



An Empirical Study on Digital Virtual Crypto Currency like Bitcoin etc. In Contemporary Scenario of Indian Investment Business

Pawan Kalyani

pawankalyani@gmail.com

DOI [10.5281/zenodo.1186186](https://doi.org/10.5281/zenodo.1186186)

Abstract: Investment is done by people from very long time, in terms of money, land and property, shares and stocks, Gold etc. Indian market in terms of investment is very typical to understand where people want to invest but they feel very unsecure about their investment this may be due to number of reasons. From last few years the India is moving towards cashless digital transaction due to demonetization or other facts, people are using their credit/ debit cards for online purchasing. Moreover, many companies Government as well as private are offering digital wallets with attractive discount and cashback feature to promote digital transactions and investment. In digital India people came across with the digital virtual crypto currency like Bitcoins and others, people are investing in these currency as it gets the hype of higher returns as compared to the traditional investments. In this paper the author is doing an empirical study about the various aspects of digital virtual crypto currency like Bitcoins, whether the people are aware about the understanding of this currency and whether to invest or not, is it a safe investment etc.

Keywords: Digital Virtual Crypto Currency, Bitcoin, Altcoin, Mining of digital virtual crypto currency, Indian Investment, Gold, Shares, Mutual Fund

I. INTRODUCTION



Fig. 1. Showing image of Bitcoin, Digital Virtual Crypto Currency

Investment, whether in terms of land and property, gold, money or in form of digital investment like bitcoins people are investing their money to get the returns in future. There are some traditional investment instruments in which people are investing from a long time and getting returns according to the investments. Sometimes the government also encourage to invest, in India the most obvious reason for investments is tax savings and another could be future safety. In contemporary scenario people are investing not only the traditional instruments like, equity fund, gold, share, property, Fixed deposit, PPF etc. but also moving towards to

the latest hype created by the digital virtual crypto currency that emerged few years ago bitcoins and others. People always wanted the highest returns of their investments all the traditional instruments are subjected to the market environment and their price goes up and down slowly according to the market influence and government policies. In the case of digital virtual crypto currency it is different from the traditional instruments in terms of government influence and the past record of the company like if a person want to invest in shares the past records of the company and the current rate will give a glance to the purchaser but in digital virtual crypto currency there are no track record how it is going up and down, the uncertainty and high risk and high return causes the author to dig deep in the concept to find out more about the concept of digital virtual crypto currency, how long it will go and how long will it be stable, what is the opinion of public in the developing country like India. Indian market is different from the market of developed countries as they have different priority and mindset. This is an effort to explore the mindset of Indian people who like to invest in digital virtual crypto currency or wanted to know more before investment.

II. INVESTMENT

An investment is an asset intended to produce income or capital gains. Investment is done for the future returns or gains, for personal or family needs. Investments can be in terms of stocks, bonds, mutual funds, interest-bearing accounts, land, derivatives, real estate, gold and jewelry, anything an investor believes will produce income for example a person build a shop and rent it for some amount of rupees and this investment will give return some amount in terms of rent and the market value of the shop will increase year by year as future investment.

Investments are subjected to the market risk, the risk factors drives the value of the investment like high risk and high returns like in the case of digital virtual crypto currency and low risk and low returns in the case of government dealing bonds etc. it is up to the investor what to choose.

The “safety” is one of the principal term of concern in any investment, although some investors are more risk tolerant than others and are thus more willing to lose some of their principal in return for the chance of generating a higher profit, like people who are investing in shares and digital virtual crypto currency. The investor’s ability to tolerate risk and the incremental return associated with increasing amounts of risk are two primary factors that distinguish types of investments from one another and help determine appropriate investments for a given investor.

The term investment can also be explained as money committed or property acquired for future income. There are



two main classes of investment are (1) Fixed income investment such as bonds, fixed deposits, preference shares, and (2) Variable income investment such as business ownership (equities), or property ownership.

Investment means creation of capital or goods capable of producing other goods or services. Expenditure on education and health is recognized as an investment in human capital, and research and development in intellectual capital. Return on investment (ROI) is a key measure of an organization's performance.

III. WHAT IS DIGITAL VIRTUAL CRYPTO CURRENCY?

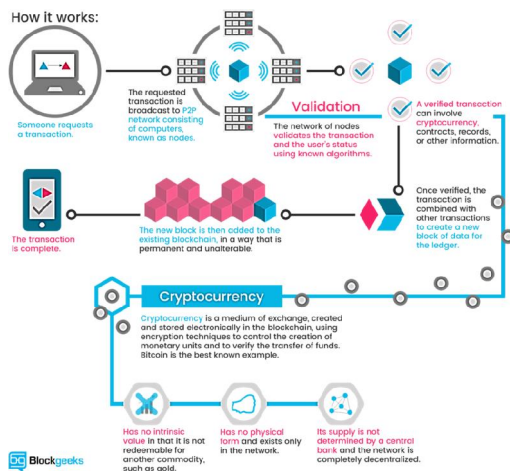


Fig. 2. Showing the working of crypto currency

"[Virtual Currencies] may hold long-term promise, particularly if the innovations promote a faster, more secure and more efficient payment system." -- Ben Bernanke, Chairman of the Federal Reserve USA

"Bitcoin is the beginning of something great: a currency without a government, something necessary and imperative." -- Nassim Taleb, author of, "The Black Swan".

"With e-currency based on cryptographic proof, without the need to trust a third party middleman, money can be secure and transactions effortless." -- Satoshi Nakamoto, Bitcoin developer

"I think the internet is going to be one of the major forces for reducing the role of government. The one thing that's missing but that will soon be developed, is a reliable e-cash." -- Milton Friedman, Nobel laureate for Economic Sciences

A crypto currency is a medium of exchange that uses cryptography to manage the creation of new units as well as secure the transactions. These are a subset of digital currencies. One of the most striking features of crypto currency is that it weeds out the need for a trusted third party such as a governmental agency, bank etc. The crypto currency system collectively creates the units. The rate at which such units are created is defined beforehand and is publicly known unlike the traditional currencies where the government or the authorized banks control the supply. The fundamental system on which most crypto currencies are

based today was created by Satoshi Nakamoto. The production of most crypto currencies is designed to gradually decrease, eventually placing a cap on the number of units that will ever be in circulation. This can lead the currency to mimic the scarcity that is usually seen in the supply of precious metal, thus avoiding hyperinflation. The crypto currencies today, are pseudo-anonymous, though newer currencies like Zerocoin have been suggested to allow for complete anonymity.

