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NEW LAW AMENDS THE UNIFORM COMMERCIAL CODE TO ACCOMMODATE EMERGING TECHNOLOGIES

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Indiana and ten other states enacted amendments in 2023 to their respective commercial codes,¹ encompassing comprehensive provisions to accommodate emerging technologies, such as artificial intelligence, distributed ledger technology, and virtual currency.² The amendments were introduced in seventeen other state legislatures³ and a substantial number of additional enactments and introductions are expected in 2024. This article describes the major features of these amendments.

INTRODUCTION

The Uniform Commercial Code (“UCC”)⁴ provides the legal rules for a vast swath of commercial transactions including but not limited to the sale of goods;

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^{**} Preliminary Note on Citations. The American Law Institute and the Uniform Law Commission adopted the amendments to the Uniform Commercial Code (UCC) that are the subject of this Article at their respective annual meetings in 2022 and the amendment thereupon became part of the UCC. The provisions of the UCC as so amended are cited as such, e.g., UCC § 1-201(b)(10), the definition of “conspicuous,” is cited as UCC § 1-201(b)(10)). Any reference to provisions in their form prior to the adoption of the 2022 amendments is indicated by a parenthetical notation. In connection with the promulgation of the 2022 amendments, the Uniform Law Commission published UNIFORM COMMERCIAL CODE AMENDMENTS (2022) (June 1, 2023), which, in addition to the amendments themselves, contain certain commentary which is frequently cited in this Article. Finally, the UCC, enacted in Indiana as Ind. Code § 26-1, is also cited in this Article. Article 9 of the UCC has been enacted in Indiana as Ind. Code § 26-1-9.1.

1. *2022 Amendments to the UCC*, UNIF. L. COMM’N (Mar. 14, 2024, 10:11 AM), <https://www.uniformlaws.org/committees/community-home?communitykey=1457c422-ddb7-40b0-8c76-39a1991651ac> [https://perma.cc/N3BD-FV5U].

2. UNIF. L. COMM’N & AM. L. INST., UNIFORM COMMERCIAL CODE AMENDMENTS (2022), at 1 (2023) [hereinafter 2022 U.C.C. AMENDMENTS].

3. *2022 Amendments to the UCC*, *supra* note 1.

4. Adopted in Indiana as Ind. Code § 26-1. IND. CODE § 26-1 (2023).

commercial leases; negotiable instruments; bank deposits, collections, and fund transfers; and secured transactions. It is a joint product, and remains under the close supervision, of the nation's two principal law reform organizations: the American Law Institute ("ALI") and the Uniform Law Commission ("ULC"), also known as the National Conference of Commissioners on Uniform State Laws.⁵

In 2019, the ULC and ALI appointed a Joint Committee to consider whether changes to the UCC would be advisable to accommodate emerging technologies, such as artificial intelligence, distributed ledger technology, and virtual currency. The project was called "Uniform Commercial Code-Emerging Technologies." Invitations were sent to large groups of potential stakeholders including trade organizations, financial institutions, technology companies, government agencies, academicians, and consumer groups. (The Joint Committee had over 250 official observers—and probably 100 more than that attended at least one of the information or drafting sessions.)

Both the ULC and the ALI have long been active in responding to the impact of technology on commerce. Most notably, the ULC produced the Uniform Electronic Transactions Act ("UETA") in 1999 which has been enacted in 49 jurisdictions.⁶ The next year, in a great example of bi-partisan co-operation, President Clinton signed the Electronic Signatures in Global and National Commerce Act ("E-SIGN"),⁷ authored by Senator John McCain. UETA and E-SIGN solidified the legal landscape for use of electronic records and electronic signatures in commerce by confirming that electronic records and signatures carry the same weight and have the same legal effect as traditional paper documents and wet ink signatures. Indeed, UETA and E-SIGN provided a legal framework that permitted more commerce to take place online during the pandemic than ever before without any legal hiccups as to the enforceability of those transactions.

At the same time, the UCC is something of a lagging indicator of legal consensus by design. It was always the conception of Karl Llewellyn, the visionary creator of the UCC, that the UCC would provide not rules based on artificial doctrinal conceptions but rather default terms that reduced expected contracting costs by mimicking the arrangement most (or at least many) commercial parties would have made for themselves.⁸ If this be the philosophy

5. A Permanent Editorial Board consisting of representatives of both organizations periodically recommends changes and, when necessary, issues advisory opinions as to the proper interpretation of the Code. See *Joint Committees: Permanent Editorial Board for the Uniform Commercial Code (PEB)*, AM. L. INST., <https://www.ali.org/about-ali/governance/committees/joint-committees/> [https://perma.cc/J424-DWEU] (last visited Apr. 3, 2024).

6. UETA is codified in Indiana as Ind. Code § 26-2-8. IND. CODE § 26-2-8 (2023).

7. 15 U.S.C. § 7001.

8. Robert E. Scott, *The Rise and Fall of Article 2*, 62 LA. L. REV. 1009, 1015 (2002) (citing Alan Schwartz, *Karl Llewellyn and the Origins of Contract Theory*, in *THE JURISPRUDENTIAL FOUNDATIONS OF CORPORATE AND COMMERCIAL LAW* 12, 14-17 (Jody S. Kraus & Steven D. Walt, eds., 2000)).

of the UCC, some degree of wait-and-see is required to identify those arrangements that commercial parties are making for themselves.

Given the success of UETA and E-SIGN in validating digital commerce, did anything need to be done at all? Here is how the Joint Committee responded to that question:

The adoption of DLT (distributed ledger technology) has underscored two important trends in electronic commerce. First, people have begun to assign economic value to some electronic records that bear no relationship to extrinsic rights and interests. For example, without any law or legally enforceable agreement, people around the world have agreed to treat virtual currencies such as bitcoin (or, more precisely “transaction outputs” generated by the Bitcoin protocol) as a medium of exchange and store of value. Second, people are using the creation or transfer of electronic records to transfer rights to receive payment, rights to receive performance of other obligations (e.g., services or delivery of goods), and other rights and interests in personal and real property.

