

# Legitimizing Bitcoin: Policy Recommendations

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## 1. EXECUTIVE SUMMARY

“Virtual currencies are not going away. Their emergence has potentially far reaching implications for the federal government and society as a whole.”

– Senator Tom Carper (D-Del.), November 8 2013 [1]

Bitcoin is a newly-developed peer-to-peer virtual currency underpinned by powerful cryptography. Its advantages over fiat currencies like cash include improved transaction security, transparency, and lower transaction costs, while its present shortcomings are mostly due to a lack of government regulation and consumer trust.

Recently, Bitcoin has crashed onto the world stage. In the past year alone, it has been seized during the course of two criminal investigations, declared ‘not currency’ by FinCEN, declared ‘currency’ by a U.S. District Court judge, speculatively bubbled and burst, soared to an all-time high only months later, accepted by numerous merchants including major Chinese vendors Baidu and AliBaba, and finally come under the scrutiny of the U.S. Senate Committee on Homeland Security and Governmental Affairs.

Bitcoin represents an innovation in currency technology, with the potential to bring economic benefits to whoever can utilize it the best. However, like any new technology it suffers from uncertainty and a lack of public understanding and trust, a problem that is exacerbated by the slow rate of innovation in methods of storing and transacting money. Nonetheless, users, merchants and governments around the world are competing to develop the infrastructure needed to facilitate and support large, user-friendly economies in Bitcoin.

Therefore, the time is ripe for U.S. lawmakers to recognize Bitcoin as a legitimate means of transacting business, and as an opportunity for bringing competition, efficiency and new growth to several industries, including banks, credit card companies and money transmitters and exchangers. After analyzing the state of Bitcoin, the benefits it may bring and the potential problems that might arise, we present three major policy recommendations for the federal government:

(1) Legitimize Bitcoin by defining it in the law and recognizing Bitcoin stakeholders.

- (2) Regulate Bitcoin marketplaces and businesses to protect public and government interests while enabling innovation.
- (3) Maintain a Bitcoin reserve to help stabilize the currency.

We believe these policies will benefit Bitcoin users, many of whom are ordinary law-abiding Americans, and help to promote the development of Bitcoin “innovation clusters” in the United States, similar to the innovation cluster in Silicon Valley that formed during the early days of the Internet. Additionally, we address possible weaknesses of Bitcoin, and conclude that the potential benefits of these policies outweigh the associated risks. Finally, we believe that the arguments and policy recommendations put forward in this paper generalize equally well to any secure and legitimate virtual peer-to-peer cryptocurrency.

## 2. INTRODUCTION

### 2.1. What is Bitcoin?

Cryptocurrencies are instant, peer-to-peer, decentralized digital currencies that avoid traditional financial institutions by relying on cryptography for currency generation and transactions. They were first described in 1998 by programmer Wei Dai on the cypherpunks mailing list [2]. In 2008, a person or group calling themselves “Satoshi Nakamoto” published a white paper describing an implementation of a cryptocurrency called Bitcoin, and created client software known as Bitcoin-Qt [3].

“A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution...What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party.” [3]

The Bitcoin protocol achieves this challenge by sharing a big file called the “ledger” between all Bitcoin users. The ledger records all Bitcoin transactions, and cannot be changed unless more than 50% of the computational power in the Bitcoin network agrees to change it. In this way, users can send Bitcoins to each other as long as they trust that at least 50% of the network is ‘honest’.

The currency is now supported by the Bitcoin Foundation, a group of programmers, economists, and enthusiasts who collectively “standardize, protect, and promote” Bitcoin [4]. Bitcoins are transacted using an open-source cryptographic protocol. Transactions are handled by servers called “miners”, who enter new transactions into a ledger called the “blockchain”, ensuring that transactions cannot be duplicated, or “double-spent”. The protocol relies on a proof-of-work scheme, which ensures that the group controlling the majority of computing power on the network dominates and can write to the public ledger. This means that a dishonest user would have to out-compute every honest user in order to harm the network.

“The system is secure as long as honest nodes collectively control more CPU power than any cooperating group of attacker nodes.” [3]

Currently, 25 Bitcoins are created, or “mined” whenever a miner processes the first transaction in a block, creating an incentive for miners to support the network. The scheme for Bitcoin creation also ensures that only about 21 million Bitcoins can ever be mined, since each new block becomes exponentially harder to mine. Bitcoin has recently been in the news for its association with online illegal activities, and its increased acceptance among legitimate merchants. The price of a Bitcoin (often abbreviated BTC by markets) ranged anywhere from \$2 to \$980 on Mt. Gox (the most popular USD-to-BTC exchange) before December 2013, and remains volatile [5].

