally provide benefit to the State, its consumers, and its industry.”⁹² North Carolina’s authorization of nonprofit participation in the regulatory sandbox to remove barriers to access demonstrates the faith it has in the potential of the FinTech participants to build upon already-existing technological infrastructure.

Specifically included within the North Carolina Regulatory Sandbox Act is a section on “Blockchain initiatives[.]” which provides that “[t]he Innovation Council may explore, receive input, analyze, and make recommendations, with respect to blockchain initiatives and the application of blockchain technology, that would additionally provide benefit to the State, its consumers, and its industry.”⁹³ This provision signals that North Carolina is a friendly environment for foreign or emerging companies developing FinTech solutions that leverage blockchain—such as DAOs—and tees up opportunities for existing local stakeholders—such as the various technology companies in the Research Triangle Park—to create or expand offerings in this space in the years to come.

The Regulatory Sandbox Act signals North Carolina’s awareness of the wider changes in the business environment and its intent to lead in this space. For similar reasons to why so many businesses choose to incorporate in Delaware—it has positioned itself as a leader in business-friendly law and it has a court system that possesses expertise and extensive precedent⁹⁴—North Carolina is positioning itself to become a leader in BBLLCs and DAOs by leveraging unique insights gained from the Regulatory Sandbox Act. A similar autocatalytic model to that used in Delaware—friendly laws entice businesses to form there, spawning more litigation, creating precedent and thus greater certainty regarding future disputes, that then makes business formation in that state more advantageous—can be

90. Levin et al., *supra* note 74.

91. N.C. GEN. STAT. § 169-5 (2021).

92. *Id.*

93. *Id.* § 169-11.

94. See *8 Benefits to a Delaware LLC*, INCORPORATE.COM, <https://www.incorporate.com/learning-center/delaware-llc/> [<https://perma.cc/4H8D-Y7QD>].

deployed in North Carolina. Allowing FinTech and InsurTech companies to test their products on the live marketplace for a limited amount of time will attract participation by businesses, any of whose services or products will prove either commercially—or legally—successful or unworkable. Either way, experience with these products will permit better-informed regulation that creates certainty regarding the balance struck by the legislature between consumer safety and economic opportunity. Such certainty will attract more businesses to form or operate in North Carolina, increasing litigation and the establishment of precedent. This precedent will in turn entice more businesses to form here. It is in this way that North Carolina can—and should—capitalize on the Regulatory Sandbox in drafting BLLC legislation.

IV. ISSUES TO BE CONSIDERED IN DRAFTING NORTH CAROLINA BLOCKCHAIN LAW

Blockchain technology and its implementation in legal business structures creates unique legal issues. First, implementing trust in a digital network consisting of participants that rarely, if ever, meet face-to-face will necessarily still require a legal mechanism imposing trust on the respective members of the LLC, to the extent that human interaction is required. But as interaction decreases, the members' need for trust in the technology that the business operates upon rises inversely. Because a blockchain is an immutable record of all previous transactions that is both encrypted and distributed to all members of the business, it works well in maintaining confidence in the validity of the operations of the business. But aside from differentiating rules applicable to partially autonomous and fully autonomous organizations, a line-drawing exercise must be engaged in to identify the appropriate fiduciary duties of members.

Another potential issue that must be considered are the challenges that DAOs present for legal rights. Who will be held liable for violations of legal rights occasioned by the actions of an autonomous entity? For instance, who would be the defendant if the corporate veil were pierced, and individual assets were at stake? Would it be the members or managers of the LLC—if the DAO was organized as such—or the software developers who created the blockchain technology? Or some combination of both? The less human interaction there is in these business entities, the more difficult it will be to determine where to fix liability when legal disputes arise. Because a DAO “is an organization that[] [i]s self-governing and not influenced by outside forces[.]” once the software it operates on is developed, members of a legally structured DAO may have little to no con-

trol over the operational conduct of the entity.⁹⁵ The lack of human involvement in the business may counsel against individual member liability, unless a form of strict liability is desired.

To better predict the contours of a potential North Carolina BBLLC act, a survey of the current state of North Carolina's LLC law will be helpful. Because limited liability companies are considered creatures of contract, "LLC owners have almost unlimited flexibility in creating the entity's governance and management structure."⁹⁶ While management of an LLC is by default vested in its managers, like most aspects of the business, the operating agreement may modify such provisions.⁹⁷ Unless the operating agreement designates otherwise, all members act as managers, "solely by virtue of their status as members[.]"⁹⁸ This, in turn, means that every manager is an agent of the LLC and has express authority with respect to the ordinary course of the LLC's business.⁹⁹

When operating the entity, managers are required to manage and conduct the LLC in "accordance with the operating agreement."¹⁰⁰ Further, a manager must act: (1) "in good faith," (2) "with the care an ordinary prudent person in a like position would exercise under similar circumstances," and (3) "in a manner the manager believes to be in the best interest of the LLC."¹⁰¹ The general rule with respect to LLCs is "that members do not owe a fiduciary duties to the LLC or to the other members."¹⁰² There is an exception to this rule that was recognized by the North Carolina Business Court: "A member who owns a majority interest in the LLC *and* who exercises control of the LLC has a fiduciary duty not to use this control to harm the minority members"¹⁰³ This rule of law may be difficult to implement in a BBLLC that operates on blockchain technology due to the lack of control in the hands of members, regardless of the interest they hold.

