**BLOCKCHAIN, SOCIETY, AND THE LAW**

I. <u>**TERMINOLOGY AND BACKGROUND**</u>

A. <u>Decentralized Finance (DeFi) Technologies</u>: Several foundational technologies enable the DeFi world—a system for validating, settling, tracking, and recording transactions that create trust and consensus, without the need for third party intermediaries.

   1. Such technologies will also be central to the creation of the Metaverse— an interconnected, decentralized series of virtual reality and augmented reality worlds.

B. **Cryptocurrency**

   1. Any form of currency that exists digitally or virtually and uses cryptography (which is a combination of mathematical theory and modern computer science) to secure transactions.

   2. Bitcoin and ether are two popular cryptocurrencies—such cryptocurrencies (and cryptocurrencies in general) are merely some of the applications of blockchain technology.

C. **Blockchains**

   1. Blockchains are the technology behind cryptocurrency and are essentially distributed, decentralized, digital, and immutable ledgers.

   2. Blockchains combine several previously existing technologies (public-private key encryption, hash values, merkle trees, and peer-to-peer networks) to create a shared database or recordkeeping device that stores multiple exact copies of data across several or more computers in a network.

      (a) Picture a spreadsheet that is duplicated thousands of times across a network of computers. Then imagine that this network is designed to regularly update this spreadsheet—this is essentially what blockchains do.

   3. Blockchains are true to their name—blocks of data are created and stored along a data chain, built from "hashes," randomized numbers, and math equations. The technology works because miners use immense computing power to "solve for" blocks (i.e., verify the transactions in the block and solve the equation) and thereby add new blocks to the chain.

   4. Once verified, the transaction is entered as part of a "block" of data and added to the blockchain. Each block of data is time-stamped and set up in such a way that no individual entry can be altered without also altering

every previous entry and unless more than 50% of the computers on the network agree to do so.

5.   The data on blockchains isn't stored in any single location, meaning the records each blockchain keeps are truly public and easily verifiable. No centralized version of the information exists.
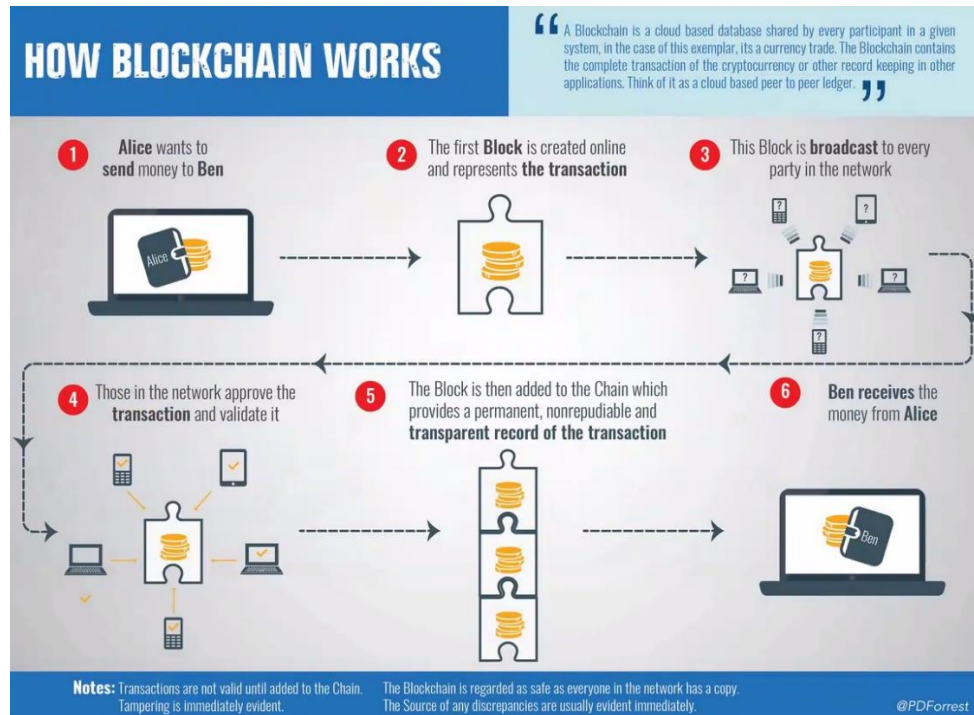
6.   While all blockchains have these common elements, there are many variations used for an array of different applications, each with their own specific protocols governing the operation of their respective networks.

