

A CRYPTOCURRENCY DASHBORD

NAANMUDHALVAN PROJECT REPORT

Submitted by

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INTRODUCTION

ABSTRACT

DASH CRYPTO – CRYPTOCURRENCY DASHBOARD WEB APPLICATION:

Dashe Crypto is a modern cryptocurrency dashboard web application designed to provide users with real-time insights, portfolio tracking, and analytical tools for effective crypto asset management. Built using TypeScript, the application ensures high performance, type safety, and scalability while integrating the Coin Gecko API to fetch live market data. The platform is tailored for both casual investors and experienced traders, offering an intuitive and visually appealing interface.

The application consists of several core modules, each serving a specific purpose. The Register and Login module ensures secure authentication using JWT (JSON Web Token), allowing users to create accounts and access personalized features. Once authenticated, users are directed to the Dashboard, which presents an overview of their total portfolio balance, market trends, and watchlist items. The dashboard dynamically updates with real-time price movements, ensuring users have the most accurate market information at their fingertips.

The Assets module enables users to manage their cryptocurrency holdings by adding, editing, and removing assets from their portfolio. It provides profit and loss calculations, historical price tracking, and visualizations such as pie charts to illustrate asset distribution. In addition to tracking personal holdings, the Explore module allows users to search for and analyze various cryptocurrencies, displaying detailed information such as live price charts, market cap, supply, and historical performance data, all sourced from Coin Gecko.

For deeper market analysis, the Insights module offers users a more strategic approach to investing by providing technical indicators and market trends based on data from Coin Gecko. This module includes tools such as price volatility tracking, historical performance comparisons, and market sentiment analysis, helping users make informed trading decisions. It also provides heatmaps to highlight the top gainers and losers in the market.

The system architecture follows a structured approach, with the frontend developed in React.js with TypeScript to ensure a responsive and scalable user experience. The backend, built using Node.js and Express.js, handles API requests, authentication, and database interactions. A PostgreSQL or MongoDB database stores user portfolios, preferences, and historical data. Security is a top priority, with JWT-based authentication ensuring secure user access and data protection.

As Dashe Crypto evolves, additional features such as Web3 wallet integration, automated trading, and AI-powered investment recommendations are planned to enhance its functionality. The long-term vision is to create a comprehensive, all-in-one platform for cryptocurrency enthusiasts, combining market insights, portfolio management, and advanced analytics into a seamless user experience.

OBJECTIVES:

- Provide real-time cryptocurrency market data.
- Display historical price charts and trends.
- Enable users to create and manage a portfolio.
- Offer news updates related to cryptocurrency markets.
- Provide alerts and notifications for price changes.

FEATURES:

User Authentication:

- User Registration & Login
- Two-factor Authentication (2FA)
- Profile Management (User Avatar & Settings)

Dashboard:

- Dark-themed UI with a clean, modern look.
- Side Navigation Panel with options: Dashboard, Assets, Explore, Insights.
- Total Balance Display with a visibility toggle.
- Portfolio Section displaying owned cryptocurrencies and their total value.
- Live Cryptocurrency Prices with real-time updates.
- Bitcoin Price Widget with price fluctuations and percentage change.

Portfolio Management:

- Add/Delete Cryptocurrencies.
- Track Portfolio Value.
- Profit & Loss Analysis.
- Detailed view of individual holdings, including BTC balance and equivalent value.

Charts & Analytics:

- Historical Price Trends.
- Candlestick & Line Charts.
- Volume & Market Sentiment Analysis.
- Live price graphs integrated with market fluctuations.

News & Updates:

- Aggregated Crypto News.
- Personalized Alerts.
- Twitter & Reddit Crypto Sentiment Tracker.

Notifications & Alerts:

- Price Change Alerts.
- Market News Updates.
- Customizable Notifications.

TECHNOLOGY STACK

Frontend

- React.js with Vite for fast performance,
- Tailwind CSS / Bootstrap for UI styling,
- Chart.js / D3.js for data visualization.
- The frontend is optimized for responsiveness and provides a seamless user experience across devices.

Backend

- MongoDB is used as the primary database for storing user profiles, transactions, and historical market data.
- Express.js is used as the backend framework for managing API requests and server-side operations.
- AWS S3 is utilized for storing images, documents, and other static assets securely and efficiently.

Cloud Storage

AWS S3 is used for secure storage of static assets, including user-uploaded images and documents.

APIs & Integrations

- The application integrates CoinGecko API for real-time market data,
- AWS for cloud storage and authentication
- Web3.js for blockchain interaction.

System Architecture

The client-side fetches and displays real-time data. The server-side handles API integration and database management. The database stores user portfolios, preferences, and market data snapshots. External APIs fetch real-time cryptocurrency data. The system also includes a background job scheduler to update portfolio values and send periodic alerts.

Security Considerations

Security measures include secure API authentication, data encryption, protection against SQL Injection & XSS attacks, and regular security audits. The application also implements OAuth authentication for secure third-party integrations and encrypted wallet connections. Additionally, the system includes fraud detection mechanisms and user activity monitoring to prevent unauthorized access.

Future Enhancements

Future updates may include an enhanced user interface with a customizable dashboard, integration with decentralized finance (DeFi) platforms, multi-language support, and a mobile app version with push notifications. The addition of advanced trading analytics, margin trading support, and staking enhancements is also planned.

PROBLEM DEFINITION

RELEVANCE OF THE STUDY

- This study is relevant to understand deeply the impact of cryptocurrency on investors decision making and the economy.
- It plays vital role in financial investments nowadays and helps raising digital capital and does affects growth of economy.
- To meet the current requirements of the digital era and influence decisions of the investors.
- Analysing the strengths and weaknesses of cryptocurrency in India.
- Analysing the current position of cryptocurrency and its investors.
- Providing information about the economic position of the economy post introduction of cryptocurrency.
- Studying the change cryptocurrency have made on investors and economy.

DATA COLLECTION AND RESEARCH

METHODOLOGY

TYPE OF RESEARCH USED.