IV. TYPES OF DIGITAL VIRTUAL CRYPTO CURRENCY AVAILABLE IN MARKET



Fig.3. Figure showing various types of digital virtual crypto currency

Source:

<https://steemitimages.com/0x0/https://1.bp.blogspot.com/-tFET3hsPadI/Vs79fGrS5VI/AAAAAAAAATss/vVycmOnfbkY/s640/cryptocurrencies.png>

1) Ethereum

Ethereum is a decentralized computing platform that features smart contract functionality. It offers the Ethereum Virtual Machine (EVM), a decentralized virtual machine that executes peer-to-peer contracts using a cryptocurrency known as ether. The Ethereum platform allows multiple uses concerning smart contracts. With Ethereum, you can safely do business with a person you don't know; because all terms are spelled out in a "smart contract" entrenched in the blockchain.

2) Ripple

Ripple is a real-time currency exchange, remittance network, and settlement system. It offers instant, certain, low-cost international payments. Also known as Ripple protocol or the Ripple Transaction Protocol (RTXP), it is built upon a decentralized open source Internet protocol and native currency referred to as XRP (ripples). Bases around public ledger, Ripple uses a consensus process to all exchange, remittance and payments in distributed process.

3) Litecoin

Litecoin is a peer-to-peer cryptocurrency released under the MIT/X11 license. The currency is inspired by and technically almost identical to bitcoin. Litecoin formation and transfer is based on an open source protocol.

4) Dash



Dash, formally called Darkcoin is a more secretive form of Bitcoin. It provides more privacy as it operates on a distributed mastercode network that makes dealings nearly untraceable. Launched in 2014, the currency has an increasing fan. Created and developed by Evan Duffield, this cryptocurrency according to Fernando Gutierrez from Dash.org, has X11 ASICs that presently mine Dash and CPU mining is not profitable anymore since a while ago.

5) Peercoin

Also known as PPCoin, Peercoin was created by software developers Scott Nadal and Sunny King. Lunched in 2012, it was the first digital currency to use a combination of proof-of-work and proof-of-stake. At first, the coins are mined using the proof-of-work hashing process. Over time, as the hashing difficulty increases, the users are rewarded coins using the proof-of-stake algorithm that requires minimal energy to generate blocks.

6) Dogecoin

Launched in 2013, Dogecoin is largely based on the Bitcoin protocol, but with some modifications. The currency uses the technology of script as a proof-of-work scheme. Its block time is 60 seconds. There is no limit to the number of Dogecoin that can be produced. The digital currency deals with many coins that are lesser in value individually. Therefore, it has low entry barrier and good for carrying out smaller transactions.

7) Primecoin

Primecoin was developed by Sunny King. Its proof-of-work is built on prime numbers, and therefore, different from the common system of hashcash utilized by many cryptocurrencies built on the Bitcoin framework. The currency involves finding distinctive long chains of prime numbers and provides greater mining ease and security to the network.

8) Chinacoin

Chinacoin is a litecoin-based digital currency that uses the script password-based key derivation function. At the moment, It's generated in 60-second blocks with an about 88 coins per block.

9) Ven

Ven is a global digital currency that is designed to allow trade among members of Hub Culture. Launched in 2007, Ven is aimed at reducing the risk of inflation. The Ven value is determined on the financial markets from a basket of commodities, currencies and carbon futures.

10) Bitcoin

Bitcoin is a digital currency created by the mysterious Satoshi Nakamoto. Like other currencies, bitcoin can be used to buy items locally and electronically. As a new user, you can use Bitcoin without understanding all its technical details. Once you install a Bitcoin wallet on your mobile phone or computer, it will generate the first Bitcoin address and you can generate more whenever you need them. After creating bitcoins, you can use them for all types of real transactions. [1]

- 1 Bitcoin (BTC)
- 2 Ethereum (ETH)

- 3 Bitcoin Cash (BCH)
- 4 Ripple (XRP)
- 5 Dash (DASH)
- 6 Litecoin (LTC)
- 7 NEM (XEM)
- 8 IOTA (IOT)
- 9 Monero (XMR)
- 10 Ethereum Classic (ETC)
- 11 NEO (NEO)
- 12 OmiseGo (OMG)
- 13 Bitconnect (BCC)
- 14 Lisk (LSK)
- 15 Tether (USDT)
- 16 Qtum (QTUM)
- 17 Stratis (STRAT)
- 18 zCash (ZEC)
- 19 Waves (WAVES)
- 20 Ark (ARK)
- 21 EOS (EOS)
- 22 Golem (GNT)
- 23 Bitshares (BTS)
- 24 Siacoin (SC)
- 25 Dogecoin (DOGE)
- 26 Status (SNT)

V. POPULARITY OF DIGITAL VIRTUAL CRYPTO CURRENCY

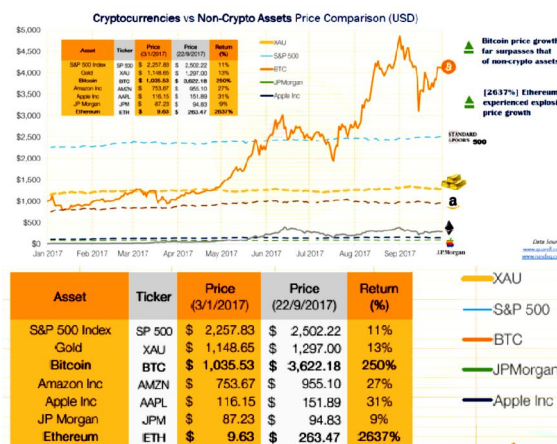


Fig.4 Digital Virtual Crypto Currency and Non – crypto Assets comparison

If we look at the figure mentioned above, the comparison of Digital Virtual Crypto Currency, it is one of the most popular currency in the world. The point to ponder is that what exactly makes it so popular. The prices of Digital Virtual Crypto Currency are getting higher day by day, Bitcoin has the maximum market cap and price value in comparison to other assets like gold, Amazon and Apple. The prices shoot up to 250% in the case of Bitcoin and 2637% in the case of Ethereum that is something noticeable in the investment market. People used to invest their money where there is a higher rate of return and in the case of crypto currency there is a massive gain for the investment.