(a)   Bitcoin for example has a very limited protocol designed primarily to allow the sending and receiving of coins, whereas Ethereum has a much more complex protocol in that it allows the creation of smart contracts, i.e., programmable money.

D.   **Smart Contracts**

1.   Smart contracts are essentially computer programs deployed on a blockchain that automatically secure, enforce and settle recorded agreements.

2.   Smart contracts are not a new concept. They were first proposed by Nick Szabo, an attorney and computer scientist who compared them to a soda machine—just like a soda machine can automate a sale without a human intermediary, smart contracts can automate virtually any kind of exchange.

3.   Smart contracts establish the terms of an arrangement between parties and automatically execute when the terms are met without the need for a third-party intermediary. Each smart contract is programmed onto a blockchain and, once deployed, will run as programmed. When user accounts interact with the smart contract, for example, by submitting a transaction, that function will be executed as defined by the terms of the smart contract.

4.   The Ethereum network deploys smart contracts and expanded on the Bitcoin network—which was initially created solely to transfer digital money, although now has taken on a variety of other applications.

5.   Though Ethereum is used to facilitate payments, the goal of Ethereum was to build a global, decentralized computing platform that takes the security and openness of blockchains and extends those attributes to a vast range of decentralized applications (Dapps).

(a)   Dapps use blockchain technology to provide similar services to those offered by well-known consumer applications, but eliminates the need for a centralized entity to collect and control the data on the network because all data is stored and secured using blockchain technology.

6.   Dapps grant users more control over their finances and personal data because the trust is built into the system by way of blockchain instead of residing with a centralized entity controlling the data. For example, financial entities have the power to stop transactions and platforms like Twitter can delete tweets.

(a)   Examples of Dapps:

(i)   Uniswap: decentralized exchange that allows users, via smart contract, to trade certain kinds of crypto without a central authority setting the exchange rates

(ii)   Compound: a platform that uses smart contracts to enable investors to earn interest and borrowers to instantly get a loan without the need for a traditional bank

7.   Ethereum also enables decentralized autonomous organizations, and hosts non-fungible token (NFT) assets.

E.   **Decentralized Autonomous Organizations (DAOs)**

1.   DAOs are essentially quasi-corporate management structures organized through advanced smart contracts that use programmable blockchain protocols to automate transactions and corporate governance using tokens. Smart contracts enshrine the rules of the DAO in code and hold its treasury.

2. The particular purpose and functionality of a DAO will depend on the intentions of its creators and members. To date, most DAOs have been formed to pool resources in order to make investments, to enable operation of decentralized cryptocurrency exchange platforms, or to further a given community's common goals or interests.

3. **Smart contract setup:** Before a DAO can be deployed, the underlying rules must be defined and encoded in a series of smart contracts.

4. **Funding:** Then the DAO needs to receive funding in order to operate. The DAO's smart contracts must entail the creation and distribution of some form of internal property, such as a native token that can be spent by the DAO, utilized in voting mechanisms, or used to incentivize certain activities.

1. **Deployment**: Once a DAO receives enough funding to be deployed, all decisions are made via a consensus vote. As a result, all token holders become stakeholders who can make proposals regarding the DAO's future and how its funds are spent

2. DAO membership may be either token-based or share-based.

(a) Token-based: usually fully permissionless, and simply holding a DAO token grants access to voting rights

(b) Share-based: Share-based DAOs are more permissioned, but still quite open. Any prospective members can submit a proposal to join the DAO, usually offering tribute of some value in the form of tokens or work. Shares represent direct voting power and ownership. Members can exit at anytime with their proportionate share of the treasury.

DAO	A traditional organisation
Usually flat, and fully democratized.	Usually hierarchical.
Voting required by members for any changes to be implemented.	Depending on structure, changes can be demanded from a sole party, or voting may be offered.
Votes tallied, and outcome implemented automatically without trusted intermediary.	If voting allowed, votes are tallied internally, and outcome of voting must be handled manually.
Services offered are handled automatically in a decentralized manner (for example distribution of philanthropic funds).	Requires human handling, or centrally controlled automation, prone to manipulation.
All activity is transparent and fully public.	Activity is typically private, and limited to the public.

