

LAW AND TECH TIMES

Special Edition on Blockchain and Artificial Intelligence



A Newsletter of Rajiv Gandhi National University of Law,
Punjab

IN THIS EDITION OF THE NEWSLETTER:

- Impact of Blockchain on the Banking System.....2
- Ban on Banks to deal with Cryptocurrency.....4
- Sierra Leone: First Country to conduct voting through Blockchain