The Growth of Cryptocurrency in India: Its Challenges & Potential Impacts on Legislation

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The Growth of Cryptocurrency in India: Its Challenges & Potential Impacts on Legislation

Shailak Jani

M.B.A. Student, Faculty of Management Studies,

Parul University, Vadodara, India

Abstract*— *Due to the rapid development of information and communication technologies, many activities in our daily life have been merged online and they become more flexible and more effective. A huge growth in number of online users has activated virtual word concepts and created a new business phenomenon which is cryptocurrency to facilitate the financial activities such as buying, selling and trading. Cryptocurrency represent valuable and intangible objects which are used electronically in different applications and networks such as online social networks, online social games, virtual worlds and peer to peer networks. The use of virtual currency has become widespread in many different systems in recent years. This paper investigates the user's expectations of the future of cryptocurrency. It also explores the users' confidence of dealing with cryptocurrency in a time that using such virtual money is not fully controlled and regulated. Besides, the paper is aimed to measure the spread of cryptocurrency use to have a clear picture from the practical view. The paper also analyses the way in which 21 different countries have responded in terms of regulations & legislations towards cryptocurrencies to develop a clear picture of its impact on various laws in India in order to regulate it.

Index Terms*— *Bitcoin, Cryptocurrency, Challenges in cryptocurrency, Cryptocurrency Legislations, Opinion of Governments on Cryptocurrency, Uses of cryptocurrency, Trust of users in cryptocurrency.

I. INTRODUCTION

There is no doubt that the era of information and communication technologies has created many golden opportunities in several aspects. One of the fields that benefit from these technologies and online connections is the financial and business sector. A growing number of online users has activated virtual world concepts and created a new business phenomena. Thus, new types of trading, transactions and currencies have been arising. One of the remarkable financial forms that have been emerged in the past few years is Cryptocurrency. Cryptocurrency (CC) can be defined as any medium of exchange, apart from real world money, that can be used in many financial transactions whether they are virtual or real transactions. Cryptocurrencies represent valuable and intangible objects which can be used electronically or virtually in different applications and networks such as online social networks, online social games, virtual worlds and peer to peer networks.

The paper explores many aspects of Cryptocurrency platforms attempting to answer the main questions of this research which are "Will Cryptocurrency be the next currency platform? Are virtual currency platforms safe enough to be used?" It investigates different Cryptocurrency platforms in order to provide deep insight about mechanisms of implementing, controlling, issuing, spending and exchanging Cryptocurrencies which provides a useful and an organized CC classification. The paper also analyses current Cryptocurrency systems and platforms in order to extract concerns, problems, issues and challenges that are exist. It analyses the correlation between the real world laws and the use of CC aiming to outline the strong impacts of Cryptocurrency concept on some of real world aspects such as real monetary systems, business industry, laws breaking rates and crime

Shailak Jani is a post graduate student at Parul Institute of Management & Research, Parul University, Gujarat, India. (e-mail: 93janisra@gmail.com)

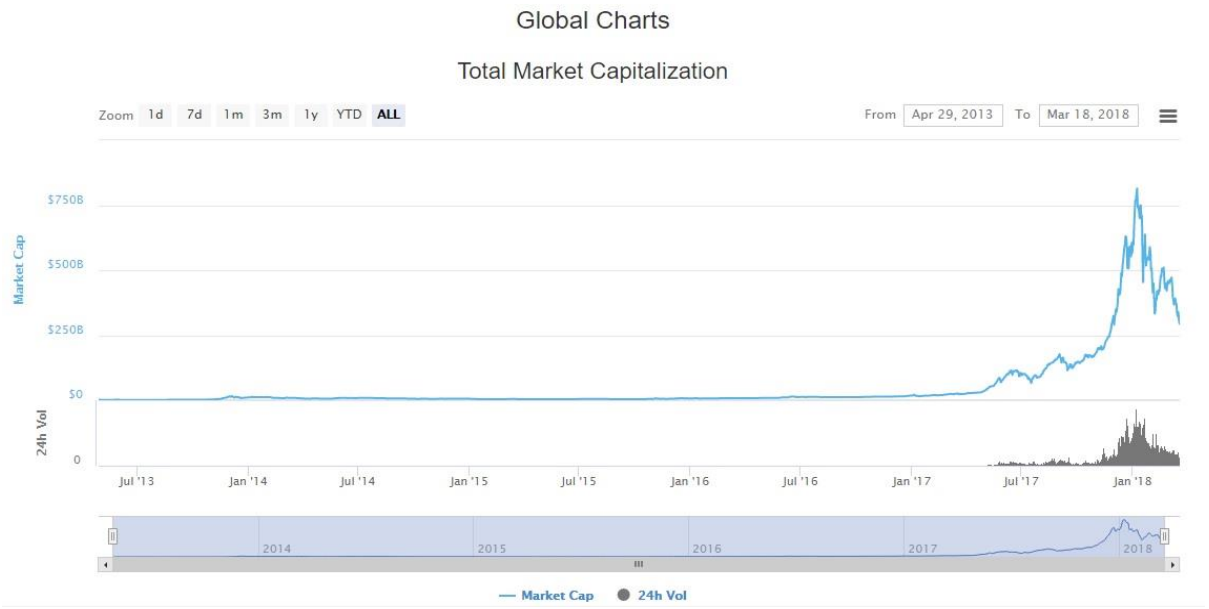
payment methods. The outcomes draw the attention of all parties who participate in and affected by Cryptocurrency platforms to the importance of controlling Cryptocurrency use. Those parties are governments, operators and users. The outcomes also alert lawmakers and virtual currency providers to release and set up strict rules, policies and legislations to control virtual currency systems. Additionally, this paper provides a scientific content that create opportunities for further research.

The rest of this paper arranges as follows: Section two explores the Global Cryptocurrency Market & role of India in it. Section three presents an overview of virtual currency including classification of VC platforms and business activities involved in VC platforms. Section four analyses and discusses the collected data. Section five explores the key challenges and issues facing the implementation of VC. Section six analyses several real world laws that influence virtual currency use in India. It also presents the legislative situation of VC in some countries. Finally, section seven makes a summary and suggests further research work.

II. THE CRYPTOCURRENCY MARKET

A. The Global Landscape

As of March 18 2018 there are 1564 Cryptocurrencies available & traded in about 9422 exchanges. The market capitalization of all the cryptocurrencies is $275,797,435,861 i.e. $275 Billions. & 24-hour volume was $ 18,207,953,654 i.e.$18 Billions.



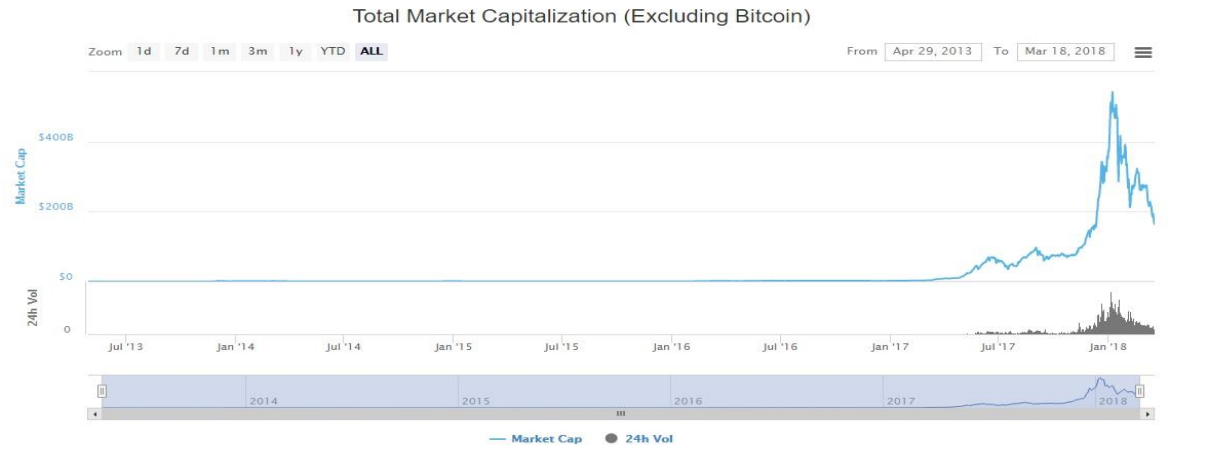


Fig. 1: Total Market Cap of Cryptocurrencies (with & without Bitcoins)

The Bitcoin has maximum dominance in the cryptocurrency market with around 45% of market share & market capitalization of $142.2 Billions (Rs 9.25 Trillion). Its market price is $ 8254.8 i.e Rs 5,35,767.