F. **Non-Fungible Tokens (NFTs)**

1. Whereas fungible tokens (like cryptocurrencies) are interchangeable by design, NFTs are unique, one-of-a-kind digital assets that are not interchangeable. Each NFT has an individualized identifier distinguishing ownership of a bundle of rights.

2. Proof of NFT ownership is recorded on a blockchain. NFTs are well known in the context of digital assets, but NFTs may also be used to represent "off chain" assets, such as title to property, copyrights of a song recording, or digital art. The asset is not actually present on the NFT's blockchain, but rather, the NFT acts like a deed of ownership and indicates rights to something outside of the blockchain.

   (a) NFTs as digital assets:

      (i) The NBA's collectible "moments," which are short clips of a specific athlete's play. These moments are created by Dapper Labs, and they are traded on the "Top Shot" platform. These moments function like trading cards, but they only exist digitally [EXAMPLE – Lebron James dunk]

      (ii) The first ever tweet [issued by Jack Dorsey, founder of twitter] – sold for $2.9 million

   (b) NFTs representing physical assets:

      (i) [Kings of Leon](#) was the first band to drop an entire alum as an NFT, with some NFT versions of the album unlocking not only digital downloads of the music, but also ownership of limited edition vinyls and front-row seats to any Kings of Leon concert during each tour for life.

      (ii) Blockchain technology that stores and secures NFTs can also be used to track ownership of real property, such as houses and cars—with the potential to replace public paper records.

      (iii) NFTs could also be used to assist with corporate transfers of assets in complex transactions.

G. **Fractionalized NFTs (F-NFTs)**

1. Given the high price of many NFTs, fractionalization of NFTs allows a group of investors to pool resources to purchase fractional interests of an NFT, some of which may be traded on decentralized exchanges (DEXs).

H. **Decentralized Exchanges (DEXs)**

1. DEXs are direct peer-to-peer marketplaces where cryptocurrency traders participate in transactions and execute orders without an intermediary custodian. Self-executing smart contracts facilitate these transactions and each buyer and seller accesses crypto through their unique private key in order to trade directly from their wallet.

2. Anyone with a smart phone or a computer and internet access can benefit from the financial services offered by DEXs.

II. **GROWING POPULARITY, USE CASES, FUTURE OPPORTUNITIES**

A. **Blockchain and smart contract technology**

1. Has the potential to revolutionize any system in which an intermediary is used to transfer and store value, creating trust between parties and/or helping them transact.

2. Users can send assets to each other with little or no fees or interference (Government or otherwise)

3. Settle transactions in ten minutes or less

4. Deploy smart contracts: computer programs that automatically secure, enforce and settle recorded agreements

5. Eliminates the need to know counterparty and mitigates risk, dropping transaction costs, quick settlements

6. The Ethereum blockchain network is a host to the vast majority of blockchain applications

B.   **Dapps**

    1.   Potential to transform financial transactions (saving, loans, insurance) without a bank or other financial institution taking a cut

    2.   **Uniswap:** decentralized exchange that allows users, via smart contract, to trade certain kinds of crypto without any central authority setting the exchange rates

    3.   **Compound:** A platform that uses smart contracts to let investors earn interest and borrowers to instantly get a loan without the need for a bank in the middle.

C.   **DAOs**

    1.   DAOs are credited for their network effects, and impact on global capital coordination and allocation by investors and startup founders

    2.   **Examples:**

        (a)   DAOStack helps businesses create reliable crypto-economic incentives for individual processes under their purview. The goal is to replicate each business function as a smart contract to execute governance decisions without issues.

        (b)   Jelurida includes tokenization functionality, a marketplace connecting multiple blockchain services, a voting system, and other utilities required by a self-governing ecosystem.