Research can be classified in many different ways on the basis of methodology of the research, the knowledge it creates, the user groups, the research problem it investigates, etc. Following is the methodology that we have used in research:

Quantitative Research:

In natural and social sciences, and sometimes in other fields, quantitative research is the systematic empirical investigation of observable phenomena via statistical, mathematical, or computational techniques. The objective of quantitative research is to develop and employ mathematical models, theories, and hypotheses pertaining to phenomena. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships.

Quantitative research is generally closely affiliated with ideas from 'the scientific method', which can include:

- The generation of models, theories and hypotheses.
- The development of instruments and methods for measurement.
- Experimental control and manipulation of variables.
- Collection of empirical data.
- Modelling and analysis of data.

SWOT ANALYSIS

Bitcoin strengths: cryptocurrency can't be tracked or stolen.

Bitcoin uses blockchain (a peer-to-peer) network between the sender and the receiver. Only these two parties are involved. It's unlike any other method of transferring currency — which involves a third party, like a bank. A middleman is prohibited from Bitcoin transactions.

And since that pesky third party doesn't exist, it makes Bitcoin a tax-free currency. The government doesn't control or regulate Bitcoin.

For most Bitcoin users, this is an insane positive because it's not folly to economic turmoil. Bitcoin's worth is agreed upon by the sender and the receiver. Not an institution. Even if the economy crashes, Bitcoin can survive.

Surprisingly, this isn't why Bitcoin's popularity skyrocketed within the last few years.

The real strength is the secrecy.

Every person in the Blockchain network has a private wallet address. Trading Bitcoin is fully anonymous. It's 100 percent untraceable. Unless you decide to make your wallet address — but the majority of users don't. Because the anonymity makes your financial data fully hidden.

A unique PIN number assigned to each Bitcoin masks the identity of the seller. Once the Bitcoin is sold, the PIN changes anew. At this point, only the buyer knows the PIN. It's irreversible, unless the current owner decides to change the ownership back.

Although this means nothing can be done once the Bitcoin is sent, it also means you can't steal this currency. You can steal your physical wallet. You can steal credit card info and hijack your online bank account. But you can't steal Bitcoin.

It's because of this increased security that pushes people towards cryptocurrency.

Bitcoin weaknesses: crippling slow transactions and accessibility loss.

Bitcoin transactions aren't as fast as they were a few years ago. This is one of the downsides of Blockchain: the more people use it, the more Blockchain limits your transactions speeds.

Basically, the blocks get bigger the more it's in use. Making the whole process clunky and slow. Until this problem is resolved, it's unlikely Bitcoin currency will usurp conventional credit card usage.

The system isn't the only issue.

Don't forget about the Bitcoin wallet password problem. Since the transactions are encrypted, recovering a lost password isn't possible. You'd be surprised how often people forget their password and lose access to their Bitcoins. In fact, one man bought a few Bitcoin years ago when it was dirt cheap. Now it'd be worth millions... if only he could find his password to his wallet.

Bitcoin opportunities: Safety from compromising data breaches

As a society, we're moving away from physical money in favor of cashless currencies. In fact, big names like Amazon are already accepting Bitcoin as payment for their goods. If companies the size of Amazon are recognizing Bitcoins' viability, it's safe to assume others will follow.

Bitcoin threats: the anonymity against governments and banks.

Anonymity is a benefit. An opportunity. But it's also a problem.

In the wrong hands, anonymous buying is dangerous. Knowing the transaction is untraceable will attract the attention of criminals. Because let's be honest: the more people accept Bitcoin, the more it'll likely be used for more nefarious reasons.

It'll also be a problem for the government or law enforcement, after all. If more criminals adopt Bitcoin into their illegal purchases, law enforcement will face a challenge in finding and prosecuting these criminals.

As such, we may see more policies and laws regarding cryptocurrency. Although it may be difficult to enforce thanks to the anonymity, the government will still try.

People fear the consequences of these bills. New tech policies miss the mark. Not enough government officials understand the implications of using Blockchain and cryptocurrency. Instead of learning, they're more likely to slap on a bill and hope for the best.

Bitcoin isn't the only cryptocurrency on the market. After its rise in popularity, alternatives like Ethereum and Peercoin hit the markets. If the value of these alternative skyrockets, Bitcoin may be in trouble. To be honest, the overall value of cryptocurrency and lack of reliability is a threat to Bitcoin and its competitors.

And just because cryptocurrency appears infallible now, doesn't mean it will in the future. As more information about it surfaces, the holes will reveal themselves. People, such as criminals, will take advantage of the issues ASAP.

BENIFITS OF CRYPTOCURRENCY

Benefits of cryptocurrency

Job opportunities

With many startups re-entering the market, competition for top talent in the area of blockchain technology and cryptocurrencies may increase. From blockchain developers to programmers, production engineers and project managers, there will be many suitors for top talent in the field of blockchain. Industry consultants, advertisers, content developers and group administrators among others will now have a major role to play in the national embrace of cryptocurrencies that will now be sought by many startups. The RBI will now be encouraged to help control the world of opportunities that cryptocurrencies generate. The stance made clear by the Supreme Court should that the RBI rethink its restrictive approach to cryptography and then come up with more balanced and well-thought-out rules to protect the public interest and that of other ecosystem stakeholders. The RBI can take a leaf out of its global peers, as many central banks have launched their cryptocurrencies in other countries. Nonetheless, the expectation here is that the latest measures will press for more acceptance and tighter enforcement.

Immunity from theft

At present, the financial system, and the resultant economy, is not immune to robberies or fraud. As we know the planet is becoming more vulnerable to complex leaks and hacks. With several ransomware attacks, data leaks from top-notch banks and credit card companies, news headlines have been abuzz in the last few years. India was going digital at the time, the base of which was built on Aadhaar authentication, Jan Dhan accounts etc. However, the same does give rise to flaws in technology, with criminals planning to break the authentication mechanism of Aadhaar or Jan-Dhan accounts. In making cryptocurrencies all verified transactions must be deposited in a public ledger. To ensure the legitimacy of record keeping, all identities of the coin owners are encrypted. You own it because the currency is decentralized. It has no power over either the government or bank.