Other cryptocurrencies excluding bitcoins are referred collectively as altcoins, it includes other 1550 currencies that are traded. Some of them are mentioned sideways in the table:

Name	***Price***	***Market Cap***
Bitcoin	$8254.8	$ 142.2 B
Ethereum	$ 528.33	$ 52.97 B
Ripple	$ 0.65492	$ 25.92 B
Litecoin	$ 151.22	$ 8.52 B
Monero	$ 208.7	$ 78.16 M
Neo	$ 58.98	$ 260.1 M

B. Its Rise in India:

India with a population that is over 1 billion strong has been on something of an economic renaissance in the last few years. Such has been the extent of the country's growth that the IMF has called it the fastest-growing emerging economy. More than 40 percent of the country's population has access to telecoms and internet services. A country steeped in mystery, history, and culture, it is also not one to fall behind when it comes to technological advancement. Bitcoin and other cryptocurrencies have been operating within the country for a number of years now. This article looks at the state of the Indian cryptocurrency market.

As early as 2012, smallscale Bitcoin transactions were already taking place within the country. These were still early days in the development of Bitcoin when only crypto hobbyists were interested in Bitcoin. By 2013, Bitcoin was beginning to gain a level of popularity that was spreading across many countries. That year, a few businesses began to accept Bitcoin payment. A vintage era pizza shop called Kolonial in the Worli area of Mumbai became the first restaurant service in India to accept Bitcoin payments.

In a short space of time, cryptocurrency exchanges began to spring up within the country. **Pioneers like BtcxIndia, Unocoin, and Coinsecure began offering cryptocurrency exchange and trading services in India. Over time, others like Zebpay, Koinex, and Bitcoin-India were added to the list.** With the proliferation of crypto trading and exchange platforms, the crypto market in India has grown from its modest level in 2013 to what it is today. Apart from these online exchanges, there are also a number of over-the-counter (OTC) crypto shops in the country. Add to this, numerous Bitcoin ATMs in major Indian cities and you have the makings of a crypto economic hub.

On November 8, 2016, Prime Minister Narendra Modi announced the commencement of a demonetization policy. The move by the government to demonetize approximately 86 percent of the country's paper currency sent shockwaves all across the subcontinent of India. People with large cash holdings required a new means of holding such wealth without incurring significant tax burdens and sundry government scrutiny. It became common practice for some to buy large orders of Bitcoin or other cryptocurrencies and then sell them at a later date. This meant that they were effectively circumventing what would have been considerable taxes if they had tried to circulate their wealth through the banking system.

The demonetization policy also led to widespread criticism of the mainstream financial scene in the country. In the space of 24 hours, 86 percent of the country's paper currency in circulation had been rendered valueless by virtue of a single government proclamation. Realizing that fiat money isn't exactly "real" money since it isn't backed up by anything, Indians began to seek alternative currency models. Many Indians, especially those in the 40 percent bracket with access to the Internet began to take up Bitcoin and other cryptocurrency investments.

The 2016 demonetization policy may have spurred the adoption of cryptocurrencies among a considerable portion of the population but realities soon began to emerge that have stifled the growth of the market in the country. Despite its vast population, India only contributes 2 percent of the total global cryptocurrency market

capitalization. The small role being played by such a large economy can be attributed to the high cryptocurrency prices & the RBI-led government crackdown. The general level of prices of cryptocurrencies in India is on the high side. Market rates are relatively higher by as much as 5 to 10 percent compared to the global average. This means that Indians can only get involved in peripheral participation in crypto trading as far as international crypto exchange platforms are concerned. Lack of large-scale mining facilities & strict government restrictions on international money flow also make it significantly difficult for Indians to transact with many of the large foreign crypto exchange platforms. The Reserve Bank of India (RBI) has been consistent in warning citizens of the risk associated with cryptocurrencies. While the government of the country hasn't banned cryptocurrencies, they haven't exactly been endorsing it. The coming months will reveal the direction in which the crypto market will move as far as India is concerned.

III. The Cryptocurrency Business

Rosenzweig, a CEO of IMVU game company, compared virtual currencies to airline miles, which are considered as a type of virtual currency, to make it more understandable and he defined them as "symbolic currencies [that] you can accumulate and then switch them into something you care about". Virtual currencies facilitate trading activities and completing financial transactions for users. At the same time, they made the way of earn, spend, exchange and accumulate money easier and more efficient. They are used to purchase virtual goods inside the same environment or to exchange currencies among different platforms. Furthermore, they are used to buy digital and physical goods. Therefore, virtual currency offers a great opportunities for companies and operators to monetize their applications and then increase their revenues.

There are many types of Cryptocurrency that are implemented in different platforms including Cryptocurrency in social networks, Cryptocurrency in social games, loyalty points and Cryptocurrency in peer to peer networks. These platforms can be classified into two main categories, centralized cryptocurrency platforms and decentralized cryptocurrency platforms. The centralized cryptocurrency can be defined as a Cryptocurrency system that has a centralized repository which is similar to the central bank. The administrator of that repository has full control of transferring the Cryptocurrency value between persons or from location to another. Whereas the decentralized cryptocurrency can be defined as the Cryptocurrency system that has no centralized repository and has no single administrator. De- centralized Cryptocurrency can be obtain by computing or manufacturing effort. Many business activities have been involved in both Cryptocurrency categories including the following:

Fig. 2: Examples of buying CC with real money; Fig. 3: Examples of earning CC by offer-based method

A. Obtaining and Generating Cryptocurrency

Since there is no universal virtual currency across the digital medium, there are several different ways and methods to obtain or generate the virtual currencies. This paper presents the most prominent ones.

Pay for cryptocurrency method: This method allows adult users and gamers who aged 18 and over to pay for cryptocurrency using real money or its equivalent in the real monetary system such as pre-paid cards and credit cards or e- payment systems such as PayPal. Each cryptocurrency platform has its own pricing and exchanging rate which indicates the amount of purchased currency. The purchased virtual currency in this method is stored in buyers' accounts which are created within the platforms by the operators. Fig.1 shows some examples of this method where users can pay real money for cryptocurrency. This method is restricted to over 18 years old in most of platforms.

Offer based method: Many online gamers do not have the ability or the means to pay with cash option for cryptocurrency. Offer based method enables users and gamers whether they are adults or minors to earn cryptocurrency by watching advertising videos, participating in a surveys, winning games levels and signing up for a trial subscription. Users just need to complete the promotional activity to gain the points and credits in order to fund their accounts which are created within the game platform. Fig. 3 shows some examples of how to earn cryptocurrencies by offer based method. This method is considered as one of the safest ways of earning and generating cryptocurrency.

Loyalty based method: In this method, customers and gamers earn points and credits, which are forms of cryptocurrency, as long as they stay with the cryptocurrency provider. Commercial companies and games operators reward customers for their loyalty by giving them points that are redeemable towards future purchases. These points are also exchangeable with vouchers, discounts and gifts. Customers earn points whenever they make purchases from the loyalty point provider's products or from other collaborating companies. For example, Nectar points, a loyalty point scheme in the UK, can be earned by purchasing real goods and items from several partner companies such as Sainsbury's and Hombase stores. Furthermore, users can combine between this method and the method of paying for cryptocurrency. For example, Saudi Airlines' customers can pay for extra air miles if their collected air miles are not enough to get the desired tickets.

Self-effort based method: This method is mainly used for decentralized cryptocurrency systems such as Bitcoin. It is a mechanism of generating virtual money in peer to peer networks. There will be fixed, immutable and finitely number of generated virtual coins in Bitcoin which will equal to 21 million units and there will be no more. Unlike other cryptocurrency where it is generated by one or more central authority, Bitcoins are generated by the network peers. The network users run specialized software on their computers to solve complex mathematically puzzles and thus producing virtual coins. The complexity of the puzzles ensures the flow of generating the coins which is then distributed randomly to the system users. The virtual coins can be stored in local digital wallet in the users devices so the coins are fully controlled and managed by them, see Fig.4.

