

**MINUTES OF THE
SENATE COMMITTEE ON REVENUE AND ECONOMIC DEVELOPMENT**

**Eightieth Session
March 12, 2019**

The Senate Committee on Revenue and Economic Development was called to order by Chair Marilyn Dondero Loop at 1:40 p.m. on Tuesday, March 12, 2019, in Room 2134 of the Legislative Building, Carson City, Nevada. The meeting was videoconferenced to Room 4412E of the Grant Sawyer State Office Building, 555 East Washington Avenue, Las Vegas, Nevada. [Exhibit A](#) is the Agenda. [Exhibit B](#) is the Attendance Roster. All exhibits are available and on file in the Research Library of the Legislative Counsel Bureau.

COMMITTEE MEMBERS PRESENT:

Senator Marilyn Dondero Loop, Chair
Senator Julia Ratti, Vice Chair
Senator David R. Parks
Senator Ben Kieckhefer
Senator Heidi Seevers Gansert

STAFF MEMBERS PRESENT:

Russell Guindon, Principal Deputy Fiscal Analyst
Joe Reel, Deputy Fiscal Analyst
Lex Thompson, Committee Secretary
Barbara Williams, Committee Secretary

OTHERS PRESENT:

Matthew Digesti, Blockchains, LLC
Elisa Cafferata, Nevada Technology Association, Inc.
Tyson Falk, Figure Technologies Inc.
Ethan Clift, Filament

CHAIR DONDERO LOOP:

I will open the hearing on Senate Bill (S.B.) 164, which recognizes certain virtual currencies as a form of intangible property for purposes of taxation.

SENATE BILL 164: Recognizes certain virtual currencies as a form of intangible personal property for purposes of taxation. (BDR 32-878)

SENATOR BEN KIECKHEFER (Senatorial District No. 16):

I am here to present S.B. 164. The bill does a couple of things. It primarily builds on S.B. No. 398 of the 79th Session, where we created a definition of blockchain to focus on technology and an entrepreneurial ecosystem as part of a broader and more refined economic development. I worked with the entrepreneurial community in northern Nevada and was introduced to the concept of blockchain technology by Matt Digesti of Blockchains, LLC. That work has been a success and has built an economic development platform in our State for the type of companies that I would like to see grow here over time. This bill is an effort to continue that development and expand the groundwork that we have laid for an entrepreneurial ecosystem. Mr. Digesti will provide an overview of blockchain before I go into the details of the bill.

MATTHEW DIGESTI (Blockchains LLC):

I submit my written testimony ([Exhibit C](#)) in support of S.B. 164. It details the company's mission and why we need this bill.

Blockchain technology is a buzzword—it is distributed ledger technology. It focuses on digitally created ledgers. Rather than the ledger being centralized in one company that controls the ledger and access to it, it is a distributive ledger. This means there are multiple participants in the network that may be affiliated or unaffiliated. Each holds a copy of the ledger. The power of blockchain technology is that it allows a ledger to be distributed among multiple parties. Using Bitcoin as an example, the ledger is distributed among thousands of parties. This is done in a secure, transparent and immutable way. It is quite revolutionary.

Blockchain technology has two core components: a block and a chain. You have received an illustration ([Exhibit D](#)) that may give you a visual for clarity in this complex technology. I will use a simple example of a transaction between myself and Senator Kieckhefer. Imagine we want to join the Bitcoin network and I want to send Senator Kieckhefer one bitcoin. We would both download the software program on a computer or phone. By doing that, we each become what is known as a node, or computer, in the network. We are independent of each other, or unaffiliated, and we each operate our own node. When you download the software, you also download a complete ledger for the Bitcoin network from the beginning of time. Anybody who downloads Bitcoin software can see every transaction beginning with the first one, ten years ago.

Going back to my example, I want to send Senator Kieckhefer one bitcoin. In the illustration, the transaction details are contained in the lowest bar of the first block on the left. The transaction details include my IP address, Senator Kieckhefer's IP address, the amount of bitcoin and who is sending it to whom. The transaction details then go through a cryptographic algorithm and produce a 64-character random string of letters, called a hash value. In the illustration, this is the bar above the transaction details. Another algorithm is applied to all transactions since the beginning of the network to produce another hash value which is also a defined, random and unique string of 64 characters. In [Exhibit D](#), this is represented by the third bar up from the bottom. The next level records the timestamp of the block. All of the information is then hashed through an algorithm a third time to produce the final hash of that particular block, represented by the blue bar at the top of the illustration.