HOW THEY STACK UP

Bitcoin is by far the most popular digital currency

NAME	MARKET CAP(MILLIONS)	PRICE (\$)	CIRCULATING SUPPLY	VOLUME (24H - \$)
Bitcoin	42,729	2593.98	16,472,337 BTC	769,067,000
Ethereum	19,254	205.73	93,588,422 ETH	495,216,000
Ripple	6,708	0.17	38,332,289,584 XRP	42,145,200
Litecoin	2,201	42.17	52,188,232 LTC	87,020,900
NEM	1,484	0.16	8,999,999,999 XEM	2,980,960
Dash	1,475	198.02	7,457,107 DASH	35,421,100
Ethereum Classic	1,387	14.76	93,952,217 ETC	31,351,400
IOTA	788	0.28	2,779,530,283 MIOTA	4,031,330
Monero	684	46.09	14,845,360 XMR	30,349,800
Stratis	512	5.20	98,479,414 STRAT	11,934,900

As on July 27. Source: coinmarketcap.com

Fig.5 Digital Virtual Crypto Currency and their market cap.

The following are the best possible few reasons that makes Digital Virtual Crypto Currency so popular –

- It is an open – source technology and no body owns it.
- People are investing in the new technology, new currency type Digital Virtual Crypto Currency may be due to market slump or recession in the traditional investment instruments like real estate, Fixed Deposit, Gold etc.
- Value and awareness of Bitcoins and Altcoins are increasing.
- The value is measured by demand and supply of Digital Virtual Crypto Currency, not by external factors or government schemes.
- Digital Virtual Crypto Currency, transaction process has a lots of opacity, like no one knows who is seller and who is purchaser, no one knows who is creating Digital Virtual Crypto Currency.
- The most important reason may be it is – decentralized, there is no control or regulation of any authority over Digital Virtual Crypto Currency.
- Digital Virtual Crypto Currency is mined in a limited supply that makes it in demand and virtually impossible to devalue it in near future.
- Digital Virtual Crypto Currency, is mined or created it very similar to printing of Bank Note by government, the mining process of every Digital Virtual Crypto Currency is different like different in protocol, amount, pre-mined etc.
- Digital Virtual Crypto Currency like Bitcoin uses BlockChain – it is a distributed data base that maintains the list of transaction called blocks.
- No government schemes or Bank or any other regulating agencies are involved in ups and downs of prices of Digital Virtual Crypto Currency. The value of Digital Virtual Crypto Currency is unaffected whether the government is stable or not it depends upon the global status of demand and supply.
- It uses P2P – [Peer – 2 – Peer] technology to transfer the Digital Virtual Crypto Currency to another person, no bank or agency is involved or required to complete the transaction.
- Easy payments, easy transfer, no regulatory body, no currency conversion, global acceptance, virtually

untraceable etc. are few reasons that makes the Digital Virtual Crypto Currency popular in a short duration of time span.

In the continuous development of the Digital Virtual Crypto Currency technology, the latest feather in the cap is Digital Virtual Crypto Currency can be transferred over the Radio Signals, as claimed by Nick Szabo.

VI. HOW TO PURCHASE DIGITAL VIRTUAL CRYPTO CURRENCY

Digital Virtual Crypto Currency sell or purchase is very much similar to the purchase of goods against giving some cash. But the goods are tangible and can be carried home, in the case of Bitcoin or other Digital Virtual Crypto Currency it is intangible and virtual for storage a digital wallet is used, there are many companies who are providing these facility like Coinbase etc.

There are many companies online who are providing support to purchase the digital virtual crypto currency, some of them are providing digital wallet also to put the private key for further transaction.

Before you buy Bitcoin, you need to download a Bitcoin wallet by going to a site like Blockchain.info, or to a mobile app such as Bitcoin Wallet for Android or Blockchain Bitcoin Wallet for iOS, and filling out an online form with basic details. This shouldn't take more than two minutes.

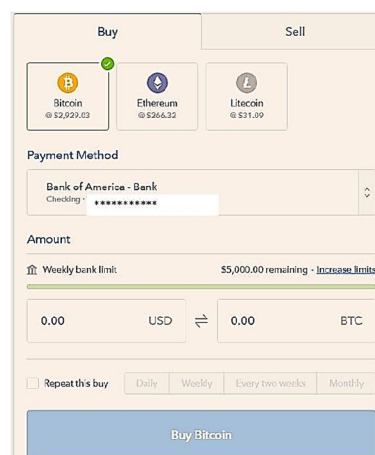
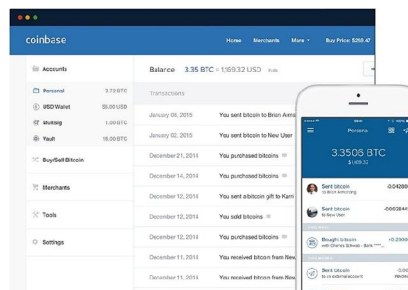


Fig.6 Digital Virtual Crypto Currency process of Purchasing.

This is what your account page would look like if you were to sign up for a Bitcoin wallet on Coinbase. As you see, it



looks kind of like the online banking software that most traditional commercial banks use for their customers:

Use Regular Money to Buy Bitcoin

Once you have a Bitcoin wallet, you use a traditional payment method such as credit card, bank transfer (ACH), or debit card to buy Bitcoins on a Bitcoin exchange (example: Coinbase). The Bitcoins are then transferred to your wallet. The availability of the above payment methods is subject to the area of jurisdiction and exchange chosen. Here is a screenshot of the Bitcoin interface showing how to buy and sell not just Bitcoin but also Ethereum and Litecoin, which are other popular virtual currencies. As you see, it's as straightforward as clicking on the "Buy" tab if you want to buy, and "Sell" tab if you want to sell. You select which currency you are buying/selling and which payment method (your bank account or credit card) you want to use.

Remember that "Bitcoin exchange" and "Bitcoin wallet" need not be the same. Bitcoin exchanges are kind of like forex exchanges – places where you can trade Bitcoin for a fiat currency, say, BTC for USD and vice versa (in U.S. for example). While exchanges offer wallet capabilities to users, it's not their primary business. Since wallets need to be kept safe and secure, exchanges do not encourage storing of Bitcoins for higher amounts or long periods of time. Hence, it is best to transfer your Bitcoins to a secure wallet. Security must be your top priority while opting for a Bitcoin wallet; always opt for the one with multi-signature facility.

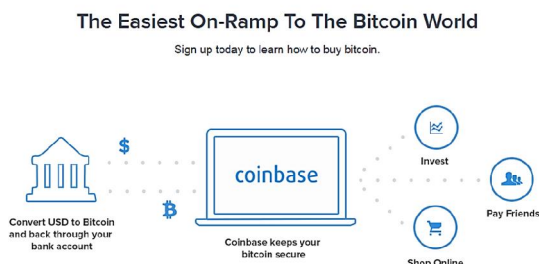


Fig.7 Digital Virtual Crypto Currency purchase with another service provider.