D.   **NFTs**

    1.   The use cases for NFTs will continue to grow. Imagine the following use cases:

        (a)   Buy a physical item (Nike sneaker) that comes with an NFT (or vice versa; NFT that comes with a physical item)

        (b)   Use that NFT to equip your character in NBA2k (popular basketball game) with digital version of that item

        (c)   Equip a character in a different virtual world like The Sims

        (d)   Impose an image of your sneaker on a picture (they will ask "why wouldn't you just take a picture of yourself wearing the shoe?" maybe it got old, dirty, lost, or maybe its physical version is so expensive you could never afford it, or maybe there is no physical version of the item at all)

(e)

2.   Note that one key challenge for these digital assets is that they are not yet freely transferrable across different blockchains, thus limiting each digital asset's use and applicability. Today you can only interact with a digital asset within its native blockchain (e.g., you can only move bitcoins around to different points on the bitcoin blockchain; you can only move Top Shot moments around on the Flow blockchain that it uses).

3.   However, blockchains are being developed to allow for "interoperability," i.e., to enable them to interact with each other. This means that digital assets will be able to traverse linked digital worlds greatly increasing their potential use and liquidity.

4.   This concept of a collective virtual shared space with freely transferable digital assets is what is commonly referred to as the Metaverse.

III.   REGULATORY CONSIDERATIONS: SECURITIES LAW

A.   The most regulatory scrutiny in the crypto space has arisen from the U.S. Securities and Exchange Commission (SEC).

B.   SEC enforcement actions related to cryptocurrency typically fall into 3 categories of allegations:

1.   Fraud in the Offer or Sale of Securities under section 17(a) of the Securities Act and/or section 10(b) of the Exchange Act;

2.   Unregistered Offering of Securities violating sections 5(a) and 5(c) of the Securities Act (most common); and

3.   Promotion of Securities without Disclosing Compensation

C. In July 2017, the SEC confirmed the applicability of the analysis from *SEC v. W.J. Howey Co* to crypto, where the U.S. Supreme Court established the framework to determine whether an asset is an investment contract subject to the securities laws.

D. *Howey* **test**: an "investment contract" is a contract, transaction or scheme whereby a person:

   1. Invests money

   2. In a common enterprise and is led to

   3. With an expectation of profit

   4. From the efforts of the promoter or others

E. The SEC's subsequent *Munchee* cease-and-desist order in December 2017 promulgated additional factors to be considered when determining whether a DAO or other cryptocurrency token is a security, including the immediate usability of the tokens, the presence of the tokens on the secondary markets, how the tokens are advertised, and how the proceeds from an offering will be used.

F. Despite the enumeration of numerous factors, which might suggest a somewhat flexible approach to the characterization of tokens as securities, the SEC to date has never indicated that any tokens or cryptocurrencies—other than Bitcoin and Ethereum—are ***not*** securities.

   1. On June 14, 2018, William Hinman, Director of the SEC's Division of Corporation Finance, clarified that neither Bitcoin nor Ether are securities and that offers and sales of these cryptocurrencies are not securities transactions

   2. He also indicated that even though the initial issuance of a digital asset may have been a securities offering, once the asset is no longer controlled by a central authority or used primarily to purchase goods or services on a functioning network, it may not make sense to regulate the digital asset as a security

G. If cryptocurrencies/tokens are found to be securities, they are required to be registered with the SEC or to meet an exemption from registration. Introducing a token to the public market as a "utility token" does not remove it from the SEC's scrutiny.

H. **Examples:**

   1. **The DAO:**

(a)   SEC asserted that the *Howey* analysis applies to cryptocurrencies in its [July 2017 Report of Investigation into DAO Tokens](.).

(b)   "The DAO"—the name of a specific DAO created by a German startup in 2016—was hacked and litigation ensued, the SEC found that tokenholders' contributions of Ethereum in exchange for tokens of The DAO constituted an "investment of money," and that the efforts of The DAO's founders and curators were essential to the functioning of The DAO.

(c)   The DAO's founders and curators pooled the contributed Ethereum to fund projects from which The DAO's tokenholders eventually stood to profit. These facts led the SEC to conclude that The DAO's tokens fell squarely within the purview of *Howey*, constituting an investment contract subject to the securities laws and regulations.