Accessibility

Blockchain is the reason why crypto-currency is worth something. Ease of use is the reason why there is a high demand for crypto-currency. All you need is a mobile screen, an internet connection, and you easily make payments and money transfers to your accounts. There are more than two billion people with access to the Internet who cannot use conventional forms of trade. These people are clued-in to the crypto-currency market.

Global economies

Crypto-currency presents Indians with a golden opportunity to be on par with the global economy, particularly the present burgeoning millennial generation. A cryptocurrencies-led economy is a decentralised economy. There is plenty of time and money to secure third-party approvals, and all the time and energy spent in negotiations will no longer be needed when buying, for example, a house etc. Considering some of the trailblazing and epoch-making trends of the past, including the emergence of the internet, the technological economy, the creation of Silicon Valley etc., India has just sought to balance the pace of global innovations.

CRITICISM OF CRYPTOCURRENCY

Criticism of cryptocurrency

The semi-anonymous aspect of cryptocurrency transfers makes them ideal for a variety of illegal practices, such as money laundering and tax evasion. Crypto-currency supporters, though, also strongly respect their anonymity, citing privacy advantages such as protection for whistleblowers or dissidents living under oppressive regimes. Some cryptocurrencies are more intimate.

The cryptocurrency form is not exempt from any financial and security issues. I reviewed many studies and cryptocurrency networks and even explored several markets for selling cryptocurrency to investigate the difficulties and problems that occur in this interactive phenomena.

Money laundering

Money laundering is one danger that is highly likely to increase with the usage of VC especially with platforms that allow users to exchange virtual currency with real money. In realistic situations, the police detained a group of 14 people in Korea in 2008 for stealing \$38 million from virtual currency transactions. The group translated the \$38 million that gold farming produces from Korea into a paper firm in China as purchasing payments.

Black market

Perhaps one of the biggest drawbacks and security issues affecting blockchain is its potential to promote criminal activity. There are several anonymous trades on the grey and black markets denominated in Bitcoin and other cryptocurrencies. For example, Bitcoin was used by the notorious “dark web” platform Silk Road, promoting illegal drug sales and other criminal acts before being shut down in 2014. Cryptocurrencies are now highly common money-laundering devices. They unlawfully acquired money by funnelling through a “safe” conduit that conceals the origins. For examples, when a gamer wants to leave a game, he/she may want to sell the virtual currency that he/she owns by selling it in the game forums. The way payments are collected is dangerous because many fraudulent users can not complete the payment, or challenge after payment. They will then get their money back plus the virtual currency.

Tax evasion

Since national governments do not oversee cryptocurrencies, cryptocurrencies typically remain outside of their direct jurisdiction, attracting tax evaders naturally. In Bitcoin and other coins, several small companies pay workers. They do so to reduce payroll tax responsibility and to help avoid income tax obligation for their workers. Even they embrace tokens from online traders to attempt to escape selling and income tax responsibility.

No refunds

The notion of such an arbitrator violates the decentralizing spirit at the heart of the new theory of cryptocurrencies. What this means is that if you’re robbed in a crypto-currency deal you don’t have someone to turn to. Although cryptocurrency miners play a role in cryptocurrency transactions as quasi-intermediaries, they are not responsible for arbitrating conflicts between the transacting parties. An example is to pay upfront for an item that you never get. Large payment providers such as MasterCard, Visa and PayPal also move in to help solve conflicts between buyers and sellers. Their method of paying for, or refunding, is intended to avoid vendor fraud. Although some newer cryptocurrencies seek to resolve the surrounding chargebacks or refunds problem, the solutions remain incomplete and still unproven.

Data loss

Considering a virtually uncrackable source code, impenetrable authentication protocols (keys) and sufficient security protections (which Mt. Gox lacked), keeping money in the cloud or a physical data storage unit is better than in a backpack or back pocket. Also, those who store their data in a single cloud provider will risk failure if the server is physically compromised or removed from the internet. The early advocates of crypto-currency believed that, if properly protected, digital alternate currencies agreed to help a definitive step away from traditional cash, which they find to be unreliable and potentially dangerous. All this means cryptocurrency consumers are taking reasonable and appropriate measures to avoid data loss. For example, if their computer is lost or robbed, the consumers who store their private keys on single physical storage devices will incur a permanent financial loss.

High price and not exchangeable

The most popular cryptocurrencies, those with the highest dollar market capitalisation, have dedicated online exchanges allowing direct exchange for fiat currency. The remaining cryptocurrencies have no dedicated online exchanges. Many cryptocurrencies have few extraordinary units and are concentrated in the hands of a handful of individuals (often currency developers and close associates). For fiat currencies, they are therefore not explicitly exchangeable. Instead, before the fiat currency conversion, consumers could turn them into more widely used cryptocurrencies, including Bitcoin. These holders manage currency stocks efficiently, making them vulnerable to fluctuations in wild valuation and simple manipulation. This suppresses competition for some less-used cryptocurrencies, and thus the valuation of others.

CRYPTOCURRENCY IN INDIA

INTRODUCTION

Crypto currencies could provide a significant benefit by overcoming the lack of social trust and by increasing the access to financial services (Nakamoto, 2008) as they can be considered as a medium to support the growth process in developing countries by increasing financial inclusion, providing a better traceability of funds and to help people to escape poverty (Ammous, 2015).

To provide a comprehensive overview of the opportunities of crypto currencies in developing countries, it is necessary to understand the general advantages and disadvantages crypto currencies provide for users compared to central bank-issued fiat currencies, like the Euro or the US dollar, and to discuss how they emerge from the underlying technology. For this purpose, the example of two crypto currencies is used in this paper. The underlying technology of most crypto currencies is blockchain technology. A blockchain is a decentralized database that is distributed in the network on a variety of computers. It is characterized by the fact that its entries are summarized and stored in blocks.