There are many well-established exchanges that act as a one-stop solution by offering high security standards and reporting. Due diligence must be exercised while choosing a Bitcoin exchange or wallet A Bitcoin Wallet is for Your Private Key, Not for Storing Bitcoin

The common assumption that Bitcoins are stored in a wallet is technically incorrect. Bitcoins are not stored anywhere. Bitcoin balances are kept using public and private "keys," which are long strings of numbers and letters linked through the mathematical encryption algorithm that was used to create them. The public key (comparable to a bank account number or IBAN) serves as the address published to the world, and to which others may send Bitcoins.

The private key (comparable to an ATM PIN) is meant to be a guarded secret, and only used to authorize Bitcoin transmissions. Thus, it's the "private key" that is kept in a Bitcoin wallet. Some safeguards for a Bitcoin wallet include: encrypting the wallet with a strong password and choosing the cold storage option, i.e. storing it offline. In the case of Coinbase, they offer a secure "multisig vault" to host your keys, which you can sign up for.

As a user, you are free to use those Bitcoins using the "private key" to buy a commodity, or make a payment for a service, or send money to a friend or family. These Bitcoins are sent using the "address" of the recipient. Selling Bitcoins on the exchange will earn you its selling amount in the local currency, which can be withdrawn by you.

Although Bitcoin is homogenous (the same everywhere in the world), its price varies across countries and even exchanges within the same country, giving a rise to arbitrage opportunities. The Bitcoin price in South Korea has been trading at a 35% premium while in India it has been at a 20-25% premium. The demand and supply conditions result in some aberrations in its price.

The number of places where Bitcoins can be spent is increasing rapidly and includes some big retail players as well as many small businesses and retailers. The increased acceptance is boosting its footprint across the globe and is helping it secure an official recognition as a mode of payment. Japan has recently accepted Bitcoin as a payment mode. [2]

VII. DIGITAL VIRTUAL CRYPTO CURRENCY MINING POOL



Fig.7 Digital Virtual Crypto Currency –Mining Hardware .

Miners use special software to solve math problems and are issued a certain number of Bitcoins in exchange in the case if they are working for Bitcoin. This provides a smart way to issue the currency and also creates an incentive for more people to mine.

Mining pools are groups of cooperating miners who agree to share block rewards in proportion to their contributed mining hash power.



While mining pools are desirable to the average miner as they smooth out rewards and make them more predictable, they unfortunately concentrate power to the mining pool's owner.

Miners can, however, choose to redirect their hashing power to a different mining pool at any time.







AntMiner S7	AntMiner S9	Avalon6
		
Advertised Capacity: 4.73 Th/s	Advertised Capacity: 13.5 Th/s	Advertised Capacity: 3.5 Th/s
Power Efficiency: 0.25 W/Gh	Power Efficiency: 0.098 W/Gh	Power Efficiency: 0.29 W/Gh
Weight: 8.8 pounds	Weight: 8.1 pounds	Weight: 9.5 pounds
Guide: Yes	Guide: Yes	Guide: No
Price: \$479.95	Price: \$1,987.95	Price: \$499.95
		
Appx. BTC Earned Per Month: 0.1645	Appx. BTC Earned Per Month: 0.3603	Appx. BTC Earned Per Month: 0.1232

Fig.8 Digital Virtual Crypto Currency –Mining Hardware available in market and their details like price and capacity etc. <https://www.bitcoinmining.com/> [3]

the above figure shows the hardware used for mining purpose, there are different types of hardware available in the market for mining the virtual coins with different capacity and price range.

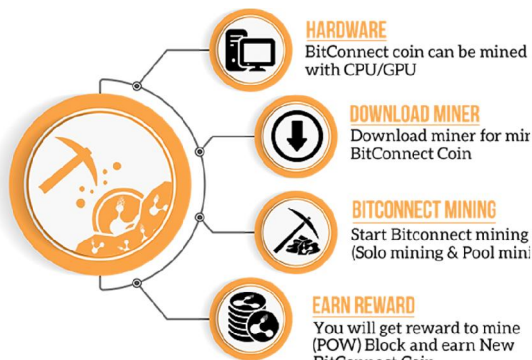


Fig.9 Digital Virtual Crypto Currency - Mining Process

The above mentioned figure shows the procedure in simple terms how to mine the coins, purchase hardware, download the software for the mining purpose and start follow the process and earn reward for the mined Bitcoin or other currency.

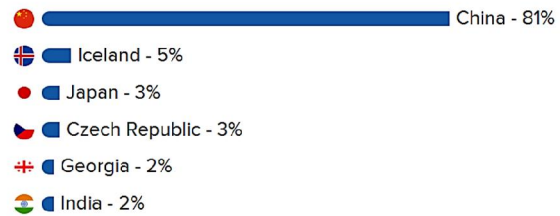


Fig.10 Digital Virtual Crypto Currency - Mining Process percentage in the world major part. The above mentioned figure shows the availability of Miners for crypto currency

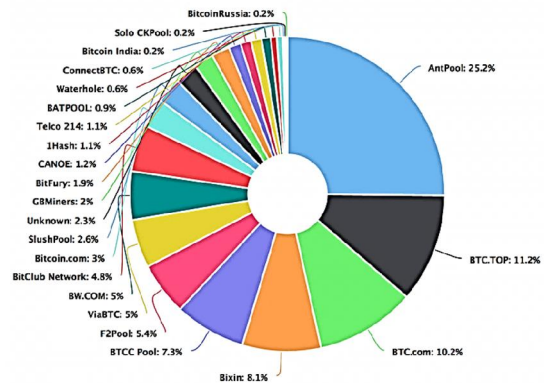


Fig.11 Digital Virtual Crypto Currency - Mining Process percentage in the world

List of mining pool

- 21 Inc.
- AntPool
- Bitclub.Network
- Bitcoin Affiliate Network
- BitFury
- BitMinter
- Bitsolo
- Bixin
- BTC Guild
- BTC Nuggets
- BTC.com
- BTC.top
- BTCC
- BTCCChina Pool
- BW Pool
- BW.COM
- EclipseMC
- Eligius
- F2Pool
- GHash.IO
- Kano CKPool
- KnCMiner
- MegaBigPower
- P2Pool
- Slush
- Telco 214
- ViaBTC



VIII. DIGITAL VIRTUAL CRYPTO CURRENCY AND TRADITIONAL INVESTMENT WHERE TO INVEST

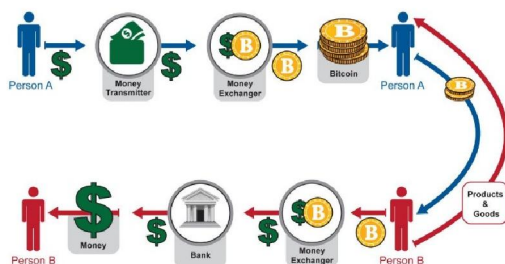


Fig.12 Digital Virtual Crypto Currency - Trading Process

Digital Virtual Crypto Currency or traditional investment portfolio like gold, real estate, stocks and shares etc. where to invest.

