

GREG BRIEF: BLOCKCHAIN, CRYPTOCURRENCY AND GAMBLING

TRAVIS SZTAINERT, PHD, KNOWLEDGE BROKER

Blockchain is an increasingly popular technological innovation that underlies cryptocurrencies such as Bitcoin and Ethereum. In order to understand cryptocurrencies and the impact they will have on the gambling market, it's important to first understand how blockchain functions.

WHAT IS BLOCKCHAIN?

Blockchain is a method for tracking transactions using a public, globally distributed ledger. Transactions can include anything of value (e.g., houses, patents, intellectual property, cars, software, contracts), but is most commonly used for virtual currency (i.e., cryptocurrency). Blockchain automatically and securely (using cryptography) keeps a historical record, or ledger, of all transactions.

New transactions are saved in a “block” and added to the existing chain (hence the term blockchain). Importantly, this record has a number of encryptions and redundancies which ensure it cannot be changed, falsified or altered. As such, the blockchain remains unbroken, and free of error or tampering. The unbroken record is shared and distributed among everyone who uses blockchain. This means that everyone has a record, which can then be compared across individuals to ensure there are no anomalies. When a new transaction is added to the record, it is time-stamped and verified by all those who are using the blockchain. This ensures that no records are falsified or altered.

Simplified Blockchain Example

Say Joe wants to pay Sue using blockchain technology. When Joe sends Sue the money, this transaction will be automatically (and securely) recorded in the blockchain and distributed globally. Now, everyone can see that Joe has indeed sent Sue the money. When Sue then accepts the money, this too is automatically (and securely) recorded in the blockchain and distributed globally. Everyone can now see that Sue has accepted the payment. Neither party can claim that the transaction didn't take place, or the value was a different amount than was actually sent.

Note that Joe did not have to send money to a bank first, and Sue didn't have to go to the bank to deposit her money – it all happened without the use of an 'intermediary'. Intermediaries are useful in transactions, as they act as a trusted, neutral 'third party' to ensure (and record) that a transaction takes place. With blockchain, there is no need to use an intermediary, as all transactions are secure and transparent. Thus, blockchain technology may make intermediary organizations (such as banks) redundant.

Another benefit of blockchain is that it automatically ensures that Joe indeed has the money to send to Sue (this information was contained and verified in the blockchain itself when Joe deposited his money). This prevents any accidental or intentional 'double spending' of funds.

CRYPTOCURRENCY

Digital currencies were one of the first applications of blockchain. There are many types of cryptocurrencies such as Litecoin (LTC), Zcash, (ZEC), Ripple, Dogecoin, PPcoin, Quark, and many more. One of the first and most successful of all cryptocurrencies is Bitcoin. Bitcoin, like other cryptocurrencies, is not issued by a bank, or protected by government rules; therefore, it is considered 'decentralized'. Due to the technological innovations of blockchain, payments with cryptocurrencies are popular because:

- transactions have low fees (some cryptocurrencies don't have any transaction fees);
- payments are confirmed in a short period of time;
- there is a low risk of payment fraud, considering that the transactions are irreversible; and,
- there is no need of identification.¹

Since cryptocurrencies use blockchain technology, you can think of them as a 'chain' of digital signatures. Each owner of the cryptocurrency transfers to the next owner by (a) digitally signing the previous transaction (i.e., the transaction that gave them the cryptocurrency they are about to transfer), (b) adding in the public key (or, identifier) of the next owner, and (c) amending this information to the end of the 'chain'. Then, before the new owner can transfer to the next, the process repeats itself. Hence, there is an unbroken chain of digital signatures and verifications tracing the transactions of the cryptocurrency. Any payee can follow the signatures to verify the chain of ownership, and this feature helps to eliminate any fraud. Simply put, cryptocurrency includes built-in validation and authentication mechanisms, which removes the need for intermediary financial institutions.

Cryptocurrency is becoming increasingly accepted as a legitimate source of funds. Some major vendors include Subway, Microsoft, Dell, Steam and WordPress. However, there are vendors that accept cryptocurrency and then use an intermediary to first convert the cryptocurrency into a standard currency before accepting payment. Importantly, casinos are now accepting cryptocurrency as payment, and there are even casinos that are built exclusively for cryptocurrency (and harnesses the technological benefits in the casino design).