TIMELINE OF RBI AND CRYPTOCURRENCY

- In the last few years, India with a population that is over 1 billion strong has been experiencing something of an economic renaissance. This was the degree to which the world developed that the International Monetary Fund called it the fastest-growing developing economy. Over 40 per cent of the country's population has access to telecommunications and Internet services. A country steeped in mystery, history and culture, when it comes to technological advancement, it's not one to fall behind either. Bitcoin and other cryptocurrencies traded throughout the nation for many years now.
- The cryptocurrencies story began in 2008 when a paper titled "Bitcoin: A Peer to Peer Electronic Cash System" was published by the name of Satoshi Nakamoto by a single or group of pseudonymous developers. The real network only took some time to launch with the first transfers that took place in January 2009. A year later the first actual sale of an item using Bitcoin occurred with a user swapping 10,000 Bitcoin for two pizzas in 2010, which for the first time attached a cash value to the cryptocurrency.
- By 2011, other cryptocurrencies started to emerge, all making their debut with Litecoin, Namecoin and Swiftcoin. Meanwhile, the cryptocurrency Bitcoin that started it all began to be criticized when reports arose that it was being used on the so-called "dark web," particularly on sites like Silk Road as a way of paying for felonious transactions. Over the next five years, cryptocurrencies slowly gained momentum with an increased number of transactions and Bitcoin's valuation, the most common cryptocurrency soared from around \$5 in early 2012 to about \$1000 by the end of 2017.
- Riding on the back of this popularity surge, multiple cryptocurrency exchanges started operating in India between 2012 and 2017, offering much-needed depth and liquidity to the cryptocurrency sector in India. Those included common exchange platforms like Zebpay, Coinsecure, Unocoin, Koinex, Bitxoxo and Pocket Bits.

- India's RBI released a press release warning the public against virtual currency mining, like Bitcoin mining back in 2013. With the price of shooting up cryptocurrency and their increasing acceptance and usage by people outside the conventional cults, authorities around the world started to consider this emerging development. RBI's First Press Release warning consumers about Virtual Currency Risks were:
- No central bank funds Digital currencies.
- Value is a question of speculation, not of an asset or a good.
- RBI has not permitted trading or the use of virtual currencies.
- RBI is in the process of reviewing the proposed regulatory structure for cryptocurrencies in India and will give further directions based on their review.
- Prime Minister Narendra Modi announced a demonetization program initiated on November 8, 2016. The government's decision to demonetize about 86 per cent of the country's paper currency sent shockwaves across India's subcontinent. People with substantial cash reserves wanted a new way to keep their capital without significant tax pressures and sundry policy oversight. Buying massive orders of Bitcoin or other cryptocurrencies became standard practice for others and then trading them at a later date. This meant that they circumvented what should have been large taxation had they wanted to transfer their money into the financial sector.
- Transaction volumes and acceptance of cryptocurrencies in India picked up in earnest just after the demonetisation of high-value currency notes in November 2016, with the government focus on digital payments contributing to alternatives to mainstream online banking such as cryptocurrencies pushing their way into public consciousness. Indian cryptocurrency exchanges began to accumulate customers at a much higher rate than pushed up demand on all Indian exchanges for cryptocurrency transactions.
- The 2016 demonetization policy may have sparked the adoption of cryptocurrencies among a large portion of the population but soon realities started to surface that stifled the country's market development. Despite its large population, India contributes just 2 per cent of the overall global blockchain industry capitalising. The small role that such a large economy plays can be attributed to high cryptocurrency prices & government crackdown led by the RBI.
- In November 2017, under the chairmanship of Shri Subhash Chandra Garg, Director, Department of Economic Affairs, Ministry of Finance and composed of Shri Ajay Prakash Sawhney (Director, Ministry of Electronics and Information Technology), Shri Ajay Tyagi (Chairman, Securities and Exchange Board of India) and Shri B.P., the Government of India formed a high-level Inter-Ministerial Committee. The Committee's task was to research different problems relating to virtual currencies and to recommend concrete steps that could be taken in conjunction with them. In July 2019, this Committee submitted its opinion proposing a ban on private cryptography.
- Both the RBI and the Ministry of Finance released press releases in December 2017 advising the general public about the hazards and threats associated with cryptocurrencies, with the Ministry of Finance Press Release noting that cryptocurrencies are like Ponzi schemes, and also announcing that they are not currencies or coins. It should be noted here that until the end of March 2018, the RBI and the Ministry of Finance had released numerous press releases on cryptocurrencies warning people against their threats but none of them either took legal action or gave enforceable guidance against cryptocurrencies.
- On 1 February 2018: In the Union Budget Statement, Finance Minister Arun Jaitley said that cryptocurrencies are not a legal tender and cannot be used as part of the payment systems. If anyone does, the government will come down harshly and cryptocurrency won't be permitted because they can be used for illegal operation.

- The RBI directed banks to stop servicing cryptocurrency exchanges before there was a clear policy in effect. The circular dated 6 April 2018, in which the RBI prohibited commercial and cooperative banks, payment institutions, small financial institutions, NBFCs and payment system providers from not only trading with virtual currencies themselves but also ordering them to avoid offering services to all organizations dealing with virtual currencies. With immediate effect, all licensed agencies have been barred from managing or delivering services to any person or company dealing with or settling virtual currencies.

LAWS RELATED TO CRYPTOCURRENCY

Guidance should be taken from other jurisdictions that have already had extensive discussions and workshops on this subject while evaluating the legal approach on cryptocurrency. The U.S. The Uniform Law Commission has drafted legislation on the issue, the ‘Uniform Regulation of Virtual Currency Businesses Act’ (‘ULC Model Law’), after reviewing the opinions of policymakers, members of the public, non-profit groups and leading leaders of the industry. Crypto-assets are a common phenomenon rather than a regional authority, thus, making global precedents easy to apply to the Indian context.