These trends will inevitably result in disputes among claimants to electronic records and their related rights and other benefits. Uncertainty as to the criteria for resolving these claims creates commercial risk. The magnitude of these risks will grow as these trends continue.⁹

Given these conclusions, the Joint Committee transitioned from being a study committee to a drafting committee consisting of eleven representatives of each the ALI and ULC, under the enlightened chairmanship of Edwin E. Smith.¹⁰ At their respective annual meetings in May and July 2022, the membership of the ALI and ULC gave final approval to amendments to the Uniform Commercial Code Amendments (2022) as recommended by the joint drafting committee (the “Drafting Committee”). The 2022 Amendments, accompanied by Official Comments, were then distributed to the states for enactment.

During 2023, the 2022 Amendments were introduced in 28 state legislatures

9. 2022 U.C.C. AMENDMENTS, *supra* note 2, at 229-30.

10. The project began with Professor Steven L. Harris as the Reporter who, following his untimely passing in 2021, was replaced by Professor Charles W. Mooney, Jr. Both have been giants of commercial law for many decades. Other leading figures in American commercial law involved in the work of the Drafting Committee, included Carl S. Bjerre, Amelia H. Boss, Thomas J. Buiteweg, Sylvia F. Chin, Stephen Y. Chow, Neil B. Cohen, Marek Dubovec, Walter Effross, Henry Deeb Gabriel, Larry T. Garvin, Teresa Wilton Harmon, Tarik J. Haskins, Stephanie A. Heller, Thomas S. Hemmendinger, William H. Henning, Juliet M. Moringiello, Philip A. Nicholas, Benjamin Orzeske, Norman M. Powell, Harvey S. Perlman, Sandra M. Rocks, Tim Schnabel, Stephen L. Sepinuck, Sandra S. Stern, Steven O. Weise, and Candace M. Zierdt. The author of this article was honored to have been appointed one of the ULC representatives on the Drafting Committee in March 2021.

and were enacted in eleven.¹¹ Indiana was prominent among them, having been the fourth state to enact the Amendments and the first state in which they took effect.¹²

I. AMENDMENTS RELATED TO ELECTRONIC COMMERCE GENERALLY

Broadly speaking, the 2022 Amendments address two subjects: developments in electronic commerce generally like shopping on the Internet and digital assets like cryptocurrency. The first category of changes does not relate to distributive ledger technology or crypto or anything that exotic but only to the fact that the UCC itself dates to the time before electronic commerce and needs to be further updated to accommodate online business transactions.

A. Writings and Records

The most familiar example of this phenomenon are the many provisions of law that require a “writing,” and the best example of this are Statutes of Frauds. Is an email a writing? A PDF? Is text retrievable from a compact disc? A tweet?

The UCC responded to this several decades ago—in the 1998 revision of Article 9—by introducing the term “record” and defining it to mean “information that is inscribed on a tangible medium or which is stored in an electronic or other medium and is retrievable in perceivable form.”¹³ From that point forward, every “writing” would be a “record.”

As the Official Comments say, “Given the rapid development and commercial adoption of modern communication and storage technologies, requirements that documents or communications be ‘written,’ ‘in writing,’ or otherwise in tangible form do not necessarily reflect or aid commercial

11. 2022 Amendments to the UCC, *supra* note 1.

12. See IND. CODE § 26-1 (2023); P.L. 199-2023. In early 2022, Indiana State Senator Chris Garten introduced legislation to this end. Even though the Drafting Committee was still at work, Senator Garten and the Indiana General Assembly took the Joint Committee’s then-current draft and passed it 92-0 in the Indiana House and 46-0 in the Indiana Senate. P.L. 100-2022.

This tracks a well-worn path in Indiana legal history. The state has enacted scores of uniform laws developed by the ULC, e.g., Uniform Partnership Act, Ind. Code § 23-4; Uniform Child Custody Jurisdiction Act, Ind. Code § 31-21; and Revised Uniform Anatomical Gift Act, Ind. Code § 29-2-16.1. The same is true of the principal work product of the ALI: Restatements of the Law. Indiana courts turn regularly to Restatements to help decide previously unanswered questions of common law. See, e.g., *Cnty. Health Network, Inc. v. McKenzie*, 185 N.E.3d 368, 382 (Ind. 2022) (adopting the disclosure tort in RESTATEMENT (SECOND) OF TORTS § 652D (AM. L. INST. 1965)); *Wilson v. Anonymous Def. 1*, 183 N.E.3d 289, 294 (Ind. 2022) (adopting rule on liability for a principal in RESTATEMENT (SECOND) OF AGENCY § 267 (AM. L. INST. 1958)); *Creasy v. Rusk*, 730 N.E.2d 659, 666 (Ind. 2000) (adopting duty of care imposed on adults with mental disabilities in RESTATEMENT (SECOND) OF TORTS § 283B (AM. L. INST. 1965)); *Sword v. NKC Hosps., Inc.*, 714 N.E.2d 142, 152 (Ind. 1999) (adopting the formulation of apparent or ostensible agency in RESTATEMENT (SECOND) OF TORTS § 429 (AM. L. INST. 1965)).

13. U.C.C. § 9-102(70) (AM. L. INST. & UNIF. L. COMM’N 1998); see *id.* § 1-201(31).

practices.”¹⁴

The idea was to make the UCC “medium neutral,” that is, make it clear that parties may use virtually any medium for communicating with one another and memorializing their agreements.¹⁵

But while introducing the defined term “writing” back in 1998, the Code sponsors never undertook a systematic scrubbing to replace the word “writing” with “record.” The 2022 Amendments makes a concerted effort in this regard, none more striking than in UCC § 2-201 where the Statute of Frauds applicable to the sale of goods will now require a “record,” not a “writing.”¹⁶

This replacement of the word “writing” with “record” is not a change of substance—but it is a pervasive change in nomenclature. Seventeen changes are made throughout the 2022 Amendments to either change the word “writing” in the text to “record” or to clarify in the Official Comments the circumstances under which the term “writing” in the text refers to a “record,” again to assure that any documents, communications, or transactions governed by those sections can be prepared, transmitted, or executed in a medium neutral way.¹⁷

B. “Authenticate” and “Sign”

In another 1998 move to make the UCC medium neutral, the Code was revised by introducing the term “authenticate” to cover the use of an electronic sound, symbol, or process, as well as a wet-ink signature, to evidence adoption or acceptance of a record. However, the Drafting Committee concluded that the term never achieved consensus. For example, the legal protocols established by UETA and E-SIGN do not use the “authenticate” nomenclature; they all speak using “sign” terminology. The 2022 Amendments expand the definition “sign” and “signing” to cover electronic adoption and acceptance as well as wet-ink signatures. As such, the new definition of “sign” fully incorporates the current meaning of “authenticate,”¹⁸ rendering the term “authenticate” duplicative and unnecessary. The definition of “authenticate” now appearing in the UCC is deleted and the term “authenticate” is ruthlessly replaced throughout the Code by “sign”—12 changes in addition to the revised definition.¹⁹ Like “writing”

14. *Id.* § 9-102 cmt. 9(a).