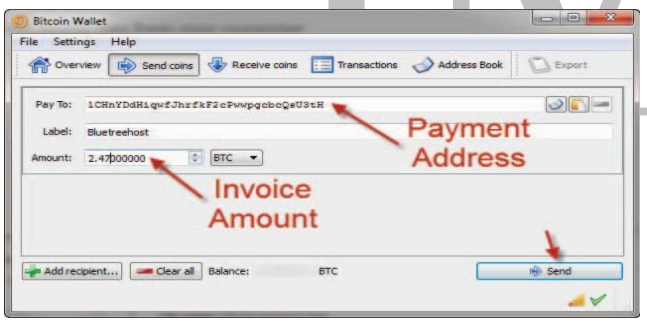


Fig. 4: Bitcoins local digital wallet

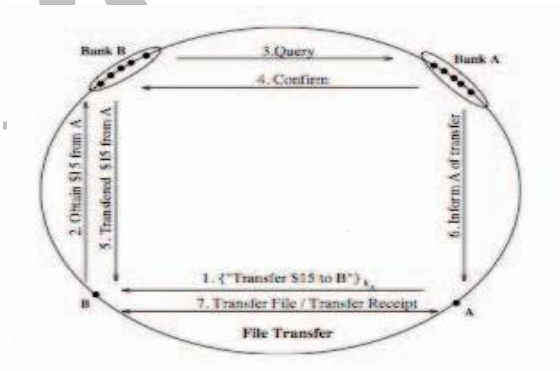


Fig. 5: Exchanging process in KARMA

A. Spending and exchanging Cryptocurrency

Spending and exchanging CC can be divided into two main sections, namely, exchanging cryptocurrency for virtual items within the virtual environment and exchanging cryptocurrency for real items including money, goods and services. The first category has some challenges and problems but it is not comparable with the second one which has more challenges and issues that this paper will address in further sections.

Exchanging cryptocurrency for virtual items: This category of spending and exchanging CC is followed mainly in online games and social networks. In many virtual world communities, gamers spend their cryptocurrency to improve their experience of the game by buying clothes and accessories for their avatars, weapons, armors and properties. Moreover, gamers can buy advanced level of the game using their virtual money. Some cryptocurrency platforms provide transferring and payments activities between the system users such as Bitcoins. Users can buy any virtual items using Bitcoins as a medium currency.

Furthermore, many of the Internet technologies are using *the concept of sharing resources* which mean that they depend on participants' participations. The resources which need to be shared in these kinds of systems include files, storage capacity, computations' results and bandwidth. These systems are built on share-resources based to maintain functionality and control stability. Some peer to peer networks introduce the idea of incentives to balance contribution by utilizing some financial concepts such as cryptocurrency. Karma is an example of cryptocurrency system for peer to peer networks that uses this mechanism. Every new user that joins to the system will gain a small amount of KARMA to start with. This amount will be increased when the user contributes and it will be decreased when the user consumes. The exchanging process of KARMA is shown in Fig.4. *Knowledge* is also can be exchanged with cryptocurrency where users are able to value their knowledge and they can exchange it with other users for cryptocurrency. For example, VEN is a global digital currency that can be exchanged with knowledge and it is used in a social network called Hub Culture. Users in Hub Culture can use VEN to charge accessing to individual contents such as articles and videos which are considered as users' knowledge.

Additionally, *promises* can also be considered as cryptocurrency in some decentralized networks. This type of virtual currency is derived from two concepts which are trust in social relationships and the mechanism of real monetary system. The real money in reality is traded as promises or what so called I OWE YOU (IOU) concept. Real currency notes are essentially IOUs from the government and bank accounts are IOUs from the banks. Government and banks IOUs are used as payment method between people. A combination between the trust relationships between members in decentralized networks and the concept of IOU promises can be converted to cryptocurrency to be used as a payment method. Ripple is a good example of a decentralized system that use IOU promises as virtual currency. The role of Ripple system is to find the rout between the payer and the payee in the network through trusted nodes between them. For example, Alex needs to pay £10 for buying an item from Mary but they do not know each other so they do not trust each other. They know and trust a third person called Tom who will play the role of mediator between them. Now, Alex can give his IOU to Tom who is in turn can give his IOU to Mary and this means the payment is completed between Alex and Mary via Tom.

Exchanging cryptocurrency for real items: The connection between the cryptocurrency and the real world can be divided into three main parts as follows:

Cryptocurrency to real money where the CC can be exchanged for real cash. This kind of spending cryptocurrency indicates the maturity of the operator's system which needs to have business connection with the real money systems. Exchanging rate must be set up to control the financial exchanging. A good example of this type of exchanging is Linden Dollar (L$) in Second Life virtual world where users can convert L$ to variety of real currencies such as US$, see Fig. 6. Furthermore, Bitcoin (XBT) is another example of the virtual currency that can be exchanged for real cash. There are many online markets that can exchange Bitcoins for real money and vice versa based on an exchanging rate, see Fig. 6. As of Jan 2018, over 16.78 million Bitcoin units are circulated around the world which worth more than 142 billion USD. Additionally, Bitcoins are still created until they reached 21 million units and there will never be more than that amount. This will help to control the exchange process and the circulation of this type of virtual currency.

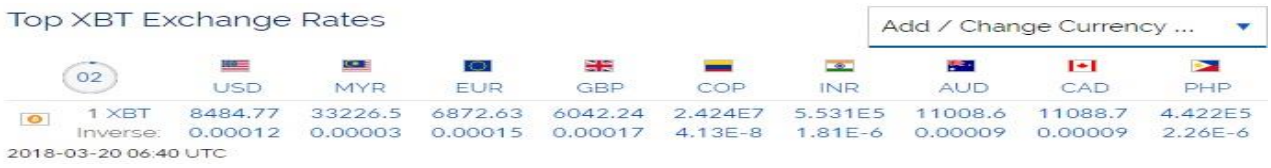


Fig. 6: XE.com exchanging rate for Bitcoins as on the 20th March 2018.

Cryptocurrency to real goods where the VC can be exchanged for tangible goods. Some CC platforms enable individuals to buy clothes, sunglasses, perfumes and electrical appliances using their virtual currency. Mobily company, a mobile network provider in Saudi Arabia, enables its customers to pay for

their purchases from partner companies using their collected points. In some other cryptocurrency platforms, customers receive vouchers versus their collected points to use them for buying real items and goods from the points provider's stores such as Tesco ClubCard points. Moreover, virtual currencies in decentralized platforms can also be exchanged for real items. For example, VEN currency can be exchanged for real goods and commodities such as clothes, accessories and Precious metals. It can be used to purchase cars where users can exchange 254,451.94 VEN with NISSAN all-electric car called LEAF.

Cryptocurrency to services where individuals can exchange CC with services that they need in their real life. For example, customers can benefit from converting their collected points to free minutes and texts with Mobily network. Furthermore, Avios point's collectors can convert their points to travel services such as travel insurance.

IV. Data Collection & Discussion

A pilot study has been conducted in March 2018 to collect data about different aspects of cryptocurrency. The survey aimed to measure the spread of cryptocurrency use to have a clear picture from the practical view. It explored what cryptocurrency that the participants use, how often they use it and how they spend it. Moreover, the survey also explored the participants' confidence of dealing with cryptocurrency in a time that using such virtual money is not fully controlled and regulated. The survey also investigated the participants' expectations of the future of cryptocurrency.

The survey questionnaire involved 21 questions that were expected to be answered in a short time (5-10 minutes) in order to save participants' time and encourage them to participate. I used online survey website called surveymonkey to design the questionnaire which then distributed online using Facebook network and cryptocurrency forum websites. The website ResearchGate was also used to collect data by using the questions' tab. The questionnaire was also sent to some participants by email. I collected data from 45 multinational internet users and most of them were Indians. I filtered them and I found that 31 surveys were valid to be analysed where the others were discarded since they were incomplete.

Most of the participants were aged between 21-30 years old and they represented 61.29% of the total participants. Participants who aged between 31-40 represented 32.26% where participants over 40 years old represented 6.45% only. More than half of the participants were students and they represented 77.42% where the remaining participants were people in employment. The following sections highlight the main findings and provide indications as to how the main research questions might be answered based on the survey results and our analysis.