## **2.2. Markets and Merchants**

A growing number of merchants and early-adopters are starting to accept Bitcoins, attracted both by the novelty of the technology and the prospect of reducing the transaction costs of sales. Startups like BitPay have responded to this growing desire by creating simple platforms designed to allow any online merchant to accept Bitcoin payments alongside credit cards, Paypal, and other digital currencies and payment systems - giving Bitcoin a legitimate use as a currency around the world. A recent Fast Company article noted that BitPay, a “PayPal-like electronic payment processing system for Bitcoin”, has “compiled a directory with more than 12,000 businesses and charities that accept Bitcoin using its service” [6].

These startups are playing a central role in shaping the future of Bitcoin by facilitating legitimate uses of the currency both online and offline. As more and more merchants accept Bitcoin and realize its benefits over traditional transactions, it gains validity as a currency, but without user-friendly marketplaces like BitPay, Bitcoin behaves effectively like a traded commodity.

As a currency not tied to any company or government, Bitcoin became a popular method of payment on several online black markets, most notably Silk Road. Like any currency, Bitcoin may be useful in black markets and for other illegitimate purposes, but it is apparent that black market transactions make up only a small portion of Bitcoin trade [7].

“When the Silk Road was taken down on October 1st, the FBI seized nearly 30,000 bitcoins...In fact, the 174,000 or so bitcoins that the FBI controls now account for about 1.5% of all bitcoins in circulation.” [8]

In comparison, economics researchers in the U.S. have estimated that the U.S. black market or underground economy constituted around \$1.5 trillion, or approximately 10% of the U.S. GDP in 2011 [9].

On November 5th, a website called “Silk Road 2.0” launched as a replacement and near-clone of the original Silk Road site, and other Bitcoin-based black markets continue to exist. At the same time, Coinbase, BitPay, Bitpagos, and tens of other startups continue to build innovative merchant and customer platforms using Bitcoin.

### **2.3. Wallets and Exchanges**

Bitcoin is held in a digital wallet, managed either using downloaded software called a client or on a third-party website such as Coinbase, BIPS, Coinfloor, or Blockchain. These international startups facilitate a huge portion of transactions and exchanges, and therefore act as online “banks” in the Bitcoin world. These startups are innovating the ways people buy, sell, and trade Bitcoins online by securing Bitcoin wallets both in hardware, such as using protected offline servers, and in software, using advanced encryption techniques [10].

Online exchanges are an extremely popular means of buying and selling BTC - the top four exchanges alone transacted over five million Bitcoins in the month of November. These large exchanges, most of which are based outside the United States, have helped Bitcoin surpass Paypal in average daily transaction volume [5] [11].

### **2.4. Other cryptocurrencies**

Alternative protocols like Litecoin, Namecoin and PPCoin are major cryptocurrency competitors to Bitcoin, although Bitcoin is by far the most popular and valuable. Nonetheless, these cryptocurrencies are remarkably similar: they all rely on a shared transaction ledger, a mining process which helps to maintain the ledger, and a peer-to-peer transaction protocol based on wallets and secure keys. There are minor distinctions between them, but they mostly concern mundane details about the mining

process, such as the frequency at which blocks can be mined, the difficulty and reward for each block or the type of hashing algorithm. These are not big technological differences: the difference between Bitcoin and any of its major competitors is comparable to the difference between a Ferrari and a Lamborghini.

Given that Bitcoin and other competing cryptocurrencies are so comparable, we strongly believe that the Bitcoin analyses and policy guidelines presented in this paper apply equally well to any secure and legitimate decentralized cryptocurrency. The range of policy options presented in Section 5 should help to nurture all of the alternatives in the growing cryptocurrency industry, amplifying their benefits while curbing their drawbacks.

### **3. BITCOIN'S BENEFITS**

#### **3.1. Superiority as a Currency Technology**

Cash, a fiat currency, is the dominant medium of payment, but it has several weaknesses which hinder the free exchange of money for goods and services.

*3.1.1. Weaknesses of Cash.* Firstly, large cash transactions are inefficient because they must often be facilitated by a trustworthy middleman such as a bank or money transfer service, creating large administrative overhead costs. Secondly, although electronic cash transactions such as credit and debit card payments make using cash more convenient, they still require a middleman facilitator who may charge fees. This hurts small businesses, who must choose between losing to 2-5% of revenue in card processing fees or inconveniencing and even losing customers by forcing them to pay with physical cash [12]. Thirdly, despite the best efforts of currency designers and manufacturers, physical cash can still be forged, forcing payees to spend time checking the authenticity of bills received. Finally, cash is anonymous and transactions are not recorded, allowing black markets to form and criminals to transact illegal business with relative ease.