CRYPTOCURRENCY AND GAMBLING

Gambling accounts for approximately half of all transactions with Bitcoin.² Examples of popular cryptocurrency casinos include:

- [Stake: The high stakes casino](#)
- [Bustadice: Next generation dice](#)
- [True Flip](#)
- [Primedice](#)
- [Bet King](#)
- [Funfair](#)
- [Bustabit](#)
- [Wagerr](#)

The main benefits to using cryptocurrencies for gambling are summarized by Gainsbury and Blaszczynski:²

- Transactions occur rapidly (near-instant), including immediate and automatic withdrawal and/or deposits.
- Transactions are non-reversible (no charge-backs), meaning fraud and non-payment are eliminated.
- Transactions tend to have few overhead fees (no deposit and withdrawal fees), which allow casinos using bitcoin to have a very low house edge.
- Players can retain their anonymity, which allows users to avoid regulations (such as betting in jurisdictions where gambling is prohibited).
- Players do not need an account, so there is no need for players or operators to manage and protect funds and accounts.

In addition, gambles that use blockchain are open to verification, so gamblers can ensure games are fair. Due to the blockchain technology, there is no way for gambling operators to cheat, or interfere with outcome or payments. This is referred to as “[provably fair](#)”, and you will often see this term used to market cryptocurrency casinos.

From a regulatory perspective, cryptocurrency may be problematic because it is difficult to prohibit this type of online gambling since sites that use blockchain are censorship resistant (cannot be seized or stolen). It is also difficult to regulate, as no banking institutions are involved with transactions; therefore, it’s difficult to impose rules and regulations on the transactions.²

The anonymity of cryptocurrency may also pose problems. Transactions that use blockchain are tied to wallets and not individuals, allowing for a layer of anonymity while still ensuring transparency and honesty. However, the unique identifier codes associated with cryptocurrency wallets can help prevent money laundering and match fixing. In addition, reputable wallets require identification for anti-money-laundering and know-your-customer purposes.

People who use and gamble with cryptocurrency offer a potential new customer base. Cryptocurrencies can be used to gamble by anyone with an internet connection, and there is no need to have access to traditional banking services (as is the case in less developed nations). In addition, new cryptocurrencies are being invented specifically for gambling purposes such as [CasinoCoin](#). CasinoCoin has also introduced the Double C Foundation, a non-profit organization designed to educate, promote, and technologically facilitate the use of cryptocurrency in the commercial gambling industry. Although some technological knowledge is currently needed to use cryptocurrency, the level of knowledge is decreasing. Mainstream wallets and exchanges are available and are becoming easier to use and understand.

Ethereum is a relatively new type of cryptocurrency that uses “smart contractors”. These contracts are based on simple ‘if-then statements’. For example, Joe and Sue may bet on the outcome of the next roll of virtual dice. Joe bets the number will be 1-3 and Sue 4-6. This bet could then be specified in a ‘smart contract’ that Joe and Sue each agree to. Then, when the dice is rolled, either Joe or Sue is automatically paid based on the stipulation of the contract and outcome of the dice. In this way, there is no chance of manipulation; the contract is transparent and automatic. In this way, Ethereum allows for safe and secure peer-to-peer betting (not just against an operator).

Implications for Responsible Gambling

Since cryptocurrency use can be anonymous and doesn't require a player account, current responsible gambling strategies may be difficult to implement. For example, self-exclusion may still be possible (using wallet IDs) but will be very easy to bypass. The collection of big-data to inform RG practices will also be challenging. Still, the open and transparent understanding of odds may be easier to implement.

There is also a risk that players may spend more money than they had intended when gambling with cryptocurrency. This is due to the nature of cryptocurrency as a virtual representation of currency, and players may not readily associate the value of their cryptocurrency as "real money".² An additional issue with cryptocurrency is that even people who don't directly gamble may be indirectly gambling through currency speculation. Indeed, there is a large exchange market in which speculators buy, sell and hold cryptocurrencies in order to profit from favorable fluctuations in exchange rates.

For more information, contact the author (travis@greo.ca) or info@greo.ca

REFERENCES

1. Deepika EP, Kaur ER. Cryptocurrency: Trends, Perspectives and Challenges. *International Journal of Trend in Research and Development*. 2017;4(4):4-6.
2. Gainsbury SM, Blaszczynski A. How blockchain and cryptocurrency technology could revolutionize online gambling. *Gaming Law Rev Econ*. 2017;21(7):482-92.

VIDEO REFERENCES

[What is Blockchain?](#) [YouTube Video, 2:19 min]
[Blockchain - A short introduction](#) [YouTube Video, 2:07 min]
[What is Blockchain? | CNBC Explains](#) [YouTube Video, 4:52 min]
[IBM Think Academy: Blockchain, How it works](#) [YouTube Video, 3:34 min]
[Understand the Blockchain in Two Minutes](#) [YouTube Video, 2:25 min]