A node in the network would put together this information, run it through the algorithms and broadcast the information from the block out to the network. The nodes on the network would look at the transaction and the proposed block. By reviewing the hashing values and comparing the entire ledger to the ledger on their node, they would then validate the transaction. They would confirm that I had one bitcoin to send to Senator Kieckhefer and that the IP addresses are valid. If 51 percent of the network validates the transaction, that block would be appended to the ledger.

The second part, which is important, is the chain. The chain is represented by the middle block of the illustration. In the second block, we start over. Let us assume Senator Kieckhefer wanted to send the bitcoin back to me. That becomes Transaction No. 2 and includes all the relevant information as before. The transaction goes through the same hashing functions as before, which includes going through all the ledger entries from the beginning. The time stamp is then recorded. If you look in the top white bar of the middle block, you will notice the Genesis Block Hash value matches the hash value of the previous block. Every time a new block is added, it includes the hash value from the previous block, and that creates the chain.

The cryptography is crucial. Imagine we wanted to put the entire Encyclopedia Britannica onto a blockchain. There are hundreds of volumes and millions of characters. If you put it onto a blockchain and someone went back to change a single period to an exclamation point for fraudulent or malicious reasons, the

entire string of blocks on the chain would be different than the other ledgers in the network. The effect would cascade. If a period were changed on the first page, all hash values going forward for the entire Encyclopedia Britannica would be different than the other ledgers. It would be recognized as a fraudulent transaction and not be accepted as true by the other computers in the network.

The Bitcoin network, consisting of thousands of unaffiliated computers around the world, has been around for ten years. In 2018, \$3.2 trillion of value was exchanged on the network. There has not been a single hack or fraudulent entry in that time. Cryptography is incredibly secure and has a solid track record.

SENATOR RATTI:

All computer data is comprised of ones and zeroes, which includes all of the data in a blockchain. Does the security stem from the verification of the network of computers? Does building the chain make the corruption of one link more obvious?

MR. DIGESTI:

Yes, the verification of a network of unaffiliated computers is definitely a big part of the security. We all use financial services, so let us use Wells Fargo as an example. It has its own ledger technology, but it is centralized. We trust that Wells Fargo is going to keep that ledger in an honest manner and will enter debits and credits in a way that reflects actual transactions. It has complete control over that ledger. Ones and zeroes go through a compiler and come out in plain data for a user to see.

Blockchain is different. With cryptography and the use of blocks and chains to link transactions, there is no way to go back and change a ledger in a way that is not immediately identifiable. We trust Wells Fargo will do exactly what it says it will do. Blockchain has the potential to remove the Wells Fargos of the world from the equation entirely and allow two people who do not necessarily know or trust each other to exchange value over the internet. The protocol allows for trust.

SENATOR RATTI:

In the example of two people able to exchange value without an intermediary, is there still a broader network of validators?

MR. DIGESTI:

There is a broader network of validators. It is referred to in the industry as the consensus mechanism. If you have thousands of independent computers around the world, each with its own ledger, how do you reach a consensus that the transaction that Senator Kieckhefer and I conducted is legitimate? The transaction goes through the cryptographic process of creating unique hash values. Once the transaction is finalized by one node, it is broadcast to all the computers in the network. Those computers then serve as validators. They look at the block being proposed and compare all the information with what has happened historically. If 51 percent of the computers consent that the proposed transaction is a valid block, then that block is added to the historical ledgers of all the computers in the network.

SENATOR RATTI:

How does one become part of the network of validators?

MR. DIGESTI:

There are really two lanes when it comes to this technology. There is public blockchain technology and there is permissioned, or private, blockchain technology. Anyone can join a blockchain in the public sphere by downloading the software. Bitcoin is the best example of this. Any one of us can download that software and become a node on the network. There are no restrictions on participation. Ethereum is the second most well-known blockchain network.

The permissioned, or private, blockchain networks are normally comprised of a federation or consortium, often of 10 to 12 banks. The architecture is the same, but it is not open to the public. It is blockchain technology being used in a closed environment by a group that has decided who can participate, what the rules of the game are and who has access to the information on the network. It can be used in major industries such as supply-chain management and international shipping companies. Banks are using it for international money transfers.

SENATOR RATTI:

What if a crime syndicate decides to use blockchain technology in a private network? What means does law enforcement have to see the data?

MR. DIGESTI:

Text messaging applications exist that are fully encrypted. Law enforcement cannot see the messages. Cryptography is a relatively old technology and is used in many other industries. It presents a challenge for law enforcement in many areas. Blockchain does not present a unique challenge for law enforcement. Intelligence agencies know and understand cryptography and how to combat its misuse.