Bitcoin fixes or improves upon all of these problems, increasing overall liquidity and ensuring that transactions are free, transparent and neutral.

*3.1.2. Improvements of Bitcoin.* As a peer-to-peer currency in which payments are made by propagating an updated transaction ledger throughout the network, Bitcoin re-

moves the need for a large, centralized third party to facilitate and verify transactions, eliminating the bulk of transaction costs. Currently, banks and money service businesses (MSBs), like Visa or MasterCard, charge merchants between 2-5% of sales in transaction processing fees. Conversely, Bitcoin payment facilitators like Coinbase charge no transaction fees, and instead make money by charging a 1% exchange fee when users buy or sell Bitcoin in U.S. dollars [13] [12]. Lower transaction costs improve market liquidity (roughly speaking, a measure of how easy it is to buy and sell something), increasing the value of all assets and providing broad economic benefits, and so Bitcoin represents a significant improve in this regard.

Bitcoins are created and verified using a cryptographic proof-of-work scheme, making them orders of magnitude harder to forge than other forms of currency. Additionally, all payments are final and irreversible, preventing fraudulent transactions. If Bitcoin's security were to be compromised, changing the cryptographic scheme would be difficult, but not impossible. Compared to cash, switching protocols is much faster and less expensive than having to change the dollar [14]. All Bitcoin transactions are public and recorded in the ledger, making it easier to detect patterns of payments that may indicate criminal activity and therefore more difficult to use as a medium for transacting illegal business than cash. Additionally, Bitcoin benefits from "network effects": the usefulness and value of Bitcoin as a currency increases as the Bitcoin network grows. The more Bitcoin users and miners there are, the harder it is to defraud the Bitcoin user network by creating a false ledger; the more valuable Bitcoin becomes due to limited supply; and the more scrutiny and attention will be given to creating good Bitcoin software and regulation.

### **3.2. Creating a cutting-edge industry based in the U.S.**

By taking an active role in the growth of Bitcoin, the U.S. can secure its position as the home of Bitcoin, similar to Silicon Valley's status in high-tech and software. Bitcoin technologies are brand new and currently developing, so legitimizing the currency will promote innovation in the industry and catalyse the creation of new financial instruments and services based on the currency. This will, in turn, create new jobs and spur the development of expert and knowledge based in the U.S., a commodity that the U.S. can then export to other countries as they develop their own Bitcoin industries.

*3.2.1. Potential size of Bitcoin industry.* Each year, \$2.6 trillion is transacted using credit and debit cards in the U.S., and \$6 trillion is transacted worldwide [15]. Credit & debit cards are accepted by a huge range of vendors, both on physical premises and online, and typically charge 2-5% of sales. Companies facilitating easy-to-use, virtually-free Bitcoin transactions could charge as little as 1% in transaction fees and out-compete the large credit card companies. A multi-trillion dollar industry is at stake: the U.S. cannot afford to miss out [12].

*3.2.2. Value of creating innovation clusters.* An innovation cluster is a physical region in which multiple firms or other agents are actively involved in similar ‘cutting-edge’ activities, with a dense network of business and social relationships between them that promotes the transfer of knowledge, ideas and expert between competing parties, leading to drastically higher rates of innovation when compared with firms outside of clusters [16]. Well-known examples of innovation clusters are Silicon Valley for semiconductor and computing technology, Boston for biotechnology and Hollywood for the film industry.

It is clear that innovation clusters promote economic growth in the geographical region they inhabit, benefitting both the regional and national economy. Digital currency technology is a new and burgeoning field in which Bitcoin is a prominent early example, but new currency innovations are certain to take place in the future. Therefore, the U.S. has an opportunity to catalyse the development of an innovation cluster for currency technology by taking steps to create the right conditions for such a cluster to emerge, such as recognising and legitimising Bitcoin.

Already, Chinese companies are promoting the development of Bitcoin and other currency technologies as a means of achieving independence from using the U.S. dollar as their de-facto transaction currency (see Baidu, Alibaba, BTC China). The U.S. runs a serious risk of falling behind and allowing the pre-eminent world currency innovation cluster to develop somewhere else.