The Prevention of Money Laundering Act (PMLA)

Is the definitive Indian law on KYC/AML(Know your Customer/ Application lifecycle management). Crypto-asset undertakings may be brought under the PMLA as any entity that is a ‘bank company, financial institution, intermediary or a person carrying on a designated business or profession.’ In any event, the RBI has the power to prescribe enhanced or simplified measures under the Prevention of Money Laundering (Maintenance of Records) Rules to verify the identity of the client. Consideration of the type of customer, corporate arrangement, complexity and importance of the transactions concerning the potential risk of money laundering and terrorist funding.

The RBI will adopt a risk-based strategy and mitigate money laundering issues while preventing a full ban on funding these businesses. This will require accountable and reputable businesses to work in a controlled manner. The RBI Circular might not be appropriate for that approach. A new regulatory system will require responsibilities for crypto-asset companies, such as financial adequacy, audits and monitoring. A proposed licensing system will help to better safeguard customer safety.

Payment and Settlement System Act, 2007

PSS Act Sections 10, 18, and 38 grant the RBI the authority to create rules, directives, and guidance. That is, for example, the control the RBI uses to enforce the Master Directive on Prepaid Payment Instruments. By this legislation, cryptocurrency trading sites can also be put under a licensing regime under the PSS Act. The guidelines released by the Department of Banking Regulation (DBR), RBI, on Know Your Customer (KYC)/Anti-Money Laundering (AML)/Combating Terrorism Financing (CFT) shall extend mutatis mutandis to all agencies that issue PPIs and their employees. This solution will require suitable exemptions in the RBI Circular, as RBI-regulated organizations are currently totally barred from dealing with, or encouraging, virtual currency trading under the circular.

Non-Banking Finance Companies (NBFC)

It puts crypto-asset market operation into a well-established regulatory framework, which requires licenses, financial adequacy, KYC / AML laws, audits, reports and other consumer-focused criteria. The business of an NBFC is defined in Section 45-I of the RBI Act. An NBFC is defined as a variety of categories of ‘financial institutions’ excluding undertakings of mainly buying or distributing products or delivering services and businesses collecting deposits as their main business. This provision grants the RBI the authority to designate any class of entities as NFBCs, with the prior approval of the Central Government. The RBI and the Central Government can, therefore, consider NBFCs to be notifying entities carrying on ‘crypto-asset business activities’.

Consumer Protection Act, 2019

Under Section 30A of the Consumer Protection Act, the National Consumer Disputes Redressal Commission has the authority to make regulations “to provide for all matters for which coverage is required or expedient to give effect to the provisions of this Act.” The Consumer Protection Act 2019 protects consumers from ‘unfair trade practices,’ ‘deficiencies’ in facilities and ‘defects’ in goods. The word ‘unfair marketing practices’ requires a false or misleading advertisement.

Hence, the National Commission is open to developing laws (e.g., establishing a regulatory regime) taking into account the crypto-asset industry’s specific consumer security issues. We suggest this path should also be considered. As a result, customers have redress under the Consumer Protection Act, 2019 where every crypto-asset company renders misrepresentations to customers or offers defective services.

Foreign Exchange Management Act, 1999

FEMA notes that ‘international currency’ is any currency other than Indian currency. The currency of India is limited to any currency expressed in Indian rupees. Consequently, if any crypto-asset can be used to “build a financial risk,” it will amount to “international currency.” The RBI may control the drawing of these FEMA crypto-assets such that only ‘registered persons’ can trade in foreign currency. This would have the benefit of having an increasingly well- established regulatory framework for those concerned with these forms of crypto-assets since they will be subject to all the protections that apply to approved persons. Since certain crypto-assets are called ‘goods’ under FEMA, the regulatory consequences under FEMA (e.g., export compliance) will flow accordingly. However, the RBI did not explain the classification of crypto-assets under FEMA, which confused the issue. The RBI can determine to amend the rules and guidelines on the sale and import of products to clarify their operation concerning crypto-assets.

Information Technology Act, 2000

Any providers of virtual currencies get information and details about their customers. Platforms that allow credit card transactions in virtual currency must also recognize these laws when processing information about credit cards. These data must be maintained and stored with strict levels of confidentiality and security. Otherwise, the Virtual Currency provider can violate data protection and security laws. The Information Technology Act reads with the Rules on Information Technology, 2011 requires that all those responsible for using data follow strict rules. Such laws require the fact and intent for which the information is gathered, the creation and dissemination of privacy policy and the safeguarding of data. It establishes relatively strict cybersecurity standards for every organizational entity managing confidential personal data, and the Central Government that, if it seems appropriate, recommend clear additional steps for crypto-asset business activities. A new Data Privacy Bill is set to be adopted, and when enacted, the same safety requirements will also be recommended under this Law.

Credit Information Companies Regulation Act

There is some suggestion that due to its tremendous growth, the Credit Information Companies Regulation (CICRA) Act, which became law in India in 2005, is likely to be extended to cryptocurrencies. Since cryptocurrency networks are ubiquitous for many activities such as processing, distributing, redeeming, trading, and exchanging cryptocurrency values, the specifications of the CICRA Act may be implemented. According to this Act, Indian individuals' credit details must be obtained in compliance with such legislation as set out in this Act. In the case of illegal data theft, organizations which collect financial information may be held liable. Offshore financial transfers are very common in today's cyberspace, so taking into account the vast amount of persons involved with them, these activities are useful for the security of the individual's concerned personal data.

Prize chits and Chits Fund Act

Both the Prize Chits Act and the Chit Funds Act, 1982 refer to the idea of 'monies'/'money' and 'cash' in the terms 'prize chit,' 'chit' and 'capital exchange scheme' in their meanings. Since crypto-assets are not technically 'money' under Indian law, these meanings must be revised to include the word 'valuable item' (as used in Section 2(c) of the Prize Chits Act, so that, among other valuable items, the aims of these Acts can be applied to the crypto-asset schemes.