Digital Virtual Crypto Currency like Bitcoin and others are very popular these days and people are investing their money in Digital Virtual Crypto Currency may be due to its hype or high return in comparison to the other traditional investment. There are some examples in recent past where the value of the Digital Virtual Crypto Currency goes at low level and many people lose their money. It should put traders on alert that these crypto currencies may not be the lucrative long-term cash cow.



Fig. 13. A screen displays the price to purchase Bitcoin at a Bitcoin ATM at the Bitcoin Center NYC in New York City, U.S., November 27, 2017. REUTERS/Brendan McDermid

If we compare some of the facts about the digital virtual crypto currency and other investments arguments against the crypto currency is that it has no inherent value, and as such cannot be considered a safe investment, as if people stop perceiving it as having value the demand is declined and so the value is, your assets are lost, as it is not backed by anything in the same way that paper money is backed by state gold reserves, there is a part of government in backing up the things if something goes wrong.

But if we look at the today's picture of bitcoin or any other altcoin it is like "virtual digital gold" according to the current status, hype and price, but on the other side Gold is a metal and it has its own value from thousands of year it is tried and tested material by human being.

As an investor what do we expect, a stable rate of return, very low price volatility and by the same token, price stability, or very high returns that come with an increased chance of loss. It depends upon person to person by choice or by experience the decision should be taken by viewing overall pros and cons of the subject matter.

IX. SECURITY RISK IN DIGITAL VIRTUAL CRYPTO CURRENCY



Fig.14 Digital Virtual Crypto Currency – Popular ones

- Extreme volatility
- Neither commodity, nor currency
- An unregulated space
- The issue of legality
- the risk of monetary loss for Bitcoin compared to credit cards
- the risk for malware that steals your Bitcoins
- the risk of monetary theft in case the device with your wallet gets lost or stolen
- the risk of security vulnerabilities in hosted/web wallets or Exchange services
- the risk of key loss due to a device failure
- the risk that the Bitcoin network is temporarily not available
- the risk of a centralization of mining
- the risk of a strong fluctuation in the Bitcoin exchange rate
- Hardware failure (e.g. hard drive broke, etc)
- Software failure (e.g. keyfile corruption, etc)
- Hardware failure - Hard drive formatted, physical device lost, etc)
- Malicious event (e.g. malware, hacker, etc)
- Security incidents like Pony botnet malware, inputs.io hack, Mt. Gox incident etc.
- Mining pool scams
- Wallets Scam
- Bitcoin exchange scam

Anything goes, it is on their Internet and people are doing malicious things over Internet. Usually the targets are banks and credit card numbers but the digital virtual crypto currency is hot target as it is untraceable, no legal backup once the money is gone it is gone forever. Dealing with the digital virtual crypto currency is a high risk game, people should invest their hard earn money wisely.

X. REGULATORY IMPACT ON DVCC IN INDIA AND WORLD

The Constitution of India provides for matters in respect of which the Central Government has powers to regulate and legislate. To understand if Bitcoin are capable of government review, an analysis of the Indian Constitution has been undertaken. In this regard, Article 246 read with Seventh Schedule of the Constitution enumerates the list of activities that the Central Government and the State Governments are allowed to legislate. Entry 36 and 46 of List I of the Seventh



Schedule of the Constitution states that the Central Government

is allowed to legislate in respect of currency, coinage, legal tender, foreign exchange and bills of exchange, cheques, promissory notes and other like instruments respectively.

[4] If Bitcoin falls within the purview of any of the above outlined categories of instruments, then the Central Government would have exclusive powers to legislate. In the hierarchy of laws, the Constitution is supreme. All laws are subordinate to the Constitution. A law may be struck down as being unconstitutional due to lack of legislative competence or because it violates fundamental rights. Decisions of the Union or State Executive, including decisions of statutory Authorities, constitutional functionaries and quasijudicial authorities may be challenged in a State High Court under the Constitution. Rules, regulations, notifications and circulars passed by authorities under the relevant statute may also be challenged on the ground that the same violate the Constitution.

The Constitution empowers, and the Supreme Court of India ("Supreme Court") has recognized, authorities created under a statute to delegate certain functions to subordinate authorities. To facilitate in the effective implementation of government policies certain executive authorities have the power to pass rules and regulations which have the force of law. These rules and regulations are subordinate to the parent law and cannot transgress the limits set out by the parent law. Rules and regulations cannot confer excessive discretion on subordinate authorities.

It is also settled law that authorities acting in furtherance of a statute must carry out their functions in a manner that best achieves the objectives of the statute. These principles are designed to reduce the scope of discretion and eliminate arbitrariness in executive action.

Ordinarily, decisions of these authorities may be challenged in appeal before an appellate authority. However, in exceptional circumstances, where there is an egregious violation of fundamental rights, principles of natural justice or when an authority acts in violation of its jurisdiction, an aggrieved party

may file a petition in the State High Court. It is important to note that while challenging the decision of a statutory authority, generally the scope of appeal is limited and there is a high degree of deference by courts.

The Supreme Court has recognized that in matters relating to economic policy, courts must not interfere unless arbitrariness

is writ large in the decision making process. Even in cases where intervention of the court is justified, the court would only examine the decision making process and not the decision itself.