15. *Id.* § 9-101 cmt. 4(h) (“[Article 9] is ‘medium neutral’; that is, it makes clear that parties may file and otherwise communicate with a filing office by means of records communicated and stored in media other than paper.”).

16. U.C.C. § 2-201 (AM. L. INST. & UNIF. L. COMM’N 2022).

17. Of the 17 changes: six are in Article 2; four in Article 2A; five in Article 4A, and one each in Articles 8 and 9. These include such familiar provisions as the statute of frauds (§ 2-201 and § 2A-201); the parol evidence rule (§ 2-202 and § 2A-202); and provisions on modification, rescission, and waiver (§ 2-209 and § 2A-208). U.C.C. § 2-201, 2A-201, 2-202, 2A-202, 2-209, 2A-208.

18. *Id.* § 9-102(a)(7).

19. A central provision in Article 9 is § 9-203(b) which sets forth the rules for attachment of security interests: value being given; the debtor having rights in the collateral; and one of several

and “record,” not a change of substance—but a pervasive change in terminology.

C. Conspicuousness

Technological change also affects the definition of the important term “conspicuous” which is used in twelve different sections in four different articles of the UCC. It is best-known use is with respect to disclaimers of warranties in sales of goods and in leases.²⁰

Historically, contract terms were presented in writing, making the use of standards that relate to the size and appearance of type relevant to the determination of conspicuousness. A recent Indiana case in this regard is *Indiana Farm Bureau v. CNH Indus. Am., LLC*.²¹ But today, contractual terms are frequently communicated electronically, thus creating opportunities for terms to be displayed in novel ways, such as pop-up windows, text balloons, and dynamically expanding text. The 2022 Amendments revise the definition of “conspicuous” by deleting the statutory examples relating to the appearance of type²² and instead indicating in the comments a broader universe of factors that are applicable to both written and electronic presentations.²³ This approach is intended to be both more protective of consumers and more useful to drafters by providing more clarity and flexibility in the methods that may be used to call attention to a term.²⁴

D. “Hybrid” or “Bundled Transactions”

“Many modern commercial transactions cannot be classified as transactions purely for goods or for services, but are ‘mixed,’ involving both goods and services.”²⁵ In part due to emerging technologies, such transactions that “bundle” goods and services are increasing and will continue to increase. And if something goes wrong, the way the transaction is categorized can dictate very different legal rules. The easiest to understand is that with a sale of goods, there is an implied warranty of merchantability and, in certain circumstances, fitness for a particular purpose. But there are no such implied warranties for contracts for services; the parties must explicitly negotiate such warranties.

Courts—like the Indiana Supreme Court in *Insul-Mark Midwest, Inc. v.*

conditions being met. The most frequently used of those conditions is the debtor having “authenticated”—“signed” under the UCC 2022 Amendments—a security agreement containing a description of the collateral. *See id.* § 9-203(b).

20. *Id.* § 2-316(2); *see id.* § 2A-214(2) through (4).

21. 130 N.E.3d 604 (Ind. Ct. App. 2019).

22. *See* U.C.C. § 1-201(b)(10).

23. *Id.* § 1-201 cmt. 10.

24. *Id.*

25. *Insul-Mark Midwest, Inc. v. Mod. Materials, Inc.*, 612 N.E.2d 550, 551 (Ind. 1993).

*Modern Materials, Inc.*²⁶—developed a variety of approaches for deciding what law applies to mixed, bundled, or hybrid transactions. Indeed, *Insul-Mark* resolved a conflict in decisions among differing panels of the Court of Appeals.²⁷ The 2022 Amendments seek to provide more clarity to the law by adopting what is called the “bifurcation approach” and providing extensive comments on how to apply it.

To do this, the 2022 Amendments define “hybrid transaction” in Article 2²⁸ and “hybrid lease” in Article 2A²⁹ and amend the scope section of each Article. In each, the new language sets up a two-tiered test:

1. If the sale-of-goods aspects of a hybrid transaction (or the lease-of-goods aspects of a hybrid lease) predominate, then Article 2 (or Article 2A) applies to the transaction.³⁰
2. If the sale-of-goods (or lease of goods) aspects do not predominate, only the provisions of Article 2 (or Article 2A) which relate primarily to the sale of goods aspects of the transaction apply, and the provisions that relate primarily to the transaction do not apply.³¹

This differs from the approach the Court took in *Insul-Mark* and so will constitute a change in Indiana law. There will now be a statute on this; it will no longer be a question of common law—though admittedly there will be some work for courts in applying it.

It is important to remember that these new rules on “hybrid transactions,” like so much of the UCC, constitute “gap-fillers” that apply when the parties’ agreement is silent on what legal rules govern the different aspects of their transaction. In general, parties are free to preclude the application of this article to the aspects of their transaction that are not about the sale or lease of goods.³²

E. Negotiable Instruments

In order for an instrument to meet the negotiability requirements of UCC Article 3, the instrument may not state any undertaking or instruction by the person promising or ordering payment to do any act beyond the payment of money.³³ Prior to the 2022 Amendments, there were three exceptions to this

26. *Id.* at 551.

27. Compare *Baker v. Compton*, 455 N.E.2d 382 (Ind. Ct. App. 1983), and *Insul-Mark Midwest, Inc. v. Mod. Materials, Inc.*, 594 N.E.2d 459 (Ind. Ct. App. 1992), which utilized the predominant thrust test, with *Data Processing Servs., Inc. v. L.H. Smith Oil Corp.*, 492 N.E.2d 314 (Ind. Ct. App. 1986), and *Stephenson v. Frazier*, 399 N.E.2d 794 (Ind. Ct. App. 1980), which utilized the bifurcation approach.