Taxation laws

In the virtual currency business taxation legislation ranges from country to country. Many countries place taxes on income produced by virtual currency transactions and some others have only proposed taxation legislation. In India, where RBI notifies any such law, any trade therein would be subject to the Foreign Exchange Management (FEMA) Act, 1999. Crypto-asset-related transaction taxes would fall generally into two headings: Goods and Services Tax (GST), and Income Tax. The Crypto like bitcoins is called a capital asset if bought for profit. Any income resulting from a bitcoin trade shall be treated as a capital gain.

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security laws. The Information Technology Act reads with the Rules on Information Technology, 2011 requires that all those responsible for using data follow strict rules. Such laws require the fact and intent for which the information is gathered, the creation and dissemination of privacy policy and the safeguarding of data. It establishes relatively strict cybersecurity standards for every organizational entity managing confidential personal data, and the Central Government that, if it seems appropriate, recommend clear additional steps for crypto-asset business activities. A new Data Privacy Bill is set to be adopted, and when enacted, the same safety requirements will also be recommended under this Law.

Credit Information Companies Regulation Act

There is some suggestion that due to its tremendous growth, the Credit Information Companies Regulation (CICRA) Act, which became law in India in 2005, is likely to be extended to cryptocurrencies. Since cryptocurrency networks are ubiquitous for many activities such as processing, distributing, redeeming, trading, and exchanging cryptocurrency values, the specifications of the CICRA Act may be implemented. According to this Act, Indian individuals' credit details must be obtained in compliance with such legislation as set out in this Act. In the case of illegal data theft, organizations which collect financial information may be held liable. Offshore financial transfers are very common in today's cyberspace, so taking into account the vast amount of persons involved with them, these activities are useful for the security of the individual's concerned personal data.

Prize chits and Chits Fund Act

Both the Prize Chits Act and the Chit Funds Act, 1982 refer to the idea of 'monies'/'money' and 'cash' in the terms 'prize chit,' 'chit' and 'capital exchange scheme' in their meanings. Since crypto-assets are not technically 'money' under Indian law, these meanings must be revised to include the word 'valuable item' (as used in Section 2(c) of the Prize Chits Act, so that, among other valuable items, the aims of these Acts can be applied to the crypto-asset schemes.

Taxation laws

In the virtual currency business taxation legislation ranges from country to country. Many countries place taxes on income produced by virtual currency transactions and some others have only proposed taxation legislation. In India, where RBI notifies any such law, any trade therein would be subject to the Foreign Exchange Management (FEMA) Act, 1999. Crypto-asset-related transaction taxes would fall generally into two headings: Goods and Services Tax (GST), and Income Tax. The Crypto like bitcoins is called a capital asset if bought for profit. Any income resulting from a bitcoin trade shall be treated as a capital gain.

IMPACT ON ECONOMY

The impact is of cryptocurrencies on the Indian economy is clearly depicted as the prices of cryptocurrency market are now falling down. Indian government has made it clear with their stand of not providing a legal status for cryptocurrency in India. The reason for this kind of a decision from government hails from first, the challenge of monitoring the decentralized transactions in cryptocurrencies are difficult to trace which could be advantageous for the hackers, criminals and also for terrorist activities. The second reason being cryptocurrency market could be a leading competitor for the banking service industry. Cryptocurrency like Bitcoin has become popular in India like other nations as the volume of Indian rupee being traded in cryptocurrency have been at the highest post demonetisation. Researches shows that the volume generated by the rupee dominated cryptocurrency is the third largest volume traded after American dollar and yen.

The demonetization policy of 2016 may have encouraged the implementation of cryptocurrencies amongst a substantial share of the population but realities rapidly began to come out that have subdued the growth of the market in the country. In spite of its enormous population, India only contributes two percent of the whole global cryptocurrency market capitalization. Cryptocurrencies in Indian context portrays few Present and future of Cryptocurrency in India .Presently there is no regulation in India for cryptocurrencies. The absence of a regulation certain bitcoin exchanges such as Unocoin, Zebpay, etc have initiated their operation in trading or cryptocurrencies with Know Your Customer (KYC) norms. The Reserve Bank of India initially was against the trading of cryptocurrencies in India, however in the year 2014 RBI showed its interest in block chain technology used by cryptocurrency to reduce the physical paper currency circulation. In 2015, a financial stability report was published by RBI to identify the importance of private blockchain. In 2016, ICICI bank with Emirates NBD (in terms of assets, one of the largest banking groups in the Middle East) has executed transactions and remittance using block chain technology. Then in 2017, a white paper has been issued by Institute for Development and Research in Banking Technology (IDRBT) of RBI and also a pilot test was taken.

The Union finance minister in his Union Budget 2018 speech said, “The government does not consider cryptocurrencies legal tender or coin and will take all measures to eliminate use of these crypto-assets in financing illegitimate activities or as part of the payment system.” However, the government has recognized blockchain and said that a “distributed ledger system or the blockchain technology allows organization of any chain of records or transactions, without the need of intermediaries. The government will explore use of blockchain technology proactively for ushering in digital economy.”

Though government is taking a cautious approach on cryptocurrencies, it is bullish on the use of blockchain. Cryptocurrency industry believes that blockchain and cryptocurrencies have to go hand in hand. But unless and until a decentralised system is formed, it is as good as keeping track. If only block chain technology is to be accommodated that just builds up a centralised system which gives authority to a person or a body to rectify and modify it.

Experts and observers in the country hope and predict that the government will regulate cryptocurrencies in India in different stages. This favourable and positive signs give hopes to the industry of cryptocurrency. Mean while private companies dealing in cryptocurrencies have set up an association called, the Digital Assets and Blockchain foundation which has been engaged in educating the public on the advantageous and investment avenues in cryptocurrency by conducting security checks, identification documents issued by the government, Permanent Account Numbers (PAN) or Aadhaar IDs.