The principal laws concerning Bitcoin are: i. The Constitution of India, 1950; ii. The Foreign Exchange Management Act, 1999 ("FEMA"); iii. The Reserve Bank of India Act, 1934 ("RBI Act"); iv. The Coinage Act, 1906 ("Coinage Act"); v. The Securities Contracts (Regulation) Act, 1956 ("SCRA");

vi. The Sale of Goods Act, 1930 ("Sale of Goods Act"); and

vii. The Payment and Settlement Systems Act, 2007 ("Payment Act"). viii. Indian Contract Act, 1872 ("Contract Act")

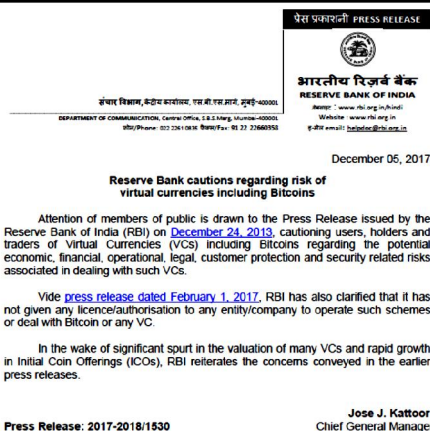


Fig. 15. Showing RBI guidelines in the year 2017 regarding virtual currency

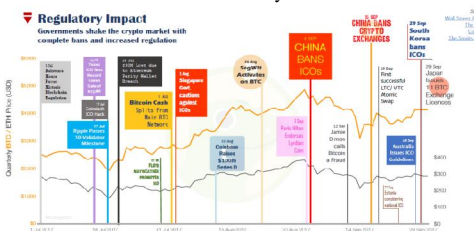


Fig. 16. Showing Countries who have Banned virtual currency recently

The question at hand is whether a 'virtual currency' such as Bitcoin can be said to come under the purview of the definition of currency above. The answer to this question can be found in the maxim 'express um facit cessare tacitum'. The maxim represents the principle 'when there is express mention of certain things, then anything not mentioned is excluded'. The maxim has been recognized by Indian courts and was also relied upon by the Supreme Court in Shankara Rao Badam & Ors. v. State of Mysore & Anr.105 and Union of India & Anr. v. Tulsiram Patel.106 In light of the provisions of the law, it can be reasonably concluded that 'virtual currency' should be considered excluded from the definition of currency. While it may be argued that it may fall under 'such other similar instruments' under Section 2(h), but such 'other instruments' need to be specifically notified by the RBI which is not the case. There is no such declaration in respect of cryptocurrencies in general or Bitcoin in particular.

RBI has merely advised the public to be cautious regarding the trading of virtual currencies. Therefore, under the provisions of existing law, Bitcoin are not currency. The term currency notes are specifically defined in Section 2(i) of FEMA to mean and include cash in the form of coins and bank notes. This definition

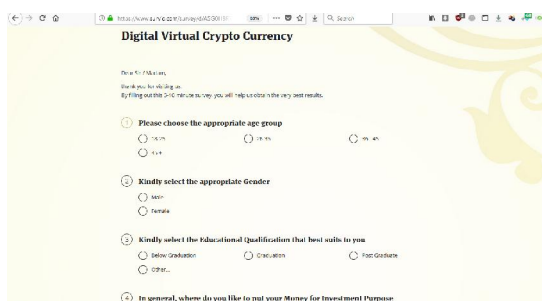
therefore does not cover Bitcoin which are not issued either under the Coinage Act or RBI Act. it appears that while Bitcoin have several features of a currency or legal tender it is not bank notes and is consequently not legal tender in India. Accordingly, it is left to be examined if it falls within the purview of securities, derivatives, or commodities.



XI. QUESTIONNAIRE - ANALYSIS AND INTERPRETATION

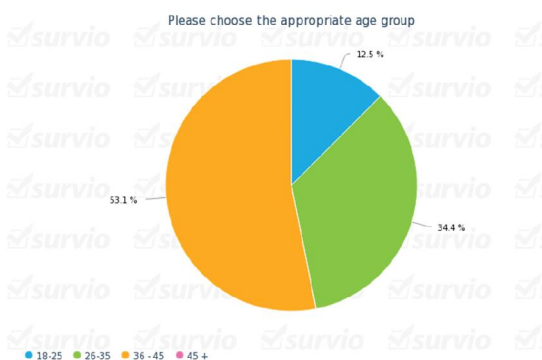
To understand the concept of Digital Virtual Crypto Currency, the author has plotted a series of questionnaire and floated over the Internet and the link for the questionnaire were also distributed by using social application like Whatsapp etc. the questions were designed to know the awareness and technicality of the Digital Virtual Crypto Currency, as in India there are lots of people who are not having complete knowledge about selling and purchasing of Digital Virtual Crypto Currency in how many countries they can trade, their risk and returns etc.

Here is the link for the online survey, https://www.surveio.com/survey/d/A5G0H8R7Q6E4M1N1A

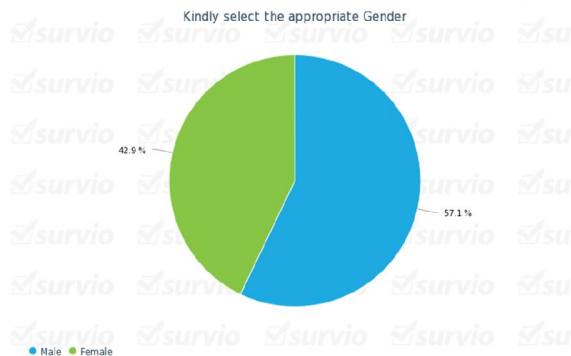


The above Image show the screenshot for the questionnaire used to know more about the digital virtual crypto currency.

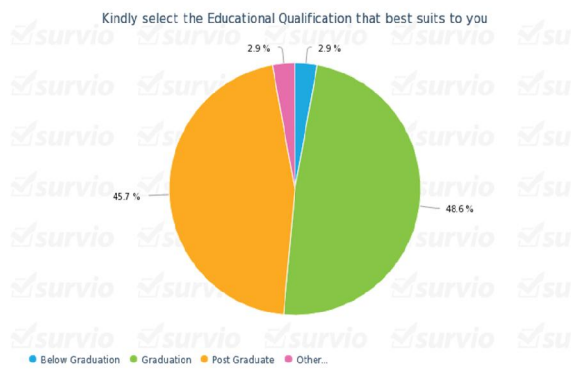
XII. RESULTS AND CONCLUSIONS



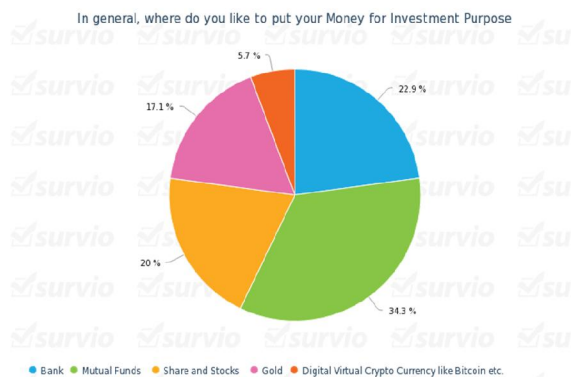
The respondents were maximum from the age group of 36-45 years followed by 26-35 years. Indian people start thinking investing while earning, the age group 26 -35 years and 36- 45 years where people settle in their jobs and in life. They need extra money to settle their need for that they wish to invest their money where they can get the higher returns for their investment. The respondent age is an indication for the thinking process of investment and return on investment.