2.   **BlockFi Lending LLC (BlockFi):**

(a)   In February 2022, the SEC joined several state enforcement agencies that charged BlockFi Lending LLC ("BlockFi") in 2021 with failing to register its crypto lending product as a security. BlockFi had advertised its ability to generate returns for investors who loaned digital assets to BlockFi. These assets were then pooled, loaned, and invested at BlockFi's discretion, with the goal of generating profits.

(b)   BlockFi was required to pay $100 million in penalties—one of the largest penalties to date in the digital assets space.

3.   **Ripple Labs Inc. (Ripple)**

(a)   In an ongoing lawsuit initiated in late 2020 against Ripple, the SEC is alleging that the company's offering of its cryptocurrency asset, XRP, meets the *Howey* test and constitutes an unregistered securities offering.

I.   **NFTs and F-NFTs**

1.   Generally, NFTs are not seen as securities.

2.   F-NFTs, however, embody the promise of future gains through services from the issuer and therefore might fulfill the criteria of the *Howey* test.

(a)   SEC commissioner Hester Peirce has said investors should be wary of creating unregistered investment products with NFTs.

(b)   Further, the SEC recently began to [increase its efforts](#) to determine whether F-NFTs are being used to raise money like traditional securities—including sending out subpoenas related to its investigations.

3.   Additionally, there may be securities issues that arise where NFTs do one of the following:

(a)   represent a right to revenue stream (e.g., buying a tokenized song and getting a share of future revenue from the song);

(b)   are offered via pre-sales where the NFT has no current use (e.g., presale of game NFTs where the game is not built and funds are used to raise money to build the game); or

(c)   are traded pursuant to material, non-public information (some exchanges have been prompted to adopt NFT insider trading policies)

IV.   REGULATORY CONSIDERATIONS: OTHER ISSUES

A.   Business Organization

1.   DAOs

(a)   As nascent organizational structures, DAOs face legal hurdles with respect to formation because they are currently not recognized legal entities in most jurisdictions.

(b)   Unless the DAO is associated with a formal, traditional business organization (i.e., a "wrapped" DAO) such as a limited liability corporation, limited liability partnership, or other corporate legal entity, many courts likely would find that the DAO's members had formed a general partnership as a matter of law, with each individual DAO member (*i.e.*, each DAO tokenholder) taking on personal liability for the activities of the entire DAO. This may be a significant concern for participants, since many individual tokenholders may not intend to expose themselves to the various legal and compliance risks that could arise in connection with a DAO.

(c)   In a wrapped DAO, all or a subset of the DAO's members create a formal business organization (oftentimes a corporation or LLC) that provides a platform for limited liability and manages and/or owns certain aspects or functions of the DAO's ecosystem, such as the DAO's smart contracts and its treasury.

(d)   Certain jurisdictions, such as Vermont, Wyoming, and the Marshall Islands have made efforts to officially recognize cryptocurrency businesses as legal entities and provide for limited liability.

       (i)   Wyoming, in particular, has enacted **24 laws** designed to attract cryptocurrency companies into the state. It **recognized DAOs as a legal form of business** and excluded digital utility tokens from being considered securities.

       (ii)   Wyoming now also recognizes direct property rights for digital asset (NFT) owners and cryptocurrency transactions are free of state property tax, as well as authorizes the maintenance of corporate records in a blockchain.

       (iii)   "Unlike other types of business entities that limit liability—like corporations or LLCs—the Wyoming Secretary of State, in the event of fraud, can yank the limited liability away from a DAO."

B.   **Contracts**

    1.   **NFTs**

      (a)   **Ownership**

        (i)   **NFT platforms do not always verify ownership** (e.g., Derek Laufman found his art on Rarible and author Simon Stålenhag found his art on Marble Cards)

        (ii)   NFT artworks are susceptible to counterfeiting .

        (iii)   Marketplaces might mitigate this risk through: (1) broad disclaimers (2) or ensuring authenticity (e.g., Super Rare).

      (b)   **Potential Contractual Disputes**

        (i)   If companies are not careful, the exploding (and largely unregulated) market for NFTs may give way to consumer-related contractual disputes.

          (1)   Does purchasing an NFT give you ownership rights or merely a license to use the NFT?

          (2)   Can you use the NFT any way that you want, or has the digital platform or original author imposed additional restrictions?