28. U.C.C. § 2-106(5).

29. *Id.* § 2A-103(h.1).

30. *Id.* § 2-102(2)(b); *id.* § 2A-102(2)(b). However, this does not preclude application in appropriate circumstances of other law to aspects of the transaction which do not relate to the sale of goods (or lease of goods).

31. U.C.C. § 2A-103(1)(aa).

32. See *id.* § 2-102 cmt. 6; *id.* § 2A-102 cmt. 8.

33. U.C.C. § 3-104(a)(3).

prohibition, which are described at the margin.³⁴ The 2022 Amendments added two new exceptions: (iv) a term that specifies the law that governs the promise or order, or (v) an undertaking to resolve in a specified forum a dispute concerning the promise or order.³⁵

II. THE COMPLEX INTERRELATIONSHIP OF CRYPTO AND “MONEY”

Prior to the 2022 Amendments, “money” was defined as a medium of exchange authorized or adopted by a domestic or foreign government.³⁶ Money was generally understood to include only tangible coins, bills, notes, and the like,³⁷ and the UCC provided that the only method of perfecting a security interest in money as original collateral was by taking possession of it.³⁸

While working on the 2022 Amendments, the Drafting Committee considered the prospect that a country might create *de novo* and distribute a cryptocurrency that the country recognized as an electronic medium of exchange.³⁹ Although this electronic medium of exchange would meet the definition of “money,” a security interest could not be perfected in it because its intangible nature made it impossible of possession. The 2022 Amendments recognize this government created and distributed electronic medium of exchange as a special type of money called “electronic money.”⁴⁰ Electronic money is often referred to a “central bank digital currency” or “CBDC.”⁴¹ The 2022 Amendments provide that the only method of perfecting a security interest in electronic money as original collateral is by “control,”⁴² a process to be described later in this article.

The definition of “money” in the 2022 Amendments makes clear that electronic money must be created by a country’s government. While the 2022 Amendments were being drafted, both El Salvador and the Central African

34. As was the case prior to the 2022 Amendments, a negotiable instrument is permitted to contain: (i) an undertaking or power to give, maintain, or protect collateral to secure payment, (ii) an authorization or power to the holder to confess judgment or realize on or dispose of collateral, or (iii) a waiver of the benefit of any law intended for the advantage or protection of an obligor. U.C.C. § 3-104(a)(3)(i) through (iii) (AM. L. INST. & UNIF. L. COMM’N 2010).

35. U.C.C. § 3-104(a)(3)(iv), (v) (AM. L. INST. & UNIF. L. COMM’N 2022).

36. U.C.C. § 1-201(a)(24) (AM. L. INST. & UNIF. L. COMM’N 2010).

37. *See id.* § 1-201 cmt. 24.

38. *Id.* § 9-312(b)(3).

39. *When Central Banks Issue Digital Money*, THE ECONOMIST (May 6, 2021), <https://www.economist.com/special-report/2021/05/06/when-central-banks-issue-digital-money> [<https://perma.cc/T36D-69XB>].

40. U.C.C. § 9-102(a)(31A). This provision was not adopted in Indiana.

41. Michelle W. Bowman, Governor, Federal Reserve, Speech at the Georgetown University McDonough School of Business Psaros Center for Financial Markets and Policy: Considerations for a Central Bank Digital Currency (Apr. 18, 2023), <https://www.federalreserve.gov/newsevents/speech/bowman20230418a.htm> [<https://perma.cc/9HS6-CYZB>].

42. U.C.C. § 9-312(b)(4). This provision was not adopted in Indiana.

Republic recognized Bitcoin as a medium of exchange in their countries.⁴³ The 2022 Amendments expressly exclude from the definition of electronic currency originally created or distributed by one or more private parties (such as Bitcoin in El Salvador and the Central African Republic).⁴⁴ Under pre-2022 law, cryptocurrency was deemed a “general intangible”⁴⁵ and a security interest in a general intangible was perfected by filing a publicly-available “financing statement” containing information about the debtor, creditor, and collateral with a government office.⁴⁶ The 2022 Amendments continue to provide for perfecting a security interest in crypto by filing⁴⁷ but also provide that such a security interest can also be perfected by “control,” a process which, to repeat, will be described later in this article.⁴⁸ (An important feature of the 2022 Amendments is that security interest perfected by control has priority over a conflicting security interests that is perfected by filing, even if filing occurred prior to control.⁴⁹)

As summarized in the following chart, the 2022 Amendments included within the definition of money government-created electronic currencies which the UCC calls “electronic money,” but they excluded from the definition of money privately created electronic currencies like Bitcoin. The principal difference is that a security interest in electronic money may be perfected only by control; a security interest in privately created electronic currencies like Bitcoin may be perfected either by filing or by control.

43. Oscar Lopez & Ephrat Livni, *In Global First, El Salvador Adopts Bitcoin as Currency*, N.Y. TIMES (Sept. 7, 2021), <https://www.nytimes.com/2021/09/07/world/americas/el-salvador-bitcoin.html> [<https://perma.cc/BQ6S-Y3KPJ>]; *Central African Republic Adopts Bitcoin as an Official Currency*, REUTERS (Apr. 28, 2022), <https://www.reuters.com/world/africa/central-african-republic-adopts-bitcoin-an-official-currency-2022-04-27/>.

44. U.C.C. § 1-201(a)(24); *see id.* § 1-201 cmt. 24.







45. U.C.C. § 9-102(a)(42); *see* James P. Nehf, *Security Interests in Virtual Currencies* (Mar. 2, 2020), <https://ssrn.com/abstract=3547540> [<https://perma.cc/2Q6R-8EYT>].

46. U.C.C. § 9-310(a); *see generally id.* §§ 9-501 through -518.

47. U.C.C. § 9-312(a).

48. *Id.* § 9-314(a).

49. *Id.* § 9-326A.

Crypto & “Money” in the 2022 Amendments		
Money		Not Money
Tangible coins, bills, notes, etc., authorized or adopted by a government as a medium of exchange (§1-201(24) & cmt. 24 to §1-201) 	Electronic currency created de novo by a government as a medium of exchange (“Electronic Money”) (§1-201(24), cmt. 24 to §1-201, §9-102(a)(31A), & cmt. 12A to §9-102. 	Electronic currency created by private parties and adopted by a government as a medium of exchange, e.g., Bitcoin in El Salvador (§1-201(24), cmt. 24 to §1-201, & cmt. 12A to §9-102. 
Perfecting a security interest in –		
 Only by possession (§9-312(b)(3)).	 Only by control (§9-312(b)(4)).	 Either by control or filing (§9-312(a); §9-314(a); and §9-326A).