A. *The spread of virtual currency use*

The spread of using virtual currency varies from platform to another. I found that the most common virtual currency form is the loyalty points. Then virtual currency in social games comes second, virtual currency in social networks is the third and finally virtual currency in peer to peer networks. The spread of virtual currency use in our pilot study can be illustrated as follow:

Loyalty points: The result of the survey showed that around 87% of the participants are using loyalty points. They ranged from frequent subscribers to rare subscribers in loyalty point programs. The reason of this high percentage is that most of loyalty points programs are launched a few years ago and they became more popular between users and customers. Another reason is that consumers benefit from collecting points and credits from their daily activities such as shopping, so they can recover some of their consumption.

Moreover, loyalty points can be used by different age groups where consumers can be children, youth, adults and elders. Fig.7 shows participants' subscriptions in variety of loyalty programs.

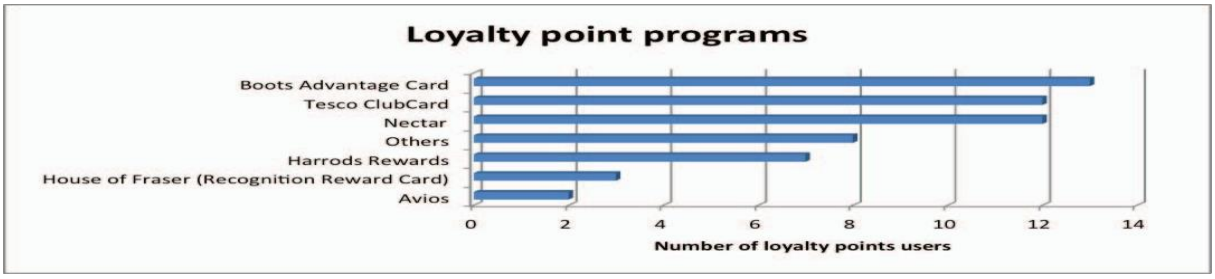


Fig. 7: Number of loyalty points users in different loyalty platforms. Source: own calculation.

Cryptocurrency in social games: The results indicated that 70.9% of the participants are using virtual currency in social games where 29.1% do not use them. Several social games have been involved in the questionnaire including Second Life, FarmVille, CityVille, Farmhouse and Travian and all of them have virtual currency form in their playing activities. Such a large proportion of the surveyed participants who use virtual currency in social games indicates the large volume of trading virtual currency in online games and also indicates the strong impact of implementing VC in online games. It is clear that the use of virtual currency in social games is growing considerably. This growth is also supported from other reports and studies in the literature. For example, more than 100 Chinese are using Q Coin which is the virtual currency provided by Tencent game company. Moreover, around 7.6 million active players in World of Warcraft social game are using WoW gold. It is reported that there are 2.8 million daily trades completed in the game's auction house.

Cryptocurrency in peer to peer networks: Virtual currency in peer to peer networks comes at the end of the list in terms of spread but it can be the top in other terms such as functionality and control. The surveyed Internet users were asked whether they have heard about this type of virtual currency, particu- larly about Bitcoin. Around 90.32% of them have not heard about Bitcoin or any other peer to peer virtual currency form where only 9.68% have heard about such currency. This low perception and spread rate of decentralized virtual currency in our pilot study can be justified based on some reasons. The limited forms of peer to peer VC where some of them were still impractical projects at the time of the conducted study. Furthermore, many of peer to peer VC were not traded practically and there were no many vendors accepting such currency as a payment method. However, perception and awareness rate is likely to be higher in the current time due to recent publications of the virtual currency concept and also the increased vendors who are accepting this type of currency.

B. *The use of cryptocurrency*

As mentioned in the second sections of this paper that there are different methods of obtaining and spending virtual cur- rency. Our survey investigated some of these methods in order to analyse how users are exchanging their virtual currency. One the remarkable findings is that most of the participants who play social games are obtaining virtual currency from the game experience including beating monsters, winning races and completing levels. They represent 64.3% of total social gamers who deal with cyypto currency. Around 21.4% of the surveyed gamers who use virtual currency are earning it by selling virtual goods inside the game. Most of the social games enable players to sell items that they make within the game experience such as farms, buildings, adjusted cars and restaurants meals. Relatively small percentage of surveyed gamers who use virtual currency are buying it with real money where they represent 14.3%. It is clear that majority of the participants are earning CC from the game itself. This is because of several possible reasons such as the demography of the conducted survey where most of the participants are student and thus

they do not have enough funds to buy virtual currency. Another possible reason is that they are not keen of gaining virtual currency quickly as they can earn it from playing the game for longer time.

We asked the participants who use virtual currency in social games whether they find it exciting or not. Approximately 77% of them reported that it is exciting to use virtual currency inside games where 12.9% of them reported that it will not affect the game experience since they may not want to enhance their game experience. Around 9% reported that using virtual currency will adversely affect the game experience. The likely reason for this opinion is that earning virtual currency in social games usually requires more effort and longtime of playing or even paying real money. Thus, their enjoyment of the game will be adversely affected.

C. Confidence in using virtual currency

From our analysis, we found that the use of virtual cur- rencies in different systems is increasing day by day which indicates that the trust of using them is increasing too. Accord- ing to Greenwood, many Europeans from different countries such as Greece, Italy and Spain converted their real money to cryptocurrency namely Bitcoin, because of the fears of economic future. This indicates that the trust of using virtual currency reached up to the level of using it to protect users' savings. Furthermore, the large volume of trading virtual currency in many social games such as WoW gold in World of Warcraft, Linden Dollar in Second Life and QQ Coin in Tencent network shows the amount of confident and trust in using virtual currency. Professor Berndson, Head of the Over- sight Department of De Nederlandsche Bank and Endowed Professor of Financial Infrastructure and Systemic Risk at the University of Tilburg, stated that "If Bitcoin stabilises there is a possibility that people could feasibly trust the Bitcoin currency more than those of central banks".

The survey results indicate the same trend of using VC with high level of trust. We asked the participants whether using virtual currency is safer than using real money or nor. More than 48% believe that using virtual currency is trustworthy and they agreed that using virtual currency is safer than using real money. The percentage of participants who reported indifferent responses accounted at 38.71% of the total participants. This group is likely do not care of using virtual currencies that involve real money. So they do not care whether virtual currency is safer than real money or not. Participants who disagree with the comparison question represented 12.9% of total participants.

D. The future of using virtual currency

We can predict the future of virtual currency from the current expanding and growing of platforms that provide virtual currency and from the huge volume of trading virtual currency. Many social games, social networks and applications developers are tend to monetize their systems by implement- ing virtual currency. Schell, a video game designer, pointed out that the core of designing games was the fun but now funding element becomes the main core. He said "Now we design games around a psychological moment where people are willing to spend money". It is noticed that we already become more cashless societies where most of us are using credit card, debit card and online banking to complete financial transactions. This gives a signal that we will accept and integrate ourselves with virtual currency use sooner or later. The results on this study revealed that more than 58% of the surveyed participants agreed that virtual currency of various types and forms will become the financial transactions' language in the future. Whereas, 22.58% of the participants were indifferent and 19.35% did not agree with the virtual currency being the way of financial dealings in the future.

With this growth of using virtual currency, many issues need to be taken into account to control such financial system. The absence of strict and clear regulations and policies leads to increased risks and problems that would face virtual currency industry. Strict legislations and laws must be set up to control and manage this new era of digital money. Ed Sperling from Forbes stated that cryptocurrency is not real money, but that does not mean it does not need serious attention from lawmakers. This statement summarizes the need for specific regulations and policies for dealing with virtual currency.

V. CHALLENGES & ISSUES

The form of cryptocurrencies is not free from some financial problems and security concerns. I analyzed several studies and cryptocurrency platforms and also observed some cryptocurrency selling forums in order to explore challenges and issues that are exist in such virtual phenomenon. The main problems and impacts of cryptocurrency can include:

Security threats: Hackers and malicious users can create as much as they want from virtual currency if they break the system and know the method of virtual currency creations. This will lead to the ability to create fake virtual currency or steal virtual currency by just changing the accounts balances. For example, selling in-game virtual items and virtual currency is against World of Warcraft (WoW) game policies. Therefore, many users log into WoW gold selling websites to buy virtual gold in order to pay for virtual items that they need. Many of WoW gold selling websites are not reliable and they are vulnerable to hacking and many users are complaining about paying real money for nothing or for fake virtual currency.