## 4. BITCOIN'S WEAKNESSES

### 4.1. Legitimacy

For a currency to be considered legitimate, there needs to be a perception that it is commonly used by law-abiding parties to transact regular business, and that the government shows an interest in facilitating this business. Unfortunately, Bitcoin has a history of associations with illegal activities, such as black markets and money laundering. In the aftermath of the recent shutdown of Silk Road, many Internet users and investors were introduced to Bitcoin as a criminal's currency. Sen. Schumer (D-NY) and Sen. Manchin (D-WV) have "expressed concerns about the underground website 'Silk Road' and the use of Bitcoins to make purchases there" in a letter to Attorney General Eric Holder and Drug Enforcement Administration head Michele Leonhart. [17]

On the other hand, during the Bitcoin Senate hearing on November 18, 2013, Mythili Raman of the Justice Department expressed similar concerns, but noted that while "[w]e are attuned to the criminal use... there are many legitimate uses. These virtual currencies are not in and of themselves illegal." [18]

The U.S. government, and in particular the Financial Crimes Enforcement Network of the Department of Treasury (FinCEN), does not recognize Bitcoin as anything more than a "virtual currency," which FinCEN defines as distinct from a "real" currency. The laws surrounding such a currency are unclear and not fully compatible with Bitcoin. Additionally, FinCEN's position on Bitcoin is unclear because of ambiguities and apparent contradictions in how its guidelines apply to Bitcoin users. In particular, FinCEN claims that administrators and managers of Bitcoin are Money Service Businesses (MSB)s, but these roles are not well-defined in the Bitcoin market.

"A user of virtual currency is not an MSB under FinCEN's regulations and therefore is not subject to MSB registration, reporting, and recordkeeping regulations. However, an administrator or exchanger is an MSB under FinCEN's regulations, specifically, a money transmitter, unless a limitation to or exemption from the definition applies to the person. An administrator or exchanger is not a provider or seller of prepaid access, or a dealer in foreign exchange, under FinCEN's regulations." [19]

Opponents use the fact that the government has not made a significant ruling on Bitcoin to argue that the currency cannot be trusted, and could even become illegal in the near future. This lack of clear regulation also means that many Bitcoin startups exist in a legal gray area under federal law. This makes investing in Bitcoin startups even more risky, and may slow the growth of the Bitcoin industry [20].

#### **4.2. Volatility**

The price of Bitcoin fluctuates dramatically and depends substantially on public sentiment. These large upswings and downswings have caused many economists to question the viability of such a digital currency.

Currently, no government is backing up the currency. Users of fiat money trust the stability of the authorising country, not the currency itself, so Bitcoin's decentralized nature means that it faces price volatility with no stabilising institutions in place. The risks of owning and trading Bitcoins raise barriers to mass adoption.

#### **4.3. Trust**

While the issues of volatility and lack of legitimacy certainly undermine public trust in Bitcoin, the fact that Bitcoin is a new and emerging technology based on complex, unfamiliar cryptographic protocols and Internet tools raises a barrier to its mass adoption. To invest in Bitcoin, users must place significant faith in the currency's cryptographic security and the reliability of the Bitcoin network. In addition to trusting the Bitcoin protocol, the user must trust any third-parties involved, such as exchanges or wallet services (which is, ironically, one of the problems that Bitcoin was created to solve). Lawrence Kerner notes that Americans are slow to accept changes to the way they transact money, especially if those transactions are electronic and anonymous.

“Forty-four days after Neil Armstrong and crew landed on the moon, the first U.S. ATM machine went live. People easily and gladly accepted the concept that humans had travelled to another celestial body. However it took many years before it became common practice to do your banking from a machine on a street corner. In those early ATM days it was difficult to build trust around anonymous consumer electronic transactions.” [21]

ATMs, credit cards, Paypal, and other successful transaction technology innovations were once uncertain, progressive electronic methods to move money, and now they are universally trusted digital protocols. Assuming that the cryptographic protocols underpinning Bitcoin are secure, there is no reason why Bitcoin cannot succeed in the same way. Therefore, the central obstacle to Bitcoin's widespread adoption is one of user trust.

#### 4.4. Security

Security experts have compared Bitcoin security to the security of real cash. The U.S. government works hard to prevent fraud, forgery, and scams, but can't do much about a stolen wallet on a busy street. Bitcoin security has the same problems. Cryptographic protocols prevent fraudulent transactions, but a Bitcoin wallet or exchange can be hacked independently of the protocol. Dan Kaminsky, a computer security researcher, personally attempted to hack the Bitcoin protocol and failed.

“The system and framework itself is preternaturally sound. But it too is built on the foundation of buggy technologies we call the internet, and so Bitcoin must experience failures from the code around it.” [22]

Bitcoin is an inherently safe protocol, but the Internet is an inherently unsafe place. If robust security standards are applied to the Bitcoin wallets, exchanges, and marketplaces, Bitcoin could become the fastest and safest way to transact money online. Unfortunately, Bitcoin exchange, bank, and marketplace technology is still in its infancy, and security is subpar. Dozens of Bitcoin-related sites have been hacked, and tens of thousands of Bitcoins have been seized or stolen from sites and services, such as *input.io*, *Bitcoinica*, and *Bitfloor*.