As the arrival of internet, cryptocurrency also has a tremendous growth potential. With the help of both these factors of internet and blockchain technology, in future there are probabilities of virtual banks in India. Hence to prove it on a positive note the Reserve Bank of India has taken initiatives to launch its own cryptocurrency named as ‘Lakshmi’.

India happens to be at a sweet spot of driving growth and innovation by landing a robust Digital Currency Bill this year. In spite of the several rumors on a potential ban on crypto in India, there are multiple use cases that could be considered by the policymakers who understand the true potential of leveraging crypto and its impact on our economy.

Keeping in mind that our nation’s success in the past three decades has come from ITeS-based solutions, if India is aiming to reach a \$5 trillion economy, we cannot ignore the \$1.7 trillion market that exists for cryptocurrencies. A forward-looking crypto policy can have a significant impact on improving our overall financial infrastructure, help safeguard national security, deter financial frauds, strengthen our monetary policy, attract international capital, create more job opportunities, and retain our tech talent to accelerate technological development, thereby driving the nation towards becoming a global powerhouse.

We will need to prepare for the future and make adequate accommodations to safeguard our global financial positioning. We also have to become ‘Atmanirbhar’ and reduce our dependency in situations like the 2008 financial crisis or the 2020 COVID-19 crash. Cyberwarfare also poses a sizable threat in our rapidly digitizing country. A decentralized financial platform could help India resolve such issues and have an added advantage as these platform networks will not be blocked by any single state or country in times of national distress or conflict. The other advantage here would be that if we could create our own social networks on Ethereum, it would help build a decentralized ecosystem, which has its own positive effects

INVESTMENT IN CRYPTOCURRENCY

INTRODUCTION

If the mega cryptocurrency has left you nervous, especially if you are an investor in digital coins like Bitcoin or Ethereum, hold your nerves as there is a silver lining in the mayhem the crypto asset class experienced last week.

While the short volatile period has widely been touted as a course correction (one Bitcoin is currently hovering around \$37,000 after touching a record high of nearly \$60,000 just a couple of weeks ago), industry experts are of the view that staying invested and thinking long-term is the thumb rule to follow for crypto investors in the country.

India is increasingly adopting Bitcoin and other cryptocurrencies. According to reports, the country currently has more than one crore crypto investors, and the number is significantly growing every day with several domestic crypto exchanges operating in the country.

Despite the Reserve Bank of India (RBI) being wary of cryptocurrencies, Indians are making a beeline to invest in the digital coins, touted as the most important asset class of the 21st century.

According to Rahul Pagidipati, CEO, ZebPay, Indian investors are learning to view Bitcoin as an asset class that belongs in every long-term portfolio.

"Indians own less than 1 per cent of the world's Bitcoin. Being left behind will create a strategic disadvantage for the Indian economy. In 2021, we expect more institutions and government officials to recognise that we need to close the Bitcoin gap," said Pagidipati.

In April 2018, the RBI ordered financial institutions to sever ties with individuals or businesses dealing in virtual currency such as Bitcoin. However, in March 2020, the Supreme Court allowed banks to continue handling cryptocurrency transactions from traders and exchanges, giving a respite to the crypto investors. In March this year, Finance Minister Nirmala Sitharaman said that all windows on cryptocurrencies will not be closed down, bringing further relief to the stakeholders.

Earlier this month, RBI Governor Shaktikanta Das said that the central bank has flagged major concerns over cryptocurrency to the government.

Amid the uncertainties lies the fact that a 40 per cent dip in the Bitcoin price from its all-time high looks dramatic but is normal in many volatile markets, including crypto, especially after such a large rally, say industry players.

"Such corrections are mainly due to short-term traders taking profits. Investors should invest in education first. Research the underlying value of Bitcoin, Ethereum, and other crypto assets as you might look at a company's information before buying stocks," said Avinash Shekhar, Co-CEO of ZebPay.

Buyers are aggressively accumulating more and more Bitcoins. This is the driving factor that has propelled the price growth of the digital coin. According to Prabhu Ram, Head-Industry Intelligence Group, CMR, if one were to look back at the last decade, such volatility is consistent and on par for crypto.

"While over the short term, one may feel concerned, the long-term horizon view is positive. Going forward, Bitcoin will continue to remain a small but significant investment in the investor portfolio," Ram told IANS.

The key industry players feel that India is a tech and economic power that will emerge as a key player in crypto and Blockchain adoption.

According to Sumit Gupta, CEO and co-founder of cryptocurrency exchange CoinDCX, cryptocurrency has "now classified itself as a macro asset class for investments that can't be ignored.

"It will further lead greater mainstream acceptance than ever before," Gupta had told IANS.

INVESTORS IN CRYPTOCURRENCY

India has never been kind to cryptocurrencies, yet global investors have made huge bets on the country's digital coin ecosystem.

In November 2019, Binance, the world's largest cryptocurrency exchange by trade volumes, acquired WazirX, an Indian exchange, and last year, another Indian exchange, CoinDCX, secured financing from Seychelles-based BitMEX and San Francisco-based giant Coinbase.

These investments happened despite the fact that for around two years starting April 2018, financial institutions in India were restricted from providing services to crypto exchanges and their customers due to a Reserve Bank of India order. This ban forced at least two crypto exchanges to shutter. And even now, crypto exchanges in India are functioning without the services of banks.

But experts believe such investments are likely to continue coming into India.

"There is an increasing trend of foreign cryptocurrency exchanges investing in Indian cryptocurrency exchanges. It is because India has a population of 139 crore that is predominantly young which is seen as tech-savvy and more adaptable to crypto saving," said Harish BV, co-Founder, Unocoin, which has a userbase of 13 lakh in India. The median age of Indians is between 28 and 29 years.

In 2018, India's then-finance minister Arun Jaitley had dealt a death blow to the future of cryptocurrencies in the country. "The government does not recognise cryptocurrency as legal tender or coin and will take all measures to eliminate the use of these crypto-assets in financing illegitimate activities or as part of the payments system," Jaitley had said. Such remarks, coupled with the RBI ban, nearly drove the Indian crypto ecosystem to death.

