CARDOZO ARTS & ENTERTAINMENT LAW JOURNAL SPRING SYMPOSIUM 2019♦

DIGITAL ART & BLOCKCHAIN

MARCH 28, 2019

INTRODUCTIONS

JULIA SPIVAK[*]: Good afternoon, everyone. Welcome to *Cardozo Arts & Entertainment Law Journal*'s Spring Symposium on Digital Art & Blockchain. My name is Julia Spivak and I am the Editor-in-Chief of Volume 37 of AELJ.

First, I wanted to welcome our panelists, some of whom have come from across the country to speak with us today. We are honored to be hosting this esteemed group of scholars and practitioners. We are very excited for their contributions today, and we look forward to some great discussions on blockchain and digital art.

I would also like to acknowledge a few others without whom this event would not be possible. First, I wanted to thank Cardozo's Intellectual Property and Information Law Program and Ms. Janette Payne, as well as Cardozo's FAME Center and Professor Barbara Kolsun. AELJ is incredibly grateful for your support.

Next, we would like to thank our faculty advisor, Vice Dean Michael Burstein, who has been tremendously helpful all year both in planning this event and all of our others. Another huge thank you is owed to the wonderful moderators of today's event, Professor Christopher Buccafusco and Professor Jeanne Schroeder. Their feedback this year has been crucial in preparing for today's event, and we thank them so much for all of their help.

And last but certainly not least, with us today are Devin Newman, our Symposium Editor, and Gabi Flaum, our Managing Editor. Thank

♦ The following compilation is composed of edited transcripts from the *Cardozo Arts & Entertainment Law Journal*'s 2019 spring symposium, which took place at the Benjamin N. Cardozo School of Law on March 28, 2019.

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you both so much for the countless hours of work you put into planning this incredible event. I know I said this about everyone, but this event definitely would not be possible without you two, and we are all extremely grateful.

Thank you to all of the AELJ Volume 37 editors who helped with planning and execution of this Symposium. With that said, I would like to turn your attention to Professor Evans. Professor Evans is a Professor of Law and the Chair of the Intellectual Property and Technology Online Programs at University of New Hampshire School of Law. We welcome her to introduce our event. Thank you.

PROFESSOR TONYA EVANS[*]: Thank you so much for the introduction and for involving me in this fantastic topic for the day. My role in these five minutes, count them, five minutes and they are counting, is to introduce you to blockchain technology at a very high level and to make the connection that the esteemed panel that will follow me will continue as we continue to explore the discussions. You don't have to have any awareness or understanding or appreciation for it, but I'm glad that you have interest and that you're here. So let's demystify this a bit if we can.

The topics that I'll hit, a quick high level of Blockchain 101, to take you through the basics of the technology; to introduce to you that we will further explore through the panels the Web 2.0 Program, and I say Web 2.0, it's what we're living in today, the exchange of information in the social web. I'll mention in one slide Ethereum; you will hear the term Ethereum as a network as one type of blockchain. It's relevant and important for some of the types of technologies that we'll be talking about that are beneficial in the arts space.

I'll mention briefly if there is time about fungibility; that's also an important term as we talk about the different ways to approach tokenized assets. And then, empowering creators: at a high level, what does this technology mean in the art world? And one brief example of crypto art, if time remains, that will be further explored on the panels.

I developed our crypto currency and blockchain curriculum at the University of New Hampshire School of Law, and when I define blockchain, it changes every week depending upon the understanding. It changes every single class.

But I wanted us to start with a basic appreciation that what are blockchains? First of all, we're talking about software, and we're talking about a decentralized database. It's a data structure; I'll say more in a minute. It's maintained by a distributed network of computers.

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You'll also hear the term nodes, but we're really just talking about computers. And those computers rely on certain network effects, some economic incentives to secure the network rather than relying on some intermediary to do that for them.

There are three stages of the network revolution that are important here. When we think about the first iteration of the Internet, it's centralized; it was basically one entity that controlled information, and that information went out.

In the Web 2.0 world that we're living in now, it's a social web. So there are pockets of centralized entities but may be networks within them.

What the ideal or the idea is for Web 3.0 is something that's fully distributed with no intermediaries. Intellectually speaking or theoretically speaking, I think when we disintermediate things, sometimes we put new intermediaries in, but we'll talk about that later.

The problem of the Web 2.0 world is that there was this great and wonderful free exchange of ideas, but it ushered in this global free exchange without an appreciation or accountability for digital ownership in property rights, right, because creative content was easily duplicated, it is, and pirated to a great extent. These unauthorized copyists, they reproduce and distribute or adapt, publicly perform, publicly display, at little to no cost.