Collapse concerns in cryptocurrency systems: Unlimited issuing of virtual currency in the variety virtual communities will lead to economic problems since its issuing is not based on the demand and supply. It is possible for some providers such as Second Life to issue unlimited Linden Dollars and increase their virtual items prices in order to gain more real revenues. On the other hand, it will suffer from inflation and economic issues leading to collapse in the virtual currency system.

Impact on real monetary systems: Since some virtual currency systems are connected with real world monetary systems, they may affect the demands and supply facilities of real world money. For example, enabling users to purchase virtual and real goods and services with virtual currency in some platforms may reduce the demands on real money. Users will no longer depend on real money to buy what they want and they will use virtual money instead. On the other hand, some platforms enable users to exchange their virtual currency with real currency and this will increase the demands on real world currency. This fluctuation will affect on the real monetary systems.

Gold farming risks: Gold farming term is very popular in China and developing countries. Gold farmers are players who play in social games such as World of Warcraft in order to gain gold, which is virtual currency of the game, and then sell it for real money. The targeted buyers are the players who do not have enough time to play and compete for gaining virtual currency. In fact, huge cash flow is generated from gold farming process and it is not controlled and regulated. This will increase fraud and financial risks where virtual currency is exchanged with real money in unreliable environment.

Fluctuation in virtual currency value: According to Chow and Guo study, it is observed that when the popularity of a virtual community drops, the value of its virtual currency will be devalued. For example, users who own 1000 units of virtual currency can buy from variety of 100 items. In case the provider of that virtual currency drops, users can only buy from 10 items with their 1000 units since dropping will be reflected in fewer goods and services especially in closed virtual communities.

Money laundering: Money laundering is one risk that is very likely to rise with the use of VC especially with platforms that enable users to exchange virtual currency with real money. In practical case occurred in Korea in 2008, the police arrested a group of 14 persons for laundering $38 million obtained from selling virtual currency. The group converted the amount of $38 million, which is generated by gold farming, from Korea to a paper company in China as payments for purchases.

Unknown identity risks: Since creating an account in most of virtual currency platforms such as social games and social networks is not authenticated, financial transactions cannot be monitored very well. Gamers and users can create more than one account with unknown identities and use them for illegal transactions. There is no way to recognize the source of creating or cashing out the virtual currencies. This leads to inability to track the transactions in case of money laundering suspicion. Moreover, unknown identity will enable criminals to get paid with virtual currency for their crimes.

Black market for cryptocurrency: The financial position of some social games such as Second Life and World of Warcraft are mature enough to create black market for buying and selling their virtual currency. The increasing popularity of virtual currency in online environment has led to a thriving black market for trading virtual currency with real money. By observing several social games' forums, some fraud cases have been raised and discussed between users. For example, when a gamer decides to quit from a game, he/she may want to sell the owned virtual currency by offering them in the game's forums. The way of receiving the payments is risky since many malicious users may not complete the payment or they dispute after paying. In this case, they will get their money back plus the virtual currency.

VI. CRYPTOCURRENCY & LAWS

Besides concerns and challenges that are facing current virtual currency systems, I analysed the legislative issues that are likely to influence cryptocurrency use. Moreover, several lawsuits and real world laws that are likely to be triggered with virtual currency industry are involved in our analysis.

A. Status of Governments on Cryptocurrency around the World

Exchanging virtual currency with real currency is a hot topic in E-business and E-commerce industries. Trading cryptocurrency for cash is banned and prohibited in some countries where in other countries, it is either allowed or not regulated yet. If 2017 was the year of the Initial Coin Offerings (ICO), it seems as if 2018 is destined to become the year of regulatory reckoning. Things have already begun to heat up as countries around the world grapple with cryptocurrencies and try to determine how they are going to treat them. Some are welcoming, others are cautious. And some countries are downright antagonistic. Here is a brief overview of how 21 countries/unions from various regions are treating cryptocurrency regulations.

I gave each government a rating viz. Friendly, Neutral, or Hostile. My findings were, 15 of the 21 listed governments regulate cryptocurrency in a relatively friendly manner. 4 of the 21 governments were relatively neutral. 2 of the 21 governments were hostile. The overall outlook for cryptocurrency trading becoming a legitimate global institution looks good. These cases can be presented as follows:

1. ***United States (Friendly***): The U.S. has been taking an approach to foster innovation and growth of blockchain and cryptocurrency while protecting investors from high risks and fraud. On February 6, 2018, the Securities Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC), took the position that "we owe it to this new generation to respect their enthusiasm for virtual currencies, with a thoughtful and balanced response, and not a dismissive one." A couple months earlier, in December 2017, the SEC took the position that Initial Coin Offerings (ICOs) are subject to U.S. Securities regulations, meaning only accredited investors may participate in ICOs that are not (and almost never are) registered with the SEC. The SEC's policy is intended to mitigate risk to investors, protect investors from fraud, and hold cryptocurrency projects potentially liable for selling non-registered securities to U.S. investors. Also in February 2018, the Arizona Senate passed a bill that would allow residents to pay income taxes with Bitcoin and other state-recognized cryptocurrencies. Currently, The Internal Revenue Service (IRS) treats cryptocurrency as property, which subjects it to many taxable trading events. Trading cryptocurrency to fiat, trading cryptocurrency to cryptocurrency, and spending cryptocurrency are all taxable events that may moderately burden cryptocurrency trading.
2. ***Canada (Friendly)***: The Financial Consumer Agency of Canada (FCA) publishes online information regarding digital and cryptocurrencies. The FCA explains aspects of decentralization, peer-to-peer transactions, digital wallets, wallet security, and the risks of using digital currency. They further maintain that digital currencies are not legal tender, and that profits made from digital currencies are subject to Canada's Income Tax Act. Goods and services exchanges for cryptocurrency must be reported as income for tax purposes, and transactions between cryptocurrencies are considered commodity transactions, and must be reported.

3. ***China (Hostile***): China is notorious for some of the world's largest bitcoin mines. In 2017, China banned cryptocurrency trading on Chinese exchanges and made ICO fundraising illegal, curving market demand, and causing a large overall downtrend in the cryptocurrency markets. Many Chinese residents turned to using foreign exchanges to trade cryptocurrency instead. Now, news is circulating from the People's Bank of China (PBC) that China may block all access to domestic and foreign cryptocurrency exchanges and ICO websites. It is unclear how much of an effect further Chinese cryptocurrency bans would have, but it could possibly continue to fuel negativity in the market. The People's Republic of China appears to be the most stringent cryptocurrency regulator of the major economies regarding cryptocurrencies. This is an odd fact given that, in 2017, Chinese bitcoin miners made up over 50 percent of the worldwide mining population and that cryptocurrency adoption in China increased at a rate higher than any other country. Despite China's harsh stance towards private cryptocurrency trading, the PBC has been conducting research into issuing its own state-run cryptocurrency.

4. ***South Korea (Neutral)***: The cryptocurrency market's all-time highs in January 2018 were quickly silenced, in part from fears that South Korea may ban cryptocurrency trading in a manner similar to China. News sites published articles mistakenly claiming there would be a total trading Ban in Korea, causing havoc in the cryptocurrency markets. Later in January, South Korea proposed new rules to prevent anonymous trading and impose penalties for failing to comply. South Korean lawmakers also increased pressure on exchanges to pay corporate and local income taxes. Foreigners were also banned from trading on South Korean exchanges. In February 2018, South Korea began to lighten its stance on cryptocurrency trading. Government representatives have pledged their support for regulated cryptocurrency trading. It appears that South Korea is moving forward to permit regulated cryptocurrency trading.