Blockchains, LLC, is a public blockchain company. We believe in transparency and in removing the middleman to help consumers save money where it is appropriate, as long as the right consumer protection measures are in place.

SENATOR RATTI:

If I understand correctly, the things that make blockchain technology safer do not necessarily make it more transparent.

MR. DIGESTI:

That is correct.

CHAIR DONDERO LOOP:

How does one initially get started accumulating bitcoin? How does a network know you have the funds to purchase it? Since bitcoin value is always changing, how do you know how much money you have?

MR. DIGESTI:

Bitcoin is interesting because it was the first mover in the industry and has gotten the most attention. It is somewhat like the California Gold Rush. Once gold was discovered in California, a lot of people sold everything and went to find their fortune. Some were successful, some were not. An ecosystem popped up around the Gold Rush. People sold picks and pans and all of the infrastructure one needed to mine the gold. Bitcoin has been around for ten years. Ten years' worth of ecosystem development has matured around the Bitcoin ecosystem. At the very beginning, there was no infrastructure to answer the questions that you just posed, but today there is. In the United States, there are regulatory rules that help with consumer protections.

To invest in bitcoin, an individual can use exchanges that are regulated at the federal level. Coinbase is probably the best known. An individual can create an

account with Coinbase and link it to a checking account or credit card. The dollars are deposited into a wallet which can be used to buy a virtual currency.

SENATOR KIECKHEFER:

The value of your holdings within any individual virtual currency is a constant unless you acquire more or divest of some. It is a fixed issued amount. When that value is translated into U.S. dollars, the value can fluctuate.

I would like to talk about S.B. 164. It adds virtual currencies to the list of items in *Nevada Revised Statutes* (NRS) 361.228, which are specifically outlined as intangible personal property exempt from taxation. Examples of other intangible personal property include stocks, bonds, mortgages, notes and bank deposits.

Section 1, subsection 1 is primarily clarifying language. Adding virtual currency to this list is a statement to the blockchain businesses that Nevada is a safe place for them to operate, invest and develop technology. We want to send the signal that companies can use virtual currency for economic development.

Section 1, subsection 4 adds language as it relates to the definition of blockchain, which is consistent with S.B. 162 and S.B. 163, bills I have introduced to the Senate Committee on Judiciary earlier this Session.

SENATE BILL 162: Revises provisions relating to electronic transactions.
(BDR 59-876)

SENATE BILL 163: Revises provisions relating to technology used by certain business entities. (BDR 7-877)

The effort is to recognize that virtual currencies are traded over decentralized ledgers and are not held primarily by the closed networks that Mr. Digesti discussed. Creating the definition of a public blockchain is consistent with the operations of virtual currency as well as the other legislation we have presented in this Session.

Section 1, subsection 4, paragraph (c) defines virtual currency and finally, section 2 states the act becomes effective July 1.

SENATOR SEEVERS GANSERT:

Section 1, subsection 4, paragraph (a), subparagraph (2) refers to using a decentralized method by which two or more unaffiliated computers verify. Why only two? My impression was it takes a vast network to guarantee the security.

SENATOR KIECKHEFER:

The key term in that section is "unaffiliated" rather than the number of computers. The number of computers in a network grows over time, but it can start with a relatively small number.

SENATOR SEEVERS GANSERT:

I am concerned with the reverse of that. Someone could create a virtual currency on a very small scale.

MR. DIGESTI:

Blockchains, LLC, understands that it needs to help create and support an ecosystem in order to move technology-based economic development forward. That cannot be accomplished by one company; it requires many different stakeholders at many different levels. The blockchain startup ecosystem is a key component of that strategy. Two or more unaffiliated computers is a starting point. The Bitcoin network started with one person on one computer, although no one knows who that individual was.

The language captures the concept that it requires no less than two unaffiliated computers to create a public blockchain. The term unaffiliated is key because it conveys the public open access feature which is so important.

You are completely correct that the more computers that join a public blockchain, the more secure it is. But we have to encourage economic development at the lowest level in order for Nevada to continue signaling to the ecosystem we are a blockchain-friendly State and we embrace this technology.

CHAIR DONDERO LOOP:

Can you explain the Blockchains, LLC, business model?

MR. DIGESTI:

At its core, Blockchains, LLC, is a public blockchain software development company. The founder and CEO, Jeffrey Berns, believes that the company must help create a vibrant public blockchain ecosystem around the technology.