But in March 2020, when India's apex court set aside RBI's circular and allowed financial institutions to engage in digital coin transactions, investors returned to the market with a vengeance. Within weeks of the RBI ban lifting, trading volumes and new sign-ups on crypto exchanges went up multifold. Since then, the volumes and userbase of these exchanges have expanded each month.

"We have been receiving investments consistently since our inception three years back," said Sumit Gupta, CEO and co-founder of CoinDCX. "Investors trust us despite the policy uncertainty. They have seen, how we as a leading player in the industry have grown, and above all the Indian market does offer a lucrative proposal for any investor."

Experts assert that the demand for cryptocurrencies is booming and the untapped market potential is vast.

“While there is no official data on the number of crypto investors in India, exchanges like WazirX estimate that 70 lakh-80 lakh investors are holding over \$1 billion in crypto investments,” said Nicklas Nilsson, senior analyst at GlobalData. “Industry estimates suggest a potential investor base of upwards of 10 crore. The sheer size of the Indian market makes it an attractive option.

Besides the huge growth potential, what is driving investments into India is the huge cash reserves that global crypto exchanges hold.

Rising revenues and investor financing mean that global giants are flush with cash, which they are using to expand into newer markets and take advantage of various trends in the cryptocurrency space.

FUTURE IN CRYPTOCURRENCY

The use of Bitcoin and Ethereum could help strengthen India’s monetary policy and bridge the gap areas that exist in the current fintech landscape. Crypto’s distributed ledger technology permits faster, direct transactions by the users and also helps keep track of every digital transaction, which is far more advanced and effective than existing protocols such as SWIFT. Secondly, Bitcoin can be used as an asset that sovereigns use to complement their national digital currencies. It also reduces the burden on regulators by allowing them to write programs that certify that financial actors are in complete compliance with the regulators. We can avoid instances such as mortgage fraud and other fraudulent activities.

In other words, the evolution of Bitcoin and cryptocurrencies holds economic importance similar to the internet in the 90s. The second unique crypto called Ethereum, which enabled smart contracts, gave birth to an entire sector called decentralized finance (DeFi). DeFi is to build a multi-faceted financial system that boosts the functionality and helps improve the legacy or the traditional financial system. DeFi alone has created disruptions in the fintech space and, in the future, DeFi neo banks will play a pivotal role to successfully bridge the gap between fintech and DeFi to attract new customers. Therefore, Blockchain-based accounting holds the potential to empower regulators to monitor their activities and conduct risk management seamlessly.

We are all aware of the devastating impact that COVID-19 has had on the Indian economy and the global market at large. Despite this, crypto has been generating jobs across a variety of functions in India and abroad. As of today, over 300 start-ups have generated tens of thousands of jobs and hundred-millions of dollars in revenue and taxes. The ongoing development will inevitably lead to tech talent being engaged in India. Indian youth seeks challenging opportunities to work on projects which are internationally competitive and also help support improving our tech infrastructure.

In March 2020, two major events occurred which have boosted crypto adoption in India – i.e. the Supreme Court’s historic verdict and the pandemic. WazirX completely caters to the Indian market and has seen tremendous growth since then. Several Indians have lost jobs, and this has led them to invest in cryptocurrency to earn a side income by becoming traders, technical analysts, or crypto influencers. Globally, many institutional investors, including hedge funds in the US along with the giants like Square and PayPal, are entering into crypto and are in a buying mode. This has also given a push to Bitcoin adoption.

DATA ANALYSIS AND **INTERPRETATION**

DATA ANALYSIS.

Analysis of data is a process of inspecting, cleaning, transforming, and modelling data with the goal of discovering useful information, suggesting conclusion, and supporting decision making.

The process of evaluating data using analytical and logic reasoning to examine each component of data provided... Data from various source is gathered, reviewed and then analysed to form some sort of finding or conclusion.

Why do we analyze data?

The purpose of analyzing data is to get usable and useful information. The analysis, irrespective of whether data is quantitative or qualitative, may:

- Describe and summarize the data.
- Identify relationship between variables.
- Compare variables.
- Identify difference between variables.
- Forecast outcomes.

Hypothesis analysis

Testing of Hypothesis

Hypothesis 1-

H0- There is positive impact of cryptocurrency on Indian economy.

H1-There is negative impact of cryptocurrency on Indian economy.

According to the research analysis here H0 stands true and verified as cryptocurrency have positively impacted the economy of India . though there are no drastic changes as such but still a lot of scope for a good effect of cryptocurrency market in India.

H1 stands nullified as per the research as there do not seem any harsh negative impact of cryptocurrency on the economy of India and currently seems no scope for the same.

Hypothesis 2

H0 - cryptocurrencies have significantly impacted the investment decisions of investors .

H1- cryptocurrencies have least impact on investment decisions of Investors .

According to the data collected and research analysis ,here H0stands true and verified as the introduction of cryptocurrency and changes in its nature have clearly shown significant impact on the investment decisions of the investors .

H1 stands nullified as the statement that cryptocurrency had least impact on investors stands to be proven false clearly as per the data collected.

CONCLUSION

Crypto-currency is such an invention which has become a global phenomenon. Earlier RBI warned the Indians from using cryptocurrency that to be associated with money laundering and terrorist financing. However, cryptocurrency is a modern technology and a tool which needs to look forward for. Even though there has been no regulatory response from the Indian government, the number of investors in cryptocurrency is increasing rather swiftly over the last few years. Indian government should take responsible steps now to regulate such currency as its user in India is rapidly growing. Future of cryptocurrency in India looks promising and there is ray of hope.

Crypto currencies could provide a significant benefit by overcoming the lack of social trust and by increasing the access to financial services (Nakamoto, 2008) as they can be considered as a medium to support the growth process in developing countries by increasing financial inclusion, providing a better traceability of funds and to help people to escape poverty .

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SCREENSHOT