Soon after the 2022 Amendments began to be considered by the states in early 2023, significant debate erupted over the definition of “money.” It is beyond the scope of this article to detail the controversy but, in brief, its contours were as follows. Critics argued that by defining money to include electronic money but exclude existing cryptocurrencies like Bitcoin furthered an agenda to replace all existing cryptocurrencies with a CBDC. To some of the most vocal critics, this was a “woke” agenda that would allow the government to monitor spending by Americans and control what Americans could buy.⁵⁰

It is the official position of the Uniform Law Commission—and the position of this author—that whether the United States or any other nation should adopt a CBDC is a matter for legitimate policy debate. But this is not a policy issue that is implicated by the UCC, which only provides default rules for private commercial transactions. Some countries appear to have adopted central bank

50. For example, Governor Kristi Noem of South Dakota vetoed the 2022 Amendments that had been passed overwhelmingly by the South Dakota Legislature and then went on the Tucker Carlson show to proclaim that vetoing the bill “was the right thing to do.” Carlson, for his part, described “electronic money” as “a tool for total social control.” Tucker Carlson Tonight, *Gov. Kristi Noem: This Idea is Paving the Way For the Government to Control Currency*, FOX NEWS (Mar. 10, 2023), <https://www.foxnews.com/video/6322327799112> [https://perma.cc/RH4E-86GM].

digital currencies, and others may do so in the future; the intent of the 2022 Amendments was to provide a set of rules for handling such currencies in private commercial transactions. Whether the country should have a central bank digital currency or not is a debate for another forum. Similarly, issues of whether cryptocurrencies should be replaced or regulated are not issues for the UCC.⁵¹

Shortly after the Tucker Carlson piece described in the margin aired on March 10, Professor Mooney, who had been the Reporter for the Drafting Committee, developed an amendment that modified the definition of money, made other changes to the bill to eliminate all references to electronic money, and even stipulated that the term does not include a CBDC.⁵² This so-called “hip-pocket amendment” was sufficient to avoid the controversy derailing the 2022 Amendments in Indiana and in Alabama. Other states were also able to enact the 2022 Amendments during 2023 despite the CBDC controversy. But it disrupted the path to passage in many states, and it remains to be seen whether it will do lasting damage to the project.

III. NEW UCC ARTICLE 12 AND “CONTROLLABLE ELECTRONIC RECORDS”

New Article 12 in the 2022 Amendments, in combination with new or amended sections in other Articles, creates legal rules for certain electronic (intangible) assets that are created using existing technologies such as distributed ledger technology (DLT), including blockchain technology, which records transactions in bitcoin and other digital assets.⁵³ This Article will next discuss the electronic (intangible) assets to which Article 12 applies and then discuss the legal rules applicable to them.

The electronic (intangible) assets to which Article 12 applies are called “controllable electronic records” or “CERs.”⁵⁴

A. Electronic Records

“Records,” as discussed above, are composed of “information that is inscribed on a tangible medium or which is stored in an electronic or other medium and is retrievable in perceivable form.”⁵⁵ As such, an “electronic record” is “information . . . [which] is stored in an electronic . . . medium and is

51. For a detailed statement of the Uniform Law Commission’s position on the controversy, see UNIF. L. COMM’N, STATEMENT ON CENTRAL BANK DIGITAL CURRENCY AND THE 2022 UCC AMENDMENTS (2023).

52. Unless the United States does institute a central bank digital currency, the exclusion of electronic money from the 2022 Amendments has little practical effect.

53. Because Article 12 also aspires to apply to electronic assets that may be created using technologies that have yet to be developed, or even imagined, it does not refer to specific technologies like DLT, blockchain, etc.

54. U.C.C. § 12-102(a)(1).

55. *Id.* § 1-201(31).

retrievable in perceivable form.”⁵⁶ Electronic records include digital assets that capture imaginations and headlines like cryptocurrency and non-fungible tokens (“NFTs”); but they also include records as mundane and familiar as PDFs and MP4 audio files.⁵⁷

B. Control

“Control” is best explained by referring to UCC Article 9 which governs secured transactions, that is, transactions in which the extension of credit is secured by collateral. Under Article 9, there are different classes of collateral and the way in which a creditor establishes its priority in a particular piece of collateral—called “perfection” of a security interest—depends upon the class into which the collateral falls.

The most familiar method of perfection is by “filing” in which the creditor files a “financing statement” indicating the collateral with a public authority.⁵⁸ An alternative method of perfection is by “possession” in which the creditor takes physical possession of the collateral⁵⁹ and, indeed, a creditor can usually perfect its security interest in an asset by possession as well as by filing.⁶⁰ Possession provides a creditor with more protection because there is no chance the debtor or a competing creditor will dispose of the collateral if it is in the creditor’s possession, but perfection by filing will be the only practical method of perfection when the debtor needs the collateral to operate its business.

The UCC today allows a creditor to perfect its security interest in collateral composed of electronic records by filing.⁶¹ However, because an electronic record is intangible, the physical possession alternative method of perfection is not available to such a creditor.⁶² And as just noted, perfection by filing can be unsatisfactory—and really quite risky—when it comes to this particular asset class.

However, this is a problem that the law has wrestled with before. There are five asset classes under current law for which a type of perfection superior to filing, and other than possession, exists.⁶³ This type of perfection is called

56. *Id.* § 9-102(70); *id.* § 1-201(31).

57. *Id.* § 9-102 cmt 9.

58. *Id.* § 9-310(a); *id.* § 9 pt. 9.

59. *Id.* § 9-313(a).

60. *Id.* §§ 9-310(b)(6), 9-313(a).

61. This is because “electronic records” are categorized as “general intangibles.” *Id.* § 9-102 cmt. 5(d). Security interests in general intangibles may be perfected by filing. *Id.* § 310(a).

62. *See id.* § 9-313(a), which does not list “general intangibles” among those assets in which a creditor may perfect a security interest by possession.