In respondent's gender ratio, there is a slight high percentage of male respondents in comparison to the female respondents. But the situation in present scenario that female are also acting as earning member of the family and they also feel to invest their money for future security.



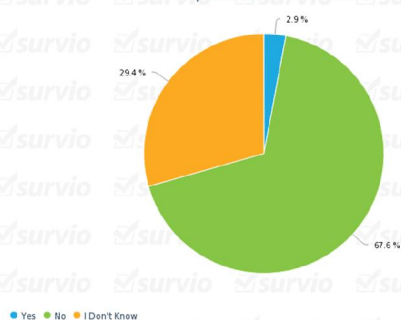
In terms of education qualification, the respondents are from the well-educated scenario like more than 80% of the respondents are either graduate of post graduate. This gives the indication that the responses were given by the respondents by understanding the questions.



In term of investing the money, people are still sticking with the traditional type of investment plans like Mutual funds, Share and stocks, Gold and small percentage of respondents are willing to put their money in Digital currency like Bitcoin etc. well this decision of the respondents could be due to the age group, and the initial phase of digital currency in Indian seconerio. Due to the lack of awareness or the proper understanding of the digital virtual crypto currency concept people are still sticking to the traditional type of investment plans.

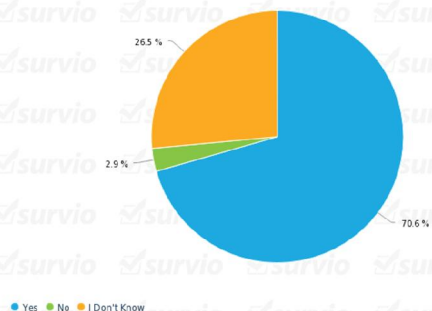


According to you, Digital Virtual Crypto Currency like Bitcoin, Dash, Litecoin etc. can be purchased from the local Bank.



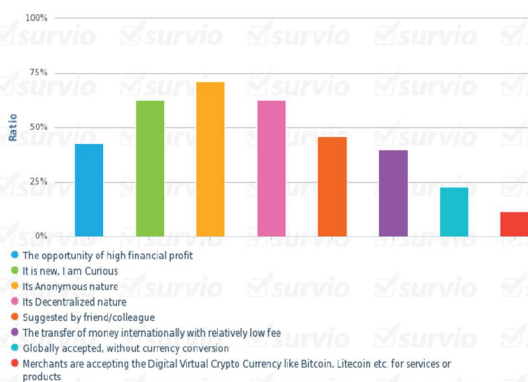
In terms of purchasing of digital virtual crypto currency, 29% of the respondents are saying they do not know from where to buy the digital virtual crypto currency, about 3% saying from bank [that is wrong] but most of them are clear understanding about the purchase of digital virtual crypto currency. But this question gives the indication that there is a scope of making the people aware more about, digital virtual crypto currency.

According to you, all the transaction takes place by using cryptography and network nodes are recorded into a publically distributed database called BlockChain



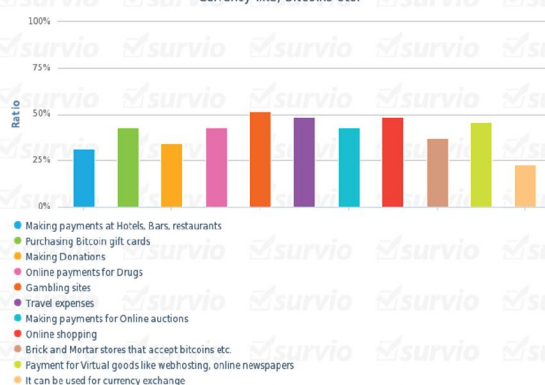
This question was related to the transaction of digital virtual crypto currency and record keeping of that transaction in the BlockChain, many people are aware about it but still there is a scope of awareness about the concept of digital virtual crypto currency and its working process.

Kindly select which main features are responsible for you using or using in future the Digital Virtual Crypto Currency like Bitcoin, Litecoin etc.



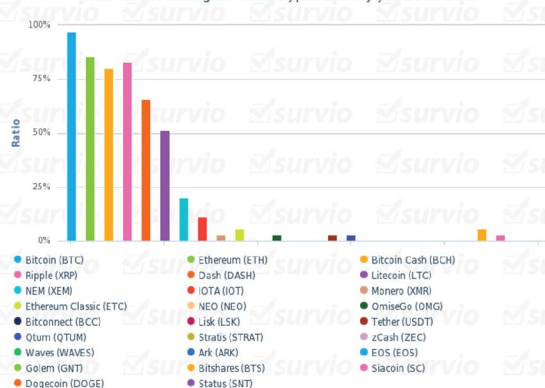
This questions gives the indication about the using to be used in future of digital virtual crypto currency, people are selecting it anonymous nature followed by its decentralized nature and new type of currency.

According to you, what services or products can be paid by Digital Virtual Crypto Currency like, Bitcoins etc.



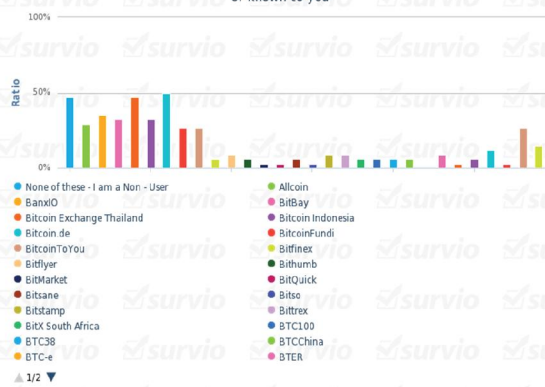
This question gives the hint about what can be purchased by using digital virtual crypto currency. The respondents have selected almost all the given options in similar manner, this depicts the awareness about the online goods purchasing and about digital virtual crypto currency utilization.