#### 4.5. Consumer Protection

The U.S. government maintains an interest in protecting consumers in all marketplaces. Even if Bitcoin were recognized and legitimized by the government, Bitcoin's decentralized and irreversible nature presents unique challenges to consumer protection. Nathaniel Popper of the New York Times notes in August 2013 that, until recently, the government's efforts at effective oversight have been minimal:

“Previously, there have been isolated efforts to crack down on those who took advantage of virtual currencies. But the two investigations made public this week appear to be the most wide-ranging government efforts to exert more coordinated control over what has been a largely faceless and borderless phenomenon.” [23]

As many of the Bitcoin institutions are startups, they have a much higher risk of abruptly shutting down or being hacked. A sudden shutdown could mean losing thousands of wallets and Bitcoins. Similarly, if a government were to seize Bitcoins from a marketplace, there is no assurance that property will be returned. Theft is also a huge risk, as evidenced by the numerous exchange robberies occurring in late 2013, resulting in the loss of millions of dollars worth of Bitcoins [24].

However, all Bitcoin transactions are recorded, so some levels of oversight are possible. As Andrea Castillo of The Hill points out

“Bitcoin is not actually anonymous, but pseudonymous. Each Bitcoin transaction is verified and recorded in a public ledger by all computers running the Bitcoin network. Criminals using Bitcoin will leave a perpetual smoking gun in the public ledger that could tie their identities to the illegal transactions. For this reason, criminals may opt to continue using their favorite currency of choice, the U.S. dollar, instead of using Bitcoin.” [25]

In fact, two researchers at the Weizmann institute recently published a paper analyzing the Bitcoin transaction ledger, and found that they could deduce significant information regarding the relationships between wallets, enabling them to propose easy ways of flagging suspicious transactions. Certainly, the total transparency of the public ledger makes finding suspicious activity with Bitcoin much easier than with cash [26].

## **5. POLICY RECOMMENDATION**

### **5.1. Recognize Bitcoin and Bitcoin Advocates & Stakeholders**

To address Bitcoin’s perceived illegitimacy and protect the consumer, the government should recognize Bitcoin as property and involve Bitcoin advocates and stakeholders

when creating Bitcoin-related regulation. This can be achieved through two major policy items.

*5.1.1. Define Bitcoin in the Law.* First, the government should define Bitcoin more carefully. At present, only two official opinions exist explaining Bitcoin's status in the law. One opinion takes the form of a guidance memo authored in May 2013 by FinCEN, which defines virtual currency as

“a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency. In particular, virtual currency does not have legal tender status in any jurisdiction.” [19]

In the second opinion, a U.S. District Court from the Eastern District of Texas ruled in August 2013 that Bitcoin

“can be used to purchase goods or services, and... used to pay for individual living expenses... it can also be exchanged for conventional currencies, such as the U.S. Dollar, Euro, Yen, and Yuan. Therefore, Bitcoin is a currency or form of money.” [27]

If the District Court's opinion is taken to imply that Bitcoin is, in fact, a “real” currency, then these opinions seem to contradict each other, underscoring the need for law-makers to issue a clear and unified set of policies and regulations regarding Bitcoin and other de-centralized cryptocurrencies.

In its opinion, FinCEN also defined certain classes of Bitcoin users as being analogous to MSBs and therefore subject to FinCEN's oversight, which includes “MSB registration, reporting, and recordkeeping regulations”. FinCEN pertinently defines MSBs as “currency dealers and exchangers” and “money transmitters”, and goes on to say that

“a person is an exchanger and a money transmitter if the person accepts such de-centralized convertible virtual currency from one person and transmits it to another person as part of the acceptance and transfer of currency, funds, or other value that substitutes for currency.” [19]

Since all users of Bitcoin are engaged in the business of accepting currency from one person and transmitting it to another person, this guideline can be interpreted as stating that effectively all Bitcoin users can be classed as MSBs and therefore are subject to FinCEN's regulatory procedures. The Bitcoin Foundation, a major Bitcoin advocate, issued a response in which they argue that

“this framework would wildly expand the reach of FinCEN and the BSA (Bank Secrecy Act), and would be infeasible for many, if not most, members of the bitcoin community to comply with... The BSA was never intended to apply this broadly and reach this far into peoples everyday lives. Perhaps a little more guidance is needed.” [28]

Additionally, in May 2013 the U.S. Government Accountability Office released a paper entitled “Virtual Economies and Currencies: Additional IRS Guidance Could Reduce Tax Compliance Risks”, in which they find that certain types of transactions involving virtual currencies may be taxable, raising eyebrows in the Bitcoin community [29].