63. The five asset classes are investment property (UCC § 9-106); deposit accounts (UCC § 9-104); letter of credit rights (UCC § 9-107); electronic documents of title (UCC § 7-106); and electronic chattel paper (UCC § 9-105). *Id.* §§ 9-104 through -107, and 7-106.

“control.”

The concept is that if a secured party has “control” over the specified asset, the secured party has the same rights in that collateral as if the secured party physically possessed the asset.

The five asset classes listed in the margin have sufficiently unique characteristics that an alternative to their physical possession can be achieved through “control.” It is crucial to understand that the definition of “control” differs for each of these kinds of assets. For example, control of a deposit account is achieved where the secured party is the bank with which the deposit account is maintained.⁶⁴

The key is that if a creditor has control *as defined for the asset class*, the creditor has a perfected security interest in the asset—and the priority and any other rights that go with control—even if the creditor has *neither* filed a financing statement *nor* has physical possession.

“Control,” in other words, is a ubiquitous concept that serves throughout Article 9 as an alternative for physical possession.⁶⁵

C. “Controllable Electronic Records”

Article 12 utilizes these pre-existing concepts of “electronic records” and “control” to provide that electronic records that meet its criteria for being “controllable” fall into an entirely new asset class called “controllable electronic records” or “CERs.” And Article 12, in conjunction with new and amended sections elsewhere in the UCC, provide that a person with control of the CER has:

1. the benefits of negotiability and takes free of third-party claims of a property interest in the CER;⁶⁶ and,

The UCC 2022 Amendments make significant changes to UCC provisions concerning chattel paper. Those changes, beyond the scope of this Article, are described as follows in Prefatory Note 2(b) to the UCC 2022 Amendments:

Chattel paper. UCC Article 9 affords special treatment to “chattel paper” (e.g., installment sale contracts and personal property leases). The amendments redefine “chattel paper” and update the relevant Article 9 provisions. The revised definition resolves uncertainty that has arisen under the previous definition and more accurately reflects the distinction between the seller’s or lessor’s right to payment and the record (e.g., installment sale contract or lease) evidencing that right. The revised definition also resolves uncertainty that has arisen when goods are leased as part of a hybrid transaction involving services or non-goods property as well as specific goods. The amendments address additional issues relating to hybrid transactions, mentioned in [Prefatory Note 2(d) to the UCC 2022 Amendments], and provide an amended definition of “control” of an authoritative electronic copy of a record evidencing chattel paper, which reflects a more accurate and technologically flexible approach than the previous definition. 2022 U.C.C. AMENDMENTS, *supra* note 2, at 2.

64. U.C.C. § 9-312.

65. *Id.* § 12-105 cmt. 9.

66. See 2022 U.C.C. AMENDMENTS, *supra* note 2, at 231-33.

2. a method of perfection of a security interest in a CER and as a condition for achieving a non-temporal priority of a security interest.⁶⁷

The requirements or criteria that make an electronic record a CER are derived from the widespread adoption of distributed ledger technology and other records management technologies and their use as an effective and reliable means of transferring economic value. Distributive ledger technology, of which blockchain is one, is a database or ledger that stores information electronically in digital format. The innovation with a distributed ledger is that the database or ledger is shared among the nodes of a computer network. This maintains a secure and decentralized record of transactions, thereby guarantying the fidelity and security of a record of data and generates trust without the need for a trusted third party.⁶⁸

Experience with DLT and other records-management systems has established some general functions required for electronic records to serve as an effective and reliable means of transferring economic value.

- The electronic record must have some “use” or benefit that one person can enjoy and can exclude all others from enjoying, e.g., the power to “spend” a bitcoin (or, more precisely, the power to include an unspent transaction output (a UTXO) in a message that the Bitcoin protocol will record to its blockchain).
- A person must be able to transfer to another person this exclusive power to use and the exclusive power to transfer the electronic record. To remain exclusive, the transfer must divest the transferor of the power to use the electronic record.
- A person must be able to demonstrate to others that the person has the power to use and transfer control of the electronic record.⁶⁹

Article 12 imposes a three-part test of benefit, exclusivity, and identification tracking the foregoing three functions to determine whether control of an electronic asset exists. These benefit, exclusivity, and identification requirements or criteria are embodied in Article 12 in lengthy and precise language, language that contains various qualifications and exceptions, e.g., certain exceptions to the exclusivity of powers.⁷⁰ They will not be discussed further here as the purpose of this part of this Article is to alert the reader of this important development in Indiana law, not to explicate it in detail. It should be said, however, that Article 12 does not govern assets other than CERs, and, like the UCC in general, Article 12 is not a regulatory statute. And the fact that an asset is or is not a CER under the UCC would not necessarily affect the

67. U.C.C. § 9-306B, and § 9-306B cmt 1-2.

68. Adam Hayes et al., *Blockchain Facts: What Is It, How It Works, and How It Can Be Used*, INVESTOPEDIA (Sept. 27, 2022) <https://www.investopedia.com/terms/b/blockchain.asp> [<https://perma.cc/T4WD-QR8W>]; Nehf, *supra* note 45, at 2; Frank Emmert, *Cryptocurrencies: The Impossible Domestic Law Regime?*, 70 AM. J. COMPAR. L. 1185 (2022).

69. 2022 U.C.C. AMENDMENTS, *supra* note 2, at 229-30.

70. U.C.C. § 12-105.

application of laws regulating, for example, securities, commodities, money transmission, and taxation.⁷¹

D. Take Free Rules

Longstanding provisions of the UCC facilitate commerce by affording to certain good-faith purchasers for value greater rights than their transferors had or had power to transfer.⁷² For example, under UCC § 3-306, a holder in due course takes a negotiable instrument free of a claim of a property right in the instrument.⁷³ One of the principal new rules established by the 2022 Amendments is that a person having control of a CER is eligible to become a qualified purchaser and thereby take free of claims of a property interest in the CER.⁷⁴ This ability to take a CER free of third-party property claims will provide CERs commercial utility.⁷⁵

For this purpose, “qualifying purchasers” are purchasers that obtain control of a CER for value, in good faith, and without notice of any claim of a property interest in the CER. Like a holder in due course of a written negotiable instrument, a qualifying purchaser of a CER takes the CER free of property claims.⁷⁶

E. Perfection of Security Interests in CERs

As suggested in the discussion of control above, a security interest in CERs may be perfected by control of the collateral under the new perfection regime for CERs provided by the 2022 Amendments.⁷⁷ Just as the requirements for control of the five existing asset classes are unique to those asset classes, the requirements for control of CERs are unique to CERs. These requirements or criteria for control—benefit, exclusivity, and identification—are the same discussed above when defining control for CERs: Article 9 simply incorporates by reference.⁷⁸

In addition, security interests in CERs will also be eligible to be perfected by filing.⁷⁹ And of particular note, “[a] security interest in a [CER] held by a secured party having control of the [CER] has priority over a conflicting security

71. *Id.* § 9-102 cmt. 5(d).

