

# Development of Cryptocurrency

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**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.

**Keywords-** Bitcoin, Cryptocurrency, cryptocurrency legislations.

## 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..

## II. DESCRIPTION

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 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 Scontrol 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 several real world laws that influence virtual currency use in India. It also presents the legislative situation of VC in some countries.

## 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 obtained by computing or manufacturing effort.

#### 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 survey, 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 stores. Furthermore, users can combine between this method and the method of paying for cryptocurrency. For example Indian 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 mathematical 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.

#### IV. DATA COLLECTION & DISCUSSION

A pilot study has been conducted in March 2019 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 in order to save participants' time and encourage them to participate. I used online survey website called survey monkey 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 a 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

**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, Farm Ville, City Ville, 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, particularly 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 currency. 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 cryptocurrency. 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%.

**C. Confidence in using virtual currency** From our analysis, we found that the use of virtual currencies in different systems is increasing day by day which indicates that the trust of using them is increasing too. According 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.”

## 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 law suits 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 2018 was the year of the Initial Coin Offerings (ICO), it seems as if 2019 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.

1. **China (Hostile):** China is notorious for some of the world's largest bitcoin mines. In 2018, 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 2018, 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.

2. **South Korea (Neutral):** The cryptocurrency market's all-time highs in January 2019 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
3. **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 Coin check, one of Japan's 36 cryptocurrency exchanges. Coin check was in the process of obtaining official recognition from Japan's Financial Services Agency (FSA). The FSA warned Coin check that it had poor cybersecurity that required dramatic improvements. Coin check 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.

4. **Iran (Friendly):** Recent statements from Iran's central bank suggest that Iran is developing a state-run cryptocurrency. On February 21, 2019, 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 2019, Iran's High Council of Cyberspace (HCC) said it would welcome bitcoin and cryptocurrency trading.
5. **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.
6. **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. Coin Spot, 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.

## 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.

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