Finally, in August 2013 the Senate Homeland Security and Government Affairs Committee began a formal inquiry into virtual currencies, asking numerous government agencies including the Justice Department, the Federal Reserve, the Treasury Department, the Securities and Exchange Commission, the Commodity Futures Trading Commission and the Office of Management and Budget for information regarding their interactions with Bitcoin and other examples of virtual currencies [30] [31]. In a statement made in November 2013, the Committee Co-Chair Sen. Tom Carper (D-Del.) said that

“we need to develop thoughtful, nimble and sensible federal policies that protect the public without stifling innovation and economic growth. Our committee intends to have that conversation among others - at our hearing this month on virtual currency.” [1]

Clearly, the intersection of Bitcoin with government interests demands scrutiny from all involved parties and a transparent position from the government.

We recommend that a specific set of laws should be created to categorize and clearly define the legal standing of Bitcoin and its users, businesses, miners and exchanges. Analogous laws already exist regulating credit and debit card use: in the Bitcoin world, wallets and exchanges substitute for credit card companies such as Visa or MasterCard [32]. Since these laws have already been thoroughly tested in the marketplace and are well understood by merchants and customers, they would serve as an ideal foundation for practical Bitcoin regulation.

Within this framework, we recommend that Bitcoin miners should be mostly left unregulated by legislation, since their role in the Bitcoin market is passive and predictable, leaving little room for any government interest in their activities besides taxation. Since miners receive rewards for maintaining the public ledger, the Bitcoin network can exist without government support or intervention as long as mining stays profitable. Finally, Bitcoin stakeholders should do their utmost to ensure that policy makers understand Bitcoin's potential as an evolving currency technology, so that any legal framework leaves sufficient space for future innovation.

*5.1.2. Involve Bitcoin Stakeholders.* Bitcoin is in an embryonic state as both a technology and a community of users. Therefore, any government intervention or regulation runs the risk of being so heavy-handed that it extinguishes Bitcoin as a viable currency option. For example, if FinCEN's guidelines were to become law, all Bitcoin users might be totally exposed to prosecution for acting as unregistered MSBs. Such great risks would undoubtedly have a massive chilling effect on the Bitcoin community, deterring individuals and small businesses from using it to transact business.

To avoid overly broad and strong regulation of the Bitcoin market, law-makers must ensure that they involve a variety of Bitcoin stakeholders in the regulatory process, so that their vision and needs can be fairly balanced with government interests. The government should work closely with Bitcoin businesses, users, miners and advocates when creating and enforcing law. The Bitcoin Foundation is the most prominent example of an advocacy entity with a vested interest in the technology's future and merits special attention from law-makers. Bitcoin is open by nature and its survival is reliant on public contribution and support.

Giving technology advocates “a seat at the table” when creating laws for a technology has historically been very successful. Organizations like W3C and ICANN played a vital role in creating sound regulation during the Internet’s early years and have maintained ownership of and advisory roles in many parts of the Internet. Similarly, the Bitcoin Foundation and other Bitcoin advocates should be empowered to take this kind of advisory role and ownership of the technology. Given that most lawmakers are not programmers or technologists, Bitcoin advocates can help to inform and counsel them on the nuanced implications of potential legislation.

## **5.2. Regulate Bitcoin Marketplaces and Businesses**

One of the fundamental problems facing Bitcoin usage in the U.S. is the lack of legislation to clarify whether businesses which maintain exchanges or allow consumers to pay with Bitcoins are operating within the confines of the law. In order for innovation in virtual currencies to flourish in the United States, some key changes need to be made in how federal entities (such as FinCEN) and state governments (which are responsible for actually granting licenses to Money Services Businesses) approach Bitcoin and other decentralized virtual currencies.

An over-arching barrier to any legal regulation of Bitcoin marketplaces and businesses is the lack of specific expectations about what type of information must be collected and maintained in transaction records. Pursuant to the aims and interests of the Bank Secrecy Act, we recommend that until further clarification is provided, Bitcoin businesses and exchanges keep detailed, confidential records of all data related to their transactions, including information that identifies users. [33].

If this “collect everything” policy were to become a legal requirement, it would give federal investigators everything they need to enforce compliance with existing financial regulations, though it is certainly possible that a less data-hungry policy could achieve the same ends. In reality, it is likely that most exchanges are already recording identifying information. Nonetheless, at present there are no clear legal requirements, so if an exchange is ever requested to hand over Currency Transaction Reports to regulators, it might not be able to supply legitimate or adequate information. A federal guideline would hold exchanges accountable and increase consumer trust.