72. 2022 U.C.C. AMENDMENTS, *supra* note 2, at 231-33.

73. U.C.C. § 3-306.

74. *Id.* § 12-104.

75. 2022 U.C.C. AMENDMENTS, *supra* note 2, at 231-33.

76. *Id.* at 229-30.

77. U.C.C. § 9-314(a).

78. *Id.* § 9-107A.

79. *Id.* § 9-312(a).

interest held by a secured party that does not have control.”⁸⁰ And this is true even if the conflicting security interest was perfected before the secured party having control obtained control.⁸¹

Although cryptocurrency and perhaps non-fungible tokens are the most visible of CERs, any electronic record, including a routine PDF or mp3 file is eligible to be a CER if it is controlled, e.g., secured on a distributed ledger that meets the requirements or criteria described above. Among the most commercially significant subsets of CERs are controllable electronic accounts (CAs) and controllable electronic payment intangibles (CPIs).

A “controllable account” is as an account receivable—a right to payment of an obligation, whether or not earned by performance, for property sold, for services rendered, arising out of the use of a credit card, etc.—evidenced by a controllable record, i.e., a CER that provides that the account debtor undertakes to pay the person that has control of the CER.⁸² A specific example would be the electronic record controlled by MasterCard evidencing its account receivable arising out of a consumer’s use of a MasterCard to buy a restaurant meal.

A “controllable payment intangible” is similar. A “payment intangible” is defined as a contract under which the account debtor’s principal obligation is a monetary obligation.⁸³ Suppose the restaurant in the foregoing example has a contract with a bank under which the bank has agreed to pay the restaurant amounts the bank receives from MasterCard in settlement of the consumer’s transaction. The restaurant has a payment intangible. And if the payment intangible is an electronic record over which the restaurant has control, it is a controllable payment intangible.

The 2022 Amendments provide advantages to the creditors of entities like MasterCard and the restaurant of being able to perfect their security interests in the credit card company’s accounts and restaurant’s payment intangibles—both of which are undoubtedly evidenced by electronic records—without having to file financing statements so long as they achieve control under Article 12 by meeting the three-part test of benefit, exclusivity, and identification.

IV. TRANSITIONAL PROVISIONS

The 2022 Amendments create some uncertainties during the transition to the new law, some of which relate to the fact that the Amendments are based on the general assumption that all States will have enacted them in substantially

80. UCC § 9-326A provides “A security interest in a controllable account, CER, or controllable payment intangible held by a secured party having control of the account, electronic record, or payment intangible has priority over a conflicting security interest held by a secured party that does not have control.” *Id.* § 9-326A.

81. *Id.* § 9-326A cmt. 1.

82. *Id.* § 9-102(27A), and § 9-102 cmt. 5(d)(1).

83. *Id.* § 9-102(61), and § 9-102 cmt. 5(d).

identical versions.⁸⁴ However, many states are likely to provide an effective date for the Amendments that is consistent with their usual timing for effectiveness of legislation.⁸⁵ (Indiana is an example of this, where the standard effective date of all new legislation is July 1 of the year of enactment.⁸⁶) Consequently, the 2022 Amendments do not provide for a uniform “effective date” but do provide for a uniform “Adjustment Date,” which is the later to occur of July 1, 2025, and one year after a state’s effective date.⁸⁷ The Adjustment Date applies to several material provisions (in particular, new priority rules that override pre-effective-date established priorities). The minimum of a one-year period between the effective date and the Adjustment Date is intended primarily to provide sufficient time for a secured party to achieve perfection or priority of a security interest under the 2022 Amendments following the effective date, or for a person with an established priority in property to protect its priority before the priority might otherwise be lost on the Adjustment Date.⁸⁸

The 2022 Amendments contain transition provisions in an “Article A” which appears at the end of the Amendments. States are advised to codify Parts 1, 2 and 3 of Article A as a part of their respective Uniform Commercial Codes. Indiana has done this by adding a new Chapter 12.5 to its UCC.⁸⁹

These transition rules fall into three categories.

- Judicial proceedings commenced before a state’s effective date are not affected.⁹⁰
- A general rule of prospectivity for all of provisions in the 2022 Amendments other than those in Articles 9 and 12: the 2022 Amendments are prospective in their effect: they do not apply to contractual relationships existing on a state’s effective date.⁹¹ This general rule applies, for example, to the provisions on conspicuousness⁹² and hybrid transactions.⁹³
- A general rule of retrospectivity for those provisions of Articles 9 and 12 dealing with CERs: the 2022 Amendments apply to transactions, liens (including security interests), and interests in property, even if entered into, created, or acquired before a state’s effective date.⁹⁴

84. 2022 U.C.C. AMENDMENTS, *supra* note 2, at 265.

85. *Id.*

86. IND. CODE § 1-1-3-3(b) (2023).

87. As set forth in the text, if the uniform Adjustment Date is less than one year after the effective date for a state’s adoption of the 2022 Amendments, the state is advised to adopt an Adjustment Date that is one year after the state’s effective date. U.C.C. § A-102(a)(1). Because Indiana’s effective date is July 1, 2023, the Adjustment Date in Indiana is July 1, 2025. IND. CODE § 26-1-12.5-102(a)(1)(B).

88. 2022 U.C.C. AMENDMENTS, *supra* note 2, at 265.

89. IND. CODE § 26-1-12.5.

90. U.C.C. § A-301(c), and § A-301 cmt. 4; IND. CODE § 26-1-12.5-301(c).

91. U.C.C. § A-201, and § A-201 cmt. 2; IND. CODE § 26-1-12.5-201.

92. *See supra* notes 20-24 and accompanying text.