5. ***Japan (Friendly)***: Currently, Japanese Yen accounts for over 36% of Bitcoin's trading volume, more than every other currency. USD is second at just over 31%. Japan's high demand for cryptocurrency is supported by a well-regulated legal system that supports the industry in a way that builds credibility among investors and creates familiarity with securities trading as it relates to cryptocurrency. Japan's Payment Services Act was the first national registration system for cryptocurrency exchanges. In January 2018, hackers stole $534 million worth of NEM from Coincheck, one of Japan's 36 cryptocurrency exchanges. Coincheck was in the process of obtaining official recognition from Japan's Financial Services Agency (FSA). The FSA warned Coincheck that it had poor cybersecurity that required dramatic improvements. Coincheck announced it would refund $430 million of lost funds to the 260,000 affected users. In response to security issues, Japan's cryptocurrency exchanges will establish a single self-regulatory body of only FSA-approved exchanges in an attempt to regain public trust. The regulatory body will work to create fair trade rules and self-regulations to plug legal loopholes. The body will also discuss cryptocurrency policy and legislation with the government, and create policies on insider trading, advertising and security. Members of the regulatory body that fail to follow the policies will be subject to penalties.

6. ***Singapore (Friendly)***: Singapore is often considered one of the more hospitable governments toward cryptocurrencies. In October 2017, the Monetary Authority of Singapore (MAS) published a clarifying document on cryptocurrency regulation. The document states that MAS does not directly regulate cryptocurrency, but regulates fraudulent and dangerous financial activities such as money laundering and terrorism. The MAS also requires that ICOs structured as securities comply with securities laws to protect investors, however, ICOs that are not structured as securities will only be subject to anti-fraud and anti-terrorism legislation. Singapore's relaxed regulations and tax laws have sparked numerous ICOs in their territory. In November 2017, the MAS also announced that it would partner with R3, a blockchain technology company and group of financial institutions to create Project Ubin; a project to conduct inter-bank payments with blockchain technology. Project Ubin developed software prototypes for decentralized inter-bank payments and settlements with liquidity savings mechanisms. The prototypes inspired two spin-off projects. The first is an SGX driven project focused on increasing fixed income

securities trading and settlement cycles through distributed ledger technology (DLT). The second focuses on methods of conducting cross-border payments with central bank currency.

7. ***Thailand (Neutral)***: Thailand expects to clarify its stance on how to regulate digital currencies within the coming months. The government aims to protect against fraudulent activities and deceitful investments, while maintaining the benefits of using blockchain technology. The Central Bank of Thailand (BOT) banned Thailand banks from five cryptocurrency related activities: investing or trading in cryptocurrency, exchanging cryptocurrencies, creating platforms for cryptocurrency trading, allowing clients to use credit cards to buy cryptocurrencies, and advising customers on cryptocurrency investing and trading. The Thai government is also in talks with Cryptocurrency project OmiseGo (OMG) to create a national digital identification platform that provides consumer protection and security against fraud. OMG would also help provide online privacy, and provide a convenient, transparent, and fast way to make payments.

8. ***Vietnam (Neutral/Hostile)***: Vietnam's Ministry of Justice and State Bank of Vietnam (SBV) are quickly preparing a report to present to the Council of Ministers. Currently, the scope of regulations are still unknown. In 2017, Vietnamese tax authorities lost a lawsuit against a local citizen who made a fortune trading Bitcoin. Under Vietnamese law, Bitcoin is not considered an asset, so the court ruled that authorities could not tax him for his gains. In late 2017, the SBV ruled that Cryptocurrency is not a legal means of payment, and effectively outlawed the supply and use in the marketplace. Violators could face fines up to 200 million Dong ($9,000). In January 2018, the Vietnamese State Securities Commission (SSC) requested that Vietnamese security trading firms refrain from providing cryptocurrency related services.

9. ***Iran (Friendly)***: Recent statements from Iran's central bank suggest that Iran is developing a state-run cryptocurrency. On February 21, 2018, MJ Azari Jahromi, the Iranian Minister of Information and Communications Technology announced discussing cryptocurrency and blockchain at a meeting with the Iranian central bank's board of directors. He also announced that they decided to implement the country's first cloud-based cryptocurrency using the capacity of Iran's elite. In November 2017, Iran's High Council of Cyberspace (HCC) said it would welcome bitcoin and cryptocurrency trading, subject to regulations.

10. ***Russia (Friendly)***: In January 2018, the Russian Finance Ministry drafted a bill that would legalize "digital financial assets" stored on blockchain networks as electronic securities. The bill would define the scope of regulations on cryptocurrency, and would not prohibit trading. The bill would further define bitcoin mining as an entrepreneurial activity, which could require Russian bitcoin miners to register with the government. It may also create a 50,000 ruble ($900) ICO investment limit for residents who are not registered as qualified investors. At the end of January 2018, Sberbank, Russia's largest state bank, announced its plans to launch a cryptocurrency exchange in Europe through its Swiss branch. Sberbank is currently developing its trading infrastructure, and plans to offer services only to legalized institutional investors. In February 2018, Russia held meetings with Venezuela to discuss potential collaboration between governments on Venezuela's new state-run cryptocurrency, Petro.

11. ***Switzerland (Friendly)***: During 2017, Swiss ICOs raised about $550 million in funding, totaling about 14% of the global $4 billion ICO market. As a response, the Swiss Financial Market Supervisory Authority (FINMA) published ICO guidelines on February 16, 2018, under the Swiss anti-money laundering and securities laws. Switzerland considers many ICOs as securities, with some exceptions. The guidelines create three categories of tokens: payment tokens, utility tokens, and asset tokens. Payment tokens and tokens used to access an already running blockchain platform would not be regulated as securities. Many tokens are also subject to Switzerland's favorable tax laws, which are partly responsible for the high demand for blockchain companies to base their ICOs there.

12. ***Britain (Neutral)***: On February 22, 2018, the U.K. Treasury announced that it will begin looking into issues surrounding cryptocurrency and blockchain technology. The investigation will look into the role

of cryptocurrencies in Britain, including both opportunities and risks for consumers, businesses, and government. The Treasury Committee will look at the potential risks that cryptocurrency could pose, such as price volatility, money laundering, and cybercrimes. The Treasury Committee will also look at the potential technological and economic benefits, and how cryptocurrency can create innovative opportunities and disrupt traditional economies.

13. ***France (Neutral)***: In January 2018, Bruno Le Maire, the French Minister of the Economy, announced the creation of a group to develop cryptocurrency regulations. The group will be responsible for proposing guidelines and drafting regulations to prevent tax evasion, money laundering, financial crimes, and terrorist activities. Le Maire's stated, "We want a stable economy. We reject the risks of speculation and the possible financial diversions linked to Bitcoin."

14. ***Germany (Friendly/Neutral)***: Joachim Wuermeling, the Director of German's Central Bank (Bundesbank), is pushing for bitcoin and cryptocurrency to be regulated through an international set of rules, rather than solely national rules. He believes cryptocurrencies are difficult to regulate within a specific region or country. At the G20 summit this March, Germany and France are planning to release a joint statement proposing regulations, and analyzing the risks linked to bitcoin and cryptocurrency. In Germany, cryptocurrency is not considered a commodity, stock, or currency. It is classified as private money, similar to foreign currency. Thus, trading cryptocurrency in Germany is tax free for short-term gains under 600 EUR, and tax free for long-term capital gains of over one year.

15. ***Italy (Friendly)***: The Ministry of Economy and Finance of Italy (MEF) recently finished public consultations regarding new regulations for cryptocurrency in Italy. The MEF will aim to improve anti-money laundering laws by holding exchanges responsible to prevent illegal cryptocurrency transactions and money laundering. The MEF will also recognize cryptocurrency as a means of exchange, separate from legal tender, for purchases of goods and services, that is not issued by a public authority or central bank. Aside from the MEF's newly proposed regulations, Italy does not regulate cryptocurrency heavily. Most cryptocurrency gains and holdings are exempt from taxation. However, the Italian parliament introduced a new law that would require identities of parties in cryptocurrency transaction.

16. ***Poland (Friendly/Neutral)***: Poland has often promoted cryptocurrency and blockchain technology. Poland is working with The Polish Blockchain Technology Accelerator, which is subsidized by the Ministry of Digitalization, to create a national cryptocurrency called Digital PLN (dPLN). However, in an odd twist, Poland's Central Bank, the National Polish Bank (NPB) recently admitted to paying YouTubers thousands of dollars to dissuade Polish Citizens from trading cryptocurrency. The NPB called it an "educational campaign."