95. See Stephen Palley, *How to Sue a DAO*, LINKEDIN (Mar. 14, 2016), <https://www.linkedin.com/pulse/how-sue-dao-stephen-palley> [<https://perma.cc/R7PN-LT7S>].

96. RUSSELL M. ROBINSON, II, ROBINSON ON NORTH CAROLINA CORPORATION LAW § 34.04 (7th ed. 2021).

97. *Id.*

98. *Id.*

99. See *id.*

100. N.C. GEN. STAT. § 57D-3-21(a) (2021).

101. *Id.* § 57D-3-21(b).

102. See ROBINSON, *supra* note 96, § 34.03.

103. Luke C. Tompkins, *NC Business Court Clarifies Exception to Rule that LLC Members Do Not Owe Fiduciary Duties to One Another*, THE NATIONAL LAW REVIEW (Jan. 31, 2020), <https://www.natlawreview.com/article/nc-business-court-clarifies-exception-to-rule-llc-members-do-not-owe-fiduciary> [<https://perma.cc/Y7F7-TPF9>].

Another issue to be considered is the legal status of a DAO if it does not register as an LLC. If a legal structure is not implemented for a human-created entity, “courts will impose one for you[,]” likely in the form of a general partnership.¹⁰⁴ Courts commonly “utiliz[e] a functional approach to determining whether a [general] partnership was formed irrespective of disclaimers and specific intent to not form a partnership.”¹⁰⁵ Therefore, regardless of whether those operating the entity expressly declare the entity is not a partnership, courts may still find otherwise based on the entity’s functional representations. General partnerships also present their own legal issues in terms of joint and several liability for partners.¹⁰⁶ General partnerships provide no corporate structure and do not provide partners with the same kind of liability protection as other common legal entities.¹⁰⁷ By signing into law BBLLC legislation, North Carolina could clear up this uncertainty and incentivize DAOs that may be hesitant to register as a typical LLC due to the uncertainty of how existing law would apply to their unorthodox situation.

Another issue may arise when a BBLLC has to satisfy a judgment. If a BBLLC were to have a judgment entered against it, accessing the entity’s resources would require the compiling of assets across the various blocks in the network.¹⁰⁸ The assets are not stored in a centralized bank account but are instead essentially record books “stored on multiple computers around the world.”¹⁰⁹ On the other hand, a DAO without a formalized legal structure would require the vote of a potentially widespread group of members that have had little to no contact with each other.¹¹⁰ Members might be unwilling to use entity assets to satisfy a judgment, and therefore, liability of individual members may arise.¹¹¹ But generally, DAOs have historically supported the reimbursement of user losses due to judgments, so long as they had the assets to cover such costs and “DAO members [were] inclined to release the funds[.]”¹¹² Regardless, utilizing a formal legal structure for a DAO likely allows for greater member protec-

104. Palley, *supra* note 95.

105. David Kerr & Miles Jennings, *A Legal Framework for Decentralized Autonomous Organizations* 13 (DAO Rsch. Collective, Working Paper, Oct. 19, 2021).

106. *See id.*

107. *Id.*

108. *See What is a Blockchain Asset?*, EXODUS, <https://support.exodus.com/article/31-what-is-a-blockchain-asset#:~:text=Blockchain%20assets%20are%20a%20type,stake%20in%20a%20particular%20organization> [<https://perma.cc/TJ2Q-VFJQ>].

109. *Id.*

110. *See Kerr & Jennings, supra* note 105, at 13.

111. *Id.*

112. *Id.* at 13–14.

tion and easier, although still comparatively difficult, access to DAO assets.

Finally, the BBLLC acts of legislatures in other states provide helpful guidance. Wyoming's statutory scheme is particularly helpful because—unlike Vermont's regime—it addresses fiduciary duties, a topic that is likely to be a source of difficulty in the transition from the traditional world of human-operated businesses to those operating on algorithmic code. Rather than leave the presence—or absence—of fiduciary duties an open question, it is better to explicitly provide for them to avoid confusion. Of course, imposing fiduciary duties upon members to run one another may be impractical if the business involves little to no human interaction. But if a fiduciary duty *were* to be owed by members of the BBLLC—which should not necessarily be required—then the duty should also be owed to the organization. The reason for this stems from the interconnected relationships that are present in blockchain: the technology is unique in that it is an entire digital network that is continually building upon itself as transactions occur, producing one connected web of all activity.

CONCLUSION

Since the late 2000s, blockchain has emerged as a revolutionary technology primarily implemented in the financial services market. As many have realized, limiting the application of the technology to only one market fails to recognize the practical usefulness of blockchain in a variety of areas. To this end, although relatively new and not yet fully integrated into existing legal frameworks, BBLLCs seek to leverage blockchain in conjunction with foundational business norms to obviate the need for trusted intermediaries in the structure and functions of business. Through enactment of a statutory regime to govern DAOs that is geared toward BBLLCs rather than traditional business structures, states can resolve many of the potential legal issues that are certain to arise and provide clarity in the governance and operation of these entities.

The North Carolina Regulatory Sandbox Act is a good first step towards this legislation. Within a limited market and time horizon, FinTech and InsurTech companies will be able to test their products and services. With public input, North Carolina will be able to carefully evaluate the potential impact of these innovative entities and determine what changes may be appropriate for future legislation. In addition to the results of the regulatory sandbox, the BBLLC statutes of Vermont and Wyoming may provide helpful insights into the relationship between the new and existing law. Considering the numerous opportunities presented by BBLLCs and

the like, there is little doubt that blockchain-based entities are the inevitable future of business, and North Carolina should continue down the path to eventual legislation.

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