93. *See supra* notes 25-32 and accompanying text.

94. U.C.C. § A-301(a) and (b), and § A-301 cmt. 2; IND. CODE § 26-1-12.5-301(a), (b).

The first two of these categories are straightforward and require no elaboration. However, the third category is nuanced in its application: there are circumstances in which the perfection or priority of a security interest in a CER created before a state's effective date may be affected or even lost due to the rule of retrospectivity.

Here are three examples of this phenomenon.⁹⁵

First, a "security interest that is enforceable immediately before the [effective date] but is unperfected at that time becomes perfected without further action on the [effective date] if the requirements for perfection under the act are satisfied before or at that time."⁹⁶ For example, suppose that prior to the effective date, a debtor grants a security interest in "all cryptocurrencies now owned or hereafter acquired." The debtor thereupon transfers a quantity of Bitcoin to the secured party on the blockchain. The secured party does not perfect its security interest by filing.

The Bitcoin constitutes a general intangible⁹⁷ with respect to which perfection would have been achieved by filing prior to the 2022 Amendments.⁹⁸ As such, the secured party's security interest in the Bitcoin would have been unperfected. However, the transfer of the Bitcoin to the secured party on the blockchain gave the secured party "control" of the Bitcoin within the meaning of the 2022 Amendments.⁹⁹ Under the 2022 Amendments, Bitcoin is a CER¹⁰⁰ and a security interest in a CER can be perfected by control.¹⁰¹ Upon the effective date, therefore, the secured party's previously unperfected security interest in the Bitcoin became perfected.¹⁰²

Second, "[s]ubject to [UCC § A-305(c)], if the priorities of claims the collateral were established before the [effective date], Article 9 as in effect before the [effective date] determines priority."¹⁰³ For example, suppose that prior to the effective date, a debtor grants a security interest to Secured Party Red in "all cryptocurrencies now owned or hereafter acquired." Secured Party Red promptly perfected by filing. Subsequently, but also prior to the effective date, the debtor granted a security interest to Secured Party Blue in "all cryptocurrency." The debtor thereupon transfers a quantity of Bitcoin to Secured Party Blue on the blockchain; Secured Party Blue does not perfect by filing.

95. These examples are not exhaustive of the circumstances and are presented only to give the reader a sense of the way in which retrospectivity operates. A reader concerned about the perfection or priority of a security interest in a CER created before a state's effective date should consult Article A of the 2022 Amendments as enacted in the state and the Official Comments to the 2022 Amendments.

96. U.C.C. § A-303(3)(A).

97. *Id.* § 9-102(42).

98. *Id.* § 9-310(a).

99. *Id.* § 12-105.

100. *Id.* § 12-102(a)(1).

101. *Id.* § 9-314(a). A security interest in a CER may also be perfected by filing. *Id.* § 9-312(a).

102. This example is based on UCC § A-303 cmt. 2 ex. 1. *Id.* § A-303 cmt. 2 ex. 1.

103. *Id.* § A-305(b).

As in the first example above, the Bitcoin constitutes a general intangible¹⁰⁴ with respect to which perfection would have been achieved, prior to the 2022 Amendments, by filing a publicly available financing statement.¹⁰⁵ As such, Secured Party Red's security interest in the Bitcoin would have been perfected upon that filing. Again as above, the transfer of the Bitcoin to Secured Party Blue on the blockchain gave Secured Party Blue "control" of the Bitcoin within the meaning of the 2022 Amendments.¹⁰⁶ Under the 2022 Amendments, Bitcoin is a CER¹⁰⁷ and a security interest in a CER can be perfected by control.¹⁰⁸ Upon the effective date, therefore, Secured Party Blue's previously unperfected security interest in the Bitcoin became perfected. Nevertheless, because the relative priorities of the two secured parties were established before the effective date, Secured Party Red's security interest continues to have priority after the effective date.¹⁰⁹ The priority will shift on the adjustment date as described in the third example below.¹¹⁰

Third, "[O]n the adjustment date, to the extent the priorities determined by Article 9 as amended by this act modify the priorities established before the [effective date], the priorities of claims to Article 12 property . . . established before the [effective date] ceases to apply."¹¹¹ This is the language of UCC section A-305(c), referred to at the outset of the second example above. Using the same facts as in the second example, Secured Party Red's established priority continued to apply after the effective date. However, on the adjustment date, the priorities shifted. Secured Party Red's established priority ceased to apply and Secured Party Blue's perfection by control gave it priority under UCC section A-326(A), added by the 2022 Amendments, which provides "[a] security interest in a . . . CER . . . held by a secured party having control of the . . . electronic record . . . has priority over a conflicting held by a secured party that does not have control."¹¹²

104. *Id.* § 9-102(42).

105. *Id.* § 9-310(a).

106. *Id.* § 12-105.

107. *Id.* § 12-102(a)(1).

108. *Id.* § 9-314(a); *see Id.* § 9-312(a) (A security interest in a CER may also be perfected by filing).

109. *Id.* § A-305(b).

110. This example is based on UCC § A-305 cmt. 2 ex. 2. *Id.* § A-305 cmt. 2 ex. 2.

111. *Id.* § A-305(c).

112. *Id.* § 9-326(A). This example is based on UCC § A-305 cmt. 3 ex. 4. *Id.* § A-305 cmt. 3 ex. 4.

CONCLUSION

The 2022 Amendments have updated many well-familiar principles in the UCC—like the conspicuousness requirement for disclaiming warranties—to keep the Code relevant to the ubiquity of electronic commerce.

But we live in a world in which CERs are also becoming ubiquitous; cryptocurrencies, non-fungible tokens, accounts, and payment intangibles are all here today. Digital assets—electronic records—of other shapes and sizes will be here tomorrow.

New Article 12 provides valuable legal rights to purchasers of electronic records and creditors who take security interests in electronic records and obtain control within the meaning of § 12-105. Those rights are designed to facilitate efficiency and negotiability, all to the end of furthering the purposes and policies of the Uniform Commercial Code:

- to simplify, clarify, and modernize the law governing commercial transactions;
- to permit the continued expansion of commercial practices through custom, usage, and agreement of the parties; and
- to make uniform the law among the various jurisdictions.¹¹³

113. *Id.* § 1-102(2).