Ironically, the public blockchain ecosystem now is distributed and decentralized around the globe. The public blockchain industry has many independent, unaffiliated developers and startups working, but they are having a difficult time coalescing and moving forward. The permissioned, or private, side of the industry has billions of dollars to invest in permissioned blockchain technology. Permissioned blockchain technology will not remove the middleman. The middleman will simply have a more innovative database that it can sell to the consumer.

The public blockchain side has the potential to remove that middleman and create a peer-to-peer ecosystem where individuals can be on equal footing with each other. That is the vision Blockchains, LLC, is attempting to push forward. In order to do that, the company needs to support legislation that continues to signal to the ecosystem that Nevada is a friendly State; we embrace and understand this technology. Blockchains, LLC, does have its own products and services, but it firmly believes that a rising tide lifts all boats. We understand that a vibrant ecosystem is necessary for a new technology to survive and prosper.

SENATOR RATTI:

If unaffiliated is the key, where is "unaffiliated" defined in NRS?

SENATOR KIECKHEFER:

I will have to get back to you on that question.

SENATOR SEEVERS GANSERT:

Blockchain is new to most of us and understanding the technology is complex. The point of the bill is to list it as intangible personal property. When you think about what is tangible versus intangible, virtual currencies certainly qualify as intangible. That Nevada considers it intangible personal property would give some security and knowledge to the ecosystem.

SENATOR RATTI:

I agree with Senator Seevers Gansert. People might look at this bill and assume that it is another request for an exemption, particularly given the northern Nevada economic development climate. There is no new exemption here. It is simply taking something that is a currency and putting it on the list of currencies and defining it as intangible personal property.

I know that the sponsors are interested in having consistent definitions in multiple sections of NRS. We should try to get those definitions right in order to build a safe and secure ecosystem. The term unaffiliated needs to be correctly defined. We have had many tax discussions in the past regarding closely held corporations and degrees of consanguinity with family members. It is important that we define unaffiliated as two separate, disinterested parties.

ELISA CAFFERATA (Nevada Technology Association, Inc.):

We support S.B. 164. We believe it follows the example of S.B. No. 398 of the 79th Session and signals to innovative companies in the blockchain technology space that Nevada is taking a light-touch approach to this technology. Our letter of support ([Exhibit E](#)) is submitted.

I want to address the concern regarding criminals using this technology. One of the major features of blockchain technology is that any transaction is nearly impossible to change. Law enforcement does have the tools to identify players even if they are operating on the blockchain anonymously. There is a permanent record of every transaction. We have seen law enforcement use tools at their disposal to identify and prosecute bad players who use this technology in a criminal fashion.

We hope you will support this bill and keep Nevada a national leader in this emerging technology.

TYSON FALK (Figure Technologies Inc.):

Figure Technologies Inc. is a blockchain-based company that just moved to downtown Reno. I echo the comments you have already heard. The more blockchain-based companies that come here, the better it is for the ecosystem. This bill further cements Nevada as a leader in this technology and will encourage more entrepreneurs and investment capital to come here.

ETHAN CLIFT (Filament):

Filament is a Reno-based company whose clients include Jet Blue, Intel, Verizon and others. We support S.B. 164. We would like to ensure that the language is kept consistent around the definition of blockchain and public blockchain, in this bill and in S.B. 162 and S.B. 163.

SENATOR KIECKHEFER:

Two years ago we passed one bill relating to blockchain, and it has had a tremendous effect on how the world sees Nevada in this space. Much of the credit goes to the technology companies you have heard from today. A lot has changed since then. In that time, Wyoming has passed 13 bills related to blockchain. They are being very aggressive in trying to own this area. There is probably room for everybody, but I want to make sure Nevada is able to continue putting a strong foot forward. We want to let this industry know that they should look closely at Reno, Las Vegas and our whole State when they are trying to decide where to do business.

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CHAIR DONDERO LOOP:

I will close the hearing on S.B. 164. This meeting is adjourned at 2:22 p.m.

RESPECTFULLY SUBMITTED:

Barbara Williams,
Committee Secretary

APPROVED BY:

Senator Marilyn Dondero Loop, Chair

DATE: _____

EXHIBIT SUMMARY				
Bill	Exhibit / # of pages		Witness / Entity	Description
	A	1		Agenda
	B	2		Attendance Roster
S.B. 164	C	1	Matthew Digesti / Blockchains, LLC	Letter of Support
S.B. 164	D	1	Matthew Digesti / Blockchains, LLC	Blockchain Illustration
S.B. 164	E	1	Elisa Cafferata / Nevada Technology Association	Letter of Support