*5.2.1. Push States to Clarify MSB Licensing Laws.* The federal government should work with states to clarify their legislation surrounding licensing requirements for entities which *purchase* virtual currencies. Currently, such businesses do not clearly fit within the confines of FinCEN and state guidelines.

As an illustrative example, in May of 2013, the maintainers of FastCash4Bitcoins, formerly run by Virginia-based Tangible Cryptography, decided to shut down their service upon investigation from the Virginia government.[34] The company was under fire from the Virginia Corporation Commission for operating its service without a state money transmitter license. But currently, Virginia's laws surrounding the licensing requirements for a business which transacts in Bitcoins remain undefined. This makes it unclear for business owners whether they need to receive a license to operate legally within a state.

This lack of clarification is true across the board: all forty-eight states which require money transmitter licenses have been silent as to whether businesses which purchase virtual currencies constitute money transmitters. To avoid hindering the growth of the Bitcoin industry and to promote the formation of new startups, the Department of the Treasury should work with state government officials to publish clear, timely recommendations surrounding how virtual currencies fit into their existing licensing processes.

From the perspective of federal-level definition, FastCash4Bitcoins (and any other entity which operates similarly) does not currently constitute an exchange or administrator under FinCEN's guidelines, since merely *purchasing* Bitcoins does not qualify an entity as a money transmitter, and thus precludes registration with FinCEN.

To prevent money laundering activities, we urge that companies which engage in Bitcoin purchases be required to register with FinCEN and maintain records of their transaction histories. Toward this end, FinCEN should amend its guidelines to clarify that if any business entity (but not an individual person) purchases Bitcoins, they qualify as a Money Transmitter, despite operating neither in the capacity of an exchange nor an administrator.

*5.2.2. Streamline the State Licensing Process.* In a public testimony submitted to the Senate Committee on Homeland Security and Government Affairs, Jerry Brito, director of

the Technology Policy Program at George Mason University, went as far as to suggest that the United States do away with the state money transmission licensing process altogether:

“Finally, policymakers should not only allow Bitcoins development to continue unimpeded, they should help foster its growth by revisiting existing regulatory barriers. One of the greatest obstacles to Bitcoin’s legitimate adoption is the requirement that businesses engaging in money transmission acquire a license from each state. This is a duplicative, laborious, and expensive process that presents a barrier to interstate commerce without much benefit to consumers. federal lawmakers and regulators should consider whether preemption is necessary.”

His proposal impedes on state sovereignty, and though we agree with the spirit of his suggestion, the U.S. government would likely have an easier time implementing an analogue to uniform licensing through existing Executive Branch agencies (such as FinCEN) rather than by waiting on an act of Congress. FinCEN could establish a template for a uniform licensing application and, through open communication with state licensing offices, convince state officials to come aboard. Their value proposition would be to streamline the process, reducing operation costs while equally distributing proceeds from licensing fees to all participating states. States may, in fact, increase their net revenues in licensing fees by opting in to this shared model.

Even though our proposed system, being unmandated, allows room for certain states to refuse participation, it strikes a nice balance between timeliness, cost of implementation and convenience for newcomers, such as Bitcoin startups and exchanges. Even if the number of licenses required to run a national, U.S.-based Bitcoin business drops from forty-eight to ten rather than directly to one, this would be a big win for businesses and a stepping-stone towards a truly uniform license in the future. As it stands, licensing fees and complexity are currently a large impediment for new U.S. Bitcoin businesses wishing to operate legitimately. Charlie Shrem, co-founder of BitInstant, sums up the present situation:

“Even if new entrants can obtain the proper licensing, the cost of doing so could exceed \$10 million per company.” [35]

*5.2.3. Consumer Protection in Online Wallet Services.* Companies which maintain online Bitcoin wallets for their users operate within a legal grey zone under current law. In this case, value is being stored on the company’s servers in the form of text files. If a user’s wallet becomes compromised, and its contents are lost or stolen, the question of who is liable and what the appropriate legal chain of action is for both the user and the company is unclear. Should the company be required by law to issue the user a refund for the lost value, and if so, what form should the refund take? Bitcoins? Dollars based on the exchange rate at the time the compromise became known to the company? Dollars based on the exchange rate at the time that the user filed a complaint? A legal mechanism must be put in place to satisfactorily answer these questions.