(c) **Access and Royalties** may also present a challenge

    (i) Most NFTs are on a platforms like Open Sea, Rarible, Dapper Labs, etc. What happens if one of these platforms goes out of business or experiences service disruptions?

        (1) NFT links can go bad, or hackers can compromise the private keys that NFT owners use to access their NFT

        (2) Additionally, lack of smart contract specificity regarding a seller's legal obligations to host data in way that is retrievable by a buyer could present issues.

    (ii) Specifications for royalty structures pay outs must be coded (*i.e.* fixed commission for every transaction or variable based on price/auction bid)—figuring out how to distribute revenue among the various parties involved in the issuance of some NFTs can get complicated.

        (1) Ownership share must be ironed out prior to embedding as an NFT.

        (2) There could be tax implications for revenue and losses in case of tech failure or smart code bugs.

2. **DAOs**

    (a) **Entering Contracts**

        (i) If a DAO with no associated legal entity is found to be a general partnership, any individual DAO member theoretically could enter into contracts and bind the other DAO members without their knowledge or consent.

        (ii) Platforms through which DAOs may contract and exchange services and payments with third parties, as well as to engage in commerce more generally (including the wrapped DAO model) remain untested.

    (b) **Potential Contractual Disputes**

        (i) Prevalence of anonymity in the DeFi and DAO world might make it difficult or potentially impossible to find all of the relevant people or entities responsible for breach, preventing the aggrieved party from obtaining full relief.

C. **Intellectual Property**

1. **NFTs**

(a) NFTs do not inherently authenticate IP rights, and purchasing an NFT does not automatically grant all IP rights to piece of content. There is often a distinction between ownership of an NFT and ownership of the underlying content.

(b) NFTs authenticate ownership of tokens, rather than underlying copyrights to the creative work and rights to create derivative works flowing therefrom.

(c) Rights attached to an NFT **purchase could be as limited as an implied non-exclusive license to display** the related media in a token wallet for personal purposes only (e.g. YellowHeart ToS) or as broad as granting the full copyrights to the art and additional rights to use the artwork in different contexts.

(d) **Bored Ape Yacht Club (BAYC) Example**

(i) Yuga Labs LLC created BAYC, a collection of NFTs running on the Ethereum blockchain. Yuga Labs minted 10,000 cartoon ape NFTs with bored expressions. Each ape NFT represents not only art, but also acts as an admission ticket for the owner to access the virtual BAYC community.

(ii) The purchasers of the bored apes received the **underlying copyright** to the **ape artwork** upon purchase, as well as the right to create derivative works. Yuga Labs also granted each owner a **right to commercialize their particular ape artwork**.

(iii) Purchasers of the apes have commercialized their particular apes through creating comic books, selling branded India pale ale beer, and even starting record labels and creating virtual metaverse music groups using their ape artwork.

(iv) BUT the BAYC terms and conditions are silent on trademark rights. As the owners of the underlying BAYC brand, however, Yuga Labs has made it clear that the purchase of a particular bored ape NFT and its subsequent commercialization does not give the NFT owner a right to use its registered, trademark-protected BAYC brand — i.e., the right to use the overarching BAYC mark commercially alongside a particular ape.

(v) With each ape being undeniably linked to the BAYC brand, however, this raises questions about whether and how Yuga Labs will ensure quality control — especially given the unfettered commercial rights it has granted to the ape NFT owners.

2. **DAOs**

(a) DAO participants unquestionably will be faced with how to ensure ownership and enforcement of the intellectual property (IP) they generate and acquire as they continue to grow and develop.

(b) If a DAO is unwrapped (or if there are no IP assignments from DAO members who authored the protocol to the associated wrapper entity), there is an open question about exactly who owns underlying software code, especially depending on how many members the DAO has and who contributed to the development and improvements upon that software.

(c) In the licensing context (especially for unwrapped DAOs), it may be unclear who or what actually is the licensor or licensee where a DAO seeks to license either valuable software code or copyrights related to other DAO assets, such as NFTs.

(d) Depending on the structure of the DAOs and other parties involved, it may be unclear what party or parties properly should be named in an IP infringement suit.