17. ***Venezuela (Friendly)***: In December 2017, the Venezuelan government announced Petro, its state-run, oil-backed token as a form of legal tender to pay for taxes, fees, and public necessities. The cryptocurrency entered the pre-sale phase on February 20, 2018. Initially, 100 million Petros will be issued at an initial value of $6 billion. The Venezuelan government will allow exchanges of Petros for hard currencies (less vulnerable to inflation) and cryptocurrencies, but not for the Venezuelan Bolivar. The legislators in the U.S. believe it may be possible for Venezuela to use the Petro to bypass American sanctions.

18. ***Brazil (Hostile)***: In May 2017, Brazil set up a commission to discuss regulation of cryptocurrency. It has since held seven public hearings. In December, Brazil announced it would take the stance to prohibit the issuance of cryptocurrency in national territory, prevent its commercialization, intermediation, and acceptance as a means of payments and settlement of debts. The CVM and Central Bank of Brazil also announced that "The Bitcoin is a financial asset with no ballast that people buy because they believe it will appreciate. That is a typical bubble or pyramid… The Central Bank is not interested in bubbles or illicit payments." In January 2018, the Securities and Exchange Commission of Brazil (CVM) announced that cryptocurrency is not considered a financial asset, further hindering direct investments. The Brazilian state of São Paulo is rumored to be looking into using cryptocurrency to help solve its infrastructure

problems. Hélcio Tokeshi, the Secretary of Treasury for São Paulo, said, "We like innovation in São Paulo, and blockchain and cryptocurrencies are being followed as extremely interesting innovations that we had to start experimenting with."

19. ***Mexico (Friendly)***: Mexico is one of the leaders in cryptocurrency exchange trading in Latin America, and has one of the largest financial technology (fintech) markets in the region. Mexico is planning to pass a bill to regulate fintech and cryptocurrency markets within the next few weeks. The bill establishes regulations that classify cryptocurrency as non-legal tender, but still gives permission to use it to pay for goods and services. Under the bill, financial institutions will be permitted to operate with virtual assets and invest in fintech institutions encompassing ITFs (both collective financing institutions and electronic payment fund institutions). The bill may create massive change to the Mexican financial ecosystem. ITFs could be considered just as important as banks, and all trade finance companies may soon be operating with ITFs. Mexico's Central Bank, The Bank of Mexico (BOM) plans to take a stance to support new technologies and strengthen the economy while maintaining control. The BOM will likely require licenses for cryptocurrency exchanges and enforce penalties for non-compliance.
20. ***South Africa (Friendly)***: In July 2017, the South African Reserve Bank (SARB) selected blockchain company Bankymoon to test digital currency regulations. The project has served as an experiment to help SARB decide on how best to regulate cryptocurrency. In February 2018, SARB announced it would begin testing Ethereum's blockchain for smart contracts. UBU, the first South African cryptocurrency project launched recently. UBU is a Universal Basic Income project that aims to significantly reduce poverty in Africa through decentralized distribution of digital currency to the poor. Projects such as UBU would provide digital currency to help people invest and earn money in nations that often suffer from poverty and hyper-inflated national currencies.
21. ***Australia (Friendly)***: The Australian Taxation Office (ATO) treats financial gains from trading cryptocurrency as property subject to capital gains taxes. An ATO spokesperson said, "Any financial gains made from the selling of bitcoin will generally be subject to capital gains tax and must be reported to the ATO." However, reports say this policy has yet to be tested in court. The Australian government does not stringently regulate cryptocurrencies. The relaxed regulations have caused Australian banks to opt out of cryptocurrency trading. CoinSpot, one of Australia's most popular cryptocurrency exchanges has said that Australian banks were not cooperating with exchanges, placing strict limits on accounts, and frequently closing them. Analysts are predicting the high demand for cryptocurrencies will force Australian authorities to begin regulating the industry soon.

B. Real world laws influencing virtual currency

With the income tax department slapping tax notices on almost five lakh high net worth individuals transacting in bitcoin, the issue of taxing cryptocurrencies has assumed more importance and urgency in India.The Centre is reportedly planning to bring in a regulatory framework for crypto currencies in the forthcoming Union Budget. This should clear the air on the status of such digital currencies and how they will be taxed. Meanwhile, here is a look at how transactions in cryptocurrencies, may be taxed under various scenarios.

Gift card laws**:** Some virtual currency providers offer virtual currency on a pre-paid basis. Users and customers can buy pre-paid cards to fund their accounts with virtual currency such as Facebook game card. This kind of CC is very similar to plastic gift cards since both are used for later redemption and use. Thus, gift card laws are most likely to be applied on cryptocurrency sold as a pre-paid card. For example, RBI's Master Direction on Issuance and Operation of Prepaid Payment Instruments (PPI), under Payment and Settlement Systems Act, 2007 (PSS Act, 2007), PPI issuers shall put in place a formal, publicly disclosed customer grievance redressal framework, including designating a nodal officer to handle the customer complaints / grievances, the escalation matrix and turn-around-times for complaint resolution. All charges and fees, expiry period associated with the use of the instrument shall be clearly and easily accessible. All

PPIs issued in the country shall have a minimum validity period of one year from the date of last loading / reloading in the PPI. Therefore PPI laws in India could restrict the operators' ability to expire virtual currency or charge users for unused virtual currency. When PPI guidelines are being applied on prepaid card form of cryptocurrency, users and customer's rights will be reserved.

***Gambling/lottery laws*:** Some operators offer virtual currency as a prize in virtual lottery. Some others allow users to bet and play gambling games using virtual currency. These kinds of games and online gambling with virtual currency might trigger gambling laws in some countries. For example in India, according to the Public Gaming Act, 1867 it could be argued that operating a gambling website in India is deemed illegal under the terms of this act, given its wording, but this is far from clear. The Information Technology Act, 2000 makes provisions for various offences relating to online activity, although again there's no specific mention of online gambling being illegal. It does give the Indian government the power to block foreign websites however. The government has used this power to instruct Internet Service Providers to prevent Indian residents from accessing certain foreign betting and gaming sites, but we don't know for sure how effective this has been or which sites have been blocked. At state level, there are two states which have introduced legislation relating specifically to online gambling. In Maharashtra, it's completely prohibited, while in Sikkim the government now has the authority to issue licenses to operators wishing to provide online gambling services within the state. This is a notable step forward for regulated gambling in India.

***Money transmittal licensure laws*:** Virtual currency use grows and becomes more popular in many applications and games. This encourages operators to associate with third parties allowing users to redeem or exchange their cryptocurrency for products provided by those third parties. In this case, users need to transmit their virtual currency to the third party. According to definitions provided in the Master Direction on Issuance and Operation of Prepaid Payment Instruments in the Fourth Bi-monthly Monetary Policy Statement by the R.B.I., such services fall under Semi-closed System PPIs which do not permit cash withdrawals. The Know Your Customer (KYC) / Anti-Money Laundering (AML) / Combating Financing of Terrorism (CFT) guidelines issued by the Department of Banking Regulation (DBR), RBI, shall apply mutatis mutandis to all the entities issuing PPIs and their agents. PPI issuers shall maintain a log of all the transactions undertaken using the PPIs for at least ten years. This data shall be made available for scrutiny to RBI or any other agency / agencies as may be advised by RBI. The PPI issuers shall also file Suspicious Transaction Reports (STRs) to Financial Intelligence Unit-India (FIU-IND). This kinds of laws may affect on the collaboration between cryptocurrency providers but on the other hand, it will control the virtual currency transmission activity.

***CICRA Act*:** There is some speculation indicate that The Credit Information Companies Regulation (CICRA) Act, which is s into law in the India in 2005, is likely to be applied on cryptocurrency due to its huge growth. Since cryptocurrency platforms become common place for many activities such as storing, transmitting, redeeming, selling and exchanging the value of cryptocurrency, CICRA Act requirements can be applied. As per this Act, the credit information of individuals of India has to be collected in consonance with certain regulations as laid down by this Act. Also under the Act, the bodies that collect the financial information can be held liable in case of unauthorized leak of the Data. Offshore financial transactions are very common in today's cyberspace and keeping in regard the large number of people involved in them, such acts are helpful for protection of personal data of the individuals concerned.