The other problem with digital assets in the current iteration is that there is often no exhaustion. There are technological measures that could be put into place to lock down certain things, and that's where TPMs came from, and management of digital rights, but that's very difficult to do, and at a great cost. Also, there was difficulty in distinguishing between a master and the copies of the master as well. If you can make this perfect digital copy, send it to 1,000 of your perfect nonfriendly friends in the world to do the same, we very quickly lose control of that digital asset. It also made it very difficult for creators to participate downstream in the secondary markets.

The core characteristics of blockchain: these are things that you'll be hearing about today as well. You have something that's append-only: you can add to it, it's very difficult or impossible, in fact, that's the point, to erase. And I'll tell you about that in a moment. So it's highly resistant and resilient to change; disintermediated, so I mentioned removing the intermediaries; it's transnational, that means it's borderless; and again, relies on consensus mechanisms of a group of people rather than a trusted intermediary, and that's some market theory, game theory, and things of that nature.

The core technological components, and then I'll take you through the basics of what the heck we're still talking about. One of the things that I love most about the technology as it stands now is that Satoshi

Nakamoto, whoever that is, and for today, I am Satoshi Nakamoto, [laughter] just so we're clear, used peer-to-peer networks, it's been around for decades, obviously, the Internet, it's been around for decades.

And also, public-private encryption and digital signatures: we've had cryptography for decades, used originally by the military and governments. But it's created this novel way to transact in value between two parties, and this would be the thing that you might hear quite a bit.

You'll hear the Bob and Alice explanation of cryptocurrency. Bob wants to send value to Alice, gets her public address to do so as if I were mailing something to your address; I would know where you live but I don't have the key to get in. Alice is the one that holds the key that can unlock the value or the message, and all of this happens because the network agrees that they are following the rules of transactions for that particular blockchain.

So let's go through, and then, I'll save some of the other things because I'm watching my time closely. Blockchain is a digital spreadsheet. It stores data, transactional data, not the files themselves. Sometimes people think that the art will there, or the music will be there; it's not. It's the transactional evidence of what has transpired across this network of computers.

Each computer, also known as a node, this is a tech or computer science parlance, each computer is a node; they run a full version of the software. You do not have to be a full node, you can simply have a wallet and own bitcoin, but you can decide that you will use your particular computer to run a full version of that blockchain's software. We're talking about the bitcoin software, for example, was the first ten years ago to come out of the box.

Each new transaction that is broadcast, Bob sending value to Alice, for example, is broadcast to the network of computers, or the nodes, to be verified by each node, and verification means that the computer software is running to say, yes, he had ten bitcoin, and yes, Alice received it.

Verified transactions are grouped in regular intervals by consensus. There are various methods to that that are outside the scope of what we're talking about. And each group of verified transactions is called a block.

The new blocks are added to the chain by a special type, and this is in the case of a particular type of blockchain that uses what we call proof of work, a miner that is minting newly-minted bitcoin, for example, and they're competing to solve this mathematical equation, and the one to do that is awarded the "block reward" in the case of the bitcoin blockchain, now we have twenty bitcoin for the privilege, and

that new block is added to the chain.

Why is it a chain? The blocks are interrelated because each new block has part of the information of the previous block, the final slide for purposes of where we are now, to try and bring a visual home.

The first block is the only block that doesn't apply to; we call that the genesis block. It's not even on this screen. But for every other block, here would be the transactions that have been aggregated or hashed together into a single bit of information. Don't worry about this term; that's another story for another day. But the hash or the bit of information from the previous block is connected to this block, and that becomes the block's header. And then, we do it again; and then, we do it again.

So when we get out 300, 3,000, 30,000 blocks, in order to chain block three, we'd have to change everything else. That's what makes it immutable, and that's what makes it secure. And so, I want you to keep this in mind.

Going to go forward to make some final points to connect to the panel, and then, they'll take it from here. And I'll say more about fungibility when my panel is up. When we're talking about cryptoart in its purest form, it's something that is native to a blockchain. What other thing could happen is that we have a piece of art that we represent its ownership in tokenized form. But there is a special type of artwork that is purely digital, and now, there are a number of artists who are taking advantage of blockchain technology in order to participate in downstream revenue, to remain connected no matter what. We'll hear about provenance and all sorts of other things that this type of technology creates the opportunity to do in a really exciting way.

If you want to follow Jason Bailey, and you want to take a deep dive in this area, he has a website called Artnome.com, and I commend that to you. He has written a ton in this space, and he knows several of the people here. I had a chance to interact with him, and so, I commend that to you as well. All right, those are the high notes; they're going to hit the low notes. [laughter] But I appreciate your time and attention. Thank you.