Please select the Digital Virtual Crypto Currency you are aware of



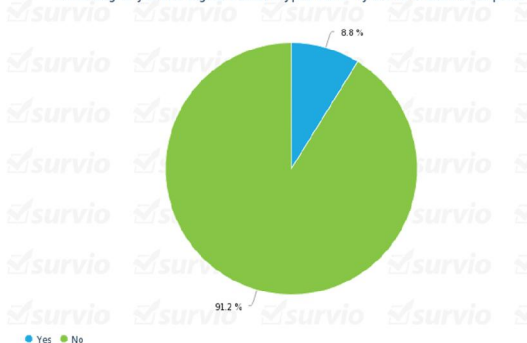
This question, deals with the awareness of the digital virtual crypto currency, most of the people voted for Bitcoin and Ethereum followed by other options. Bitcoin is one of the oldest digital virtual crypto currency available and Ethereum is one of the fastest growing digital virtual crypto currency, other digital virtual crypto currency are either not well known in Indian continental or not so popular in the market.

Kindly select the Digital Virtual Crypto Currency exchanges you have either used or known to you



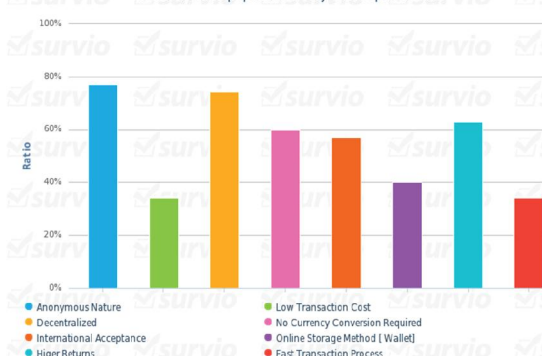


According to you the Digital Virtual Crypto Currency are safe and theft proof



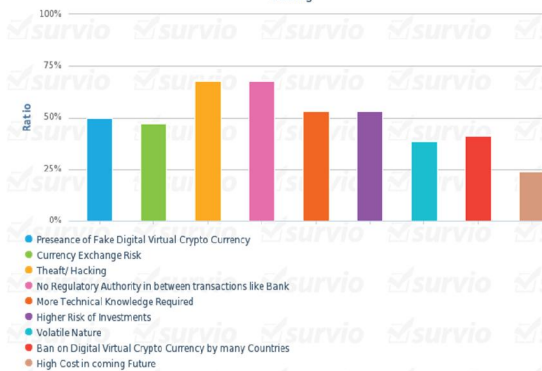
This question deals about the safety and security of digital virtual crypto currency, wallets and exchange. As it is digital virtual crypto currency and on the Internet nothing is completely safe and there is no backing of any authority or bank to safeguard the currency. People has clear understanding about this concept.

According to you, which feature of Digital Virtual Crypto Currency makes it attractive and popular in a very short span of time



The popularity of digital virtual crypto currency is not hidden from anyone, the respondents are selecting its anonymous nature, decentralization and higher returns followed by international acceptance and no currency conversion while exchanging or trading.

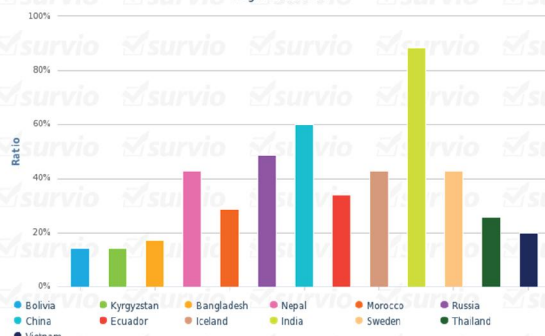
According to you, which feature of Digital Virtual Crypto Currency to be considered as disadvantage or threat while doing transaction or currency trading



In case of disadvantage of digital virtual crypto currency, respondents have selected majorly two options theft / Hacking and no regulatory authorizes backing the digital

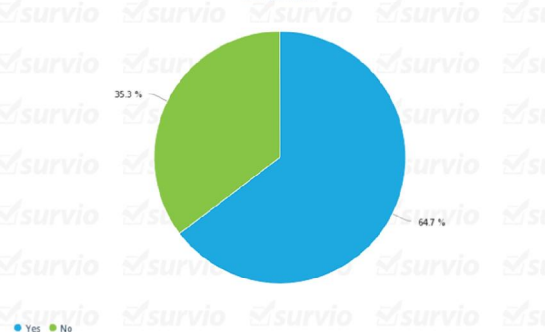
virtual crypto currency process. Followed by higher risk of investment and its volatile nature as its prices are going up and down exponentially.

According to you, in which country the use of Digital Virtual Crypto Currency is illegal or banned



This question deals with the legal status of the use of digital virtual crypto currency, people are having clear understanding about the legal status of crypto currency in India.

Looking at acceptance of Digital Virtual Crypto Currency in many parts of the world and its higher return on investment do you think that Government should make Digital Virtual Crypto Currency legal and imply some Taxes on transaction like GST etc.



This is about the conflicting interest of control and authority over digital virtual crypto currency, as the popularity and worldwide acceptance of digital virtual crypto currency is due to decentralization and no controlling authorities but in this questions people have responded to imply some taxes over the digital virtual crypto currency while making transactions. It is quite opposite to what is going on in the market and what is expected, well it could be due to the legal status of the digital virtual crypto currency in India, if the government imply some taxes and make it legal in India this is what the respondents want to express.

XIII. FUTURE SCOPE ON DIGITAL VIRTUAL CRYPTO CURRENCY

The future is debatable about digital virtual crypto currency, as it is a highly volatile and high risk and high return commodity, that gained popularity in a very short span of time, it has some strong points in support of like no controlling authorities, P2P fast transaction, limited currency production that makes the value, international acceptance, no currency exchange etc. there are some risk attached to the trading of digital virtual crypto currency as per the responses of respondents they have also indicated that there is a high risk of theft or hacking of the currency and once it is gone it



is gone forever there is no controlling authority who can be contacted if there is something wrong. Other than this, in some part of the world they are accepting digital virtual crypto currency and other countries are started banning the same, china has banned the use of digital virtual crypto currency but the world digital virtual crypto currency mining center is located in china. It will take some time to establish the framework and legal status of the digital virtual crypto currency in many part of the world, although the taxation part of the exchange can be agreed upon the transaction as it was indicated by responded in questionnaire.

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