***Data privacy and security laws*:** Some virtual currency providers obtain information and data about their users. Platforms that allow purchasing virtual currency with credit cards must consider these laws too when storing the credit cards information. Such data must be kept and stored with high privacy and security standards. Otherwise, the VC provider might breach data privacy and security laws. For example, in India the Information Technology Act read with the Information Technology (Reasonable security practices and procedures and sensitive personal data or information) Rules, 2011 obliges everyone responsible for using data to follow strict rules. These rules include the fact & the purpose for which the information is being collected, providing & publishing privacy policy and keeping data secure and safe.

Children protection laws: Since large proportion of online gamers are minors, children protection laws are likely to be triggered online game websites that provide VC. These laws are strictly protect children privacy. For example, Article 16 of the Convention on the Rights of the Child (CRC) imposes strict obligations to protect minors under 13 years old. The act restricts how and what personal information that websites and service providers can collect from children under 13. It requires the operators to provide a clear privacy policies on their website that include explains on how to contact them, how the children's data will be used and whether data will be available for third parties. Moreover, the articles also requires the operators in many cases to obtain a consent from parents before collecting or using children's data.

Taxation**:** Taxation law in virtual currency industry is vary from country to country. Some countries impose taxes on incomes that are generated from virtual currency transactions and some others have just considered taxation law. In India, if any such instrument is notified by RBI, any trading in it will be subject to The Foreign Exchange Management (FEMA) Act, 1999. The Crypto like bitcoins are deemed a capital asset if they are purchased for investment. Any gain arising on transfer of a bitcoin shall be taxable as capital gain. However, if the transactions in bitcoins are substantial and frequent, it could be held that the taxpayer is trading in bitcoins, and the income would be taxable as business income as per the Income Tax (IT) Act, 1961. The difficulty of determining users' locations may constrain taxation implementation. Tracking the VC trans- actions is also difficult and this may limit the implementation of taxation.

VII. CONCLUSION

Cryptocurrency offers a new, effective and attractive model of payment methods that can boost companies and operators revenues. It also provide alternative method of payment, apart from real money, that enable users to make financial activities such as buying, selling, transferring and exchanging easily. Although cryptocurrency platforms open many channels for digital financial transactions and provide a new form of currency with different mechanisms and methods, they are not controlled and regulated as they deserved. The research analyzed cryptocurrency platforms and extracted many concerns and challenges that put such financial system under the risk. The lack of legislations is considered as the main concern in cryptocurrency systems.

Almost a clear picture of the size of cryptocurrency use has been drawn from my analysis of the current cryptocurrency literature and from the conducted study. Although the pilot study has been conducted with relatively small sample, but the results showed me a preliminary perception about the use, the growth, the trust of using and future expectations of cryptocurrency. I can now realize many indications that can provide initial answers to the research questions. My analysis indicates that cryptocurrency is very likely to be the next currency platform due to the large volume of cryptocurrency that is flowing in different systems, the huge expanding and growing of using and implementing cryptocurrencies and the opportunities that cryptocurrency systems offer.

Moreover, the confidence and trust rate of using cryptocurrency is noticeably high as it can be seen in several cases that have been stated in this paper besides the survey results.

However, users have not realized the full picture of using cryptocurrency. In fact, many cryptocurrency forms do not deserve that much of trust yet. Many concerns, challenges and issues are existing in many cryptocurrency platforms and they are clearly outlined in the above sections of this paper. Until cryptocurrency is being well regulated and controlled, users need to take extra precautions of using such virtual money.

The future of Cryptocurrency concept is promising, revealing more opportunities to bring positive changes and progress to e-Business and e-Payment sectors. With the rapid progress and improve of technology, cryptocurrency will not stop progressing. There are advanced steps towards improving and expanding the cryptocurrency concept since our study was conducted. More and more vendors are accepting payment with different types of cryptocurrency and many people are now more aware of potentials and opportunities that CC can offer. New forms of virtual currency have also been emerged and spread around the world recently. M-Pesa as example, which is a form of CC that offer a secure payment, has been introduced in Kenya in

2007 and now, it has been expanded into many other countries in Africa, Asia (including India) and Europe creating a highly popular payment service.

The Cryptocurrency field creates a lot of research opportunities and many studies need to be done in order to provide scientific contents. The correlation between the real financial laws and the legislative status of implementing cryptocurrency platform needs to be studied further from various different prospectives. Moreover, the adoption and acceptance level also needs more consideration and more analysis with large samples. Trust and confidence are important factors that need to be investigated further in terms of using and trading the Cryptocurrency forms. The further research scope can be extended to developing use-cases for applications of cryptocurrency across different sectors in India.

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Appendix

Annexure 1: Questionnaire

1. Which cryptocurrencies do you consider to be best known?
   a) Bitcoin b) Ethereum c) Ripple d) Stellar e) Litecoin e) Dash f) Dogecoin g) Other
2. In the next 5 years do you expect Cryptocurrency use will:
   a) Close b) Decline substantially c) Decline d) Remain the same e) Grow in use f) Grow substantially
3. What is your direct experience of using cryptocurrencies?
   a) No experience b) Small amount of experience c) General amount of experience d)Large amount of experience e)Great deal of experience
4. In your view is cryptocurrencies' transaction value more useful in general for payment transactions within a country's or currency bloc's borders (internal), or for payment of cross border transactions where a foreign currency would normally be used?
   a) Internal use is more valuable b) External use is more valuable c) Both internal and external use have equal value d) Don't Know
5. In your view if a company sells goods the virtual currency price should be:
   a) Fixed, until updated daily, weekly or monthly b) Varied instantly to reflect the real time exchange rate of the Home currency price c) Don't Know
6. How important are the following factors as advantages of Cryptocurrencies?

	Very low advantage	Low advantage	Below medium advantage	Medium advantage	Above medium advantage	High advantage	Very high advantage
Anonymity							
Low Transaction Costs							
No Central Authority							
Low Cost for Small Transactions							
International Acceptance							

7. How important are the following factors as disadvantages of Cryptocurrencies?

	Very low disadvantage	Low disadvantage	Below medium disadvantage	Medium disadvantage	Above medium disadvantage	High disadvantage	Very high disadvantage
Exchange Risk							

Theft & Hacking							
Technical Hitches							
No Central Authority							
Volatility of Exchange Rate							
Required Expertise							

8. Please rate the following factors which you consider important for the adoption of Cryptocurrencies

	Most unimportant	Not particularly important	Below average importance	Average importance	Above average importance	Particularly Important	Most Important
Exposure to websites with Bitcoin at checkout							
Improved government legislation							
Education about Bitcoin							
Advertising about Bitcoin							
More stable Bitcoin price							
Major banks accepting proceeds of Bitcoin sales							
Major retail websites							

accepting Bitcoin							
Major Bricks and Mortar stores accepting Bitcoin							
Simplified procedure for Bitcoin purchase							
More secure Bitcoin storage methods							
Governments stamps of approval							
Better tools for E-Commerce Merchants							
Faster transaction process							
Increased payment systems and processors							

9. What would you do if you had $1,000 to spend?
   a) Saving the money in Bank b)Buying Cryptocurrency c) Investing in Stocks or bonds d) Buy iPhone or a drone or VR Headset e) a fancy dinner f) Donating to charity
10. In what ways do you use Cryptocurrencies?
    a) Investing and trading b) making purchases c) As storage of value d) Selling goods and services e) paying outstanding bills f) Online Gambling g) Transferring funds locally h) Transferring funds globally
11. Do you think governments will take into account their citizens' attitude towards cryptocurrencies, when crafting regulation policies?
    a) Yes b) No c) May be
12. How many times have you acquired (bought, mined, were given, or received) cryptocurrencies like Bitcoin in the past 12 months?
13. During the past 12 months, what was the average transaction value for your purchases using cryptocurrencies such as Bitcoin?
14. How often have you used cryptocurrencies for purchases in the past 12 months?
15. How many times do you expect to use cryptocurrencies for purchases in the next 12 months?
16. Would you rather buy off an exchange, or directly from a person?

a) Exchange b) Person c) No preference

17. What is your age?
    a) 18 to 24 b) 25 to 34 c) 35 to 44 d) 45 to 54 e) 55 to 64 f)65 to 74 g)75 or older
18. What is your occupation ?
19. What is your gender? a) Female b)Male
20. What is the highest level of education you have completed?
21. Optionally, please give your general views and comments on the factors affecting the adoption of Cryptocurrencies as mediums of exchange.