As a case study, BlockChain.info currently provides one such service, My Wallet, free of charge. In its disclaimer, the site indicates that the company “takes no responsibility for and will not be liable for any financial loss arising from the use of our wallet service” [36]. There should be some protection for consumers’ online Bitcoin wallets that fairly limits wallet service providers’ liability. One possibility is an amendment to the Electronic Funds Transfer Act and Fair Credit Billing Act, outlining what responsibilities virtual currency services have towards customers and how they should deal with instances of fraud and theft [32].

Such a system would probably not be enforceable as an outright mandate, but an opt-in arrangement, in the same way that banks opt-in to the FDIC, would allow online services to clearly state their guarantees in a way that customers could parse and trust. To be clear: the companies would be the ones issuing refunds to users whose wallets are compromised, not the government.

*5.2.4. Clarifying Federal Tax Code.* Another legal grey area surrounding Bitcoin is the question of taxation. Although it may appear obvious that users of Bitcoin should file capital gains when they exchange Bitcoins for dollars, the issue is far less clear-cut than it first appears. For one, Bitcoins have the dual properties of a highly-liquid instrument like cash in one’s local currency and an exchange instrument such as foreign

currency or even stock. Further, every user has the capability to generate new Bitcoins through mining, which makes it completely unlike any existing financial instruments.

The German government has established a reasonable precedent for dealing with taxation regarding Bitcoin, and their system seems amenable to adaptation by the IRS [37]. Based on their system, we propose three guidelines for taxing Bitcoin:

- Capital gains tax should be levied when users exchange U.S. dollars for Bitcoins or vice versa.
- Sales tax should be levied when companies offer goods or services in exchange for Bitcoins, calculated using the value of the transaction in U.S. dollars.
- Bitcoin miners should not be taxed.

The first two points are straightforward and essentially just bring Bitcoin into the current tax system.

The third point is less obvious. It may seem reasonable to require Bitcoin miners to pay some sort of tax, and comparisons could be drawn with other resource extractors like rare mineral miners and oil companies. While attractive, this comparison is undue: whereas “real” resource extractors are extracting value by removing physical material from sovereign territory, “virtual” resource extractors like Bitcoin miners create value by solving computationally difficult numerical problems which are not owned by any country, entity or person. Since the U.S. government does not have any claim to ownership of unmined Bitcoins, there is no reason for it to claim any interest in taxing Bitcoin miners. Doing so would be like claiming the right to tax companies mining gold in a foreign country.

Additionally, if the U.S. were to tax Bitcoin miners, it would make U.S.-based miners less profitable and less competitive with foreign miners, causing the computational power that the Bitcoin network is based upon to shift overseas. This would destroy American jobs and leave the Bitcoin network more susceptible to the unpredictable motives and behaviours of foreign governments. Clearly, the U.S. government should leave Bitcoin miners untaxed.

We believe that this three-pronged categorization is a reasonable starting point for amending the U.S. tax code to allow for virtual currencies to flourish.

*5.2.5. Combatting Illegal Markets.* Regarding businesses which accept Bitcoins, we suggest that the government treat the currency as cash to all intents and purposes. Unlike credit or debit cards, when individuals make purchases using Bitcoin they are not required to disclose any personal information. As with the "cash model", the government should combat illegal markets by targeting unlawful businesses, rather than consumers. By working with Bitcoin experts and developing algorithms to analyze the ledger, the government could spot money laundering and illegal trade in Bitcoin more effectively than they can in cash [38].

### **5.3. U.S. Bitcoin Reserve**

We recommend that the U.S. Federal Reserve help to stabilize the currency by maintaining a reserve of Bitcoins. They could then buy and sell to moderate supply and demand, smoothing out dramatic shifts in the market. The recent seizure of Bitcoins from the Silk Road shutdown means that the government already holds about 3% of the global Bitcoin supply. The government can also help to ensure that the Bitcoin network remains honest by providing computational power to honest nodes in the network.

## **6. CONCLUSIONS**

In its short lifetime, Bitcoin has already demonstrated a great deal of promise as a technology capable of reshaping how we view and use money. Despite its rocky beginnings in black markets, the currency holds many legitimate functions and strengths over conventional legal tender, especially in the realm of online transactions. The United States is currently one of the most prominent nations with regards to total transactions and the sheer number of startups springing up around Bitcoin.

To allow Bitcoin to continue thriving in the U.S., we outlined several areas of federal law and enforcement which require amendment. Namely, decentralized virtual currencies should be acknowledged, Bitcoin stakeholders should be brought into the decision-making process, and the existing FinCEN guidelines, federal Tax Code, and State licensing requirements should be altered to make the legal aspects of maintaining a Bitcoin Money Services Business clear and tenable. If the U.S. does not formally

clarify its stance on Bitcoin, our nation risks losing out on the next decade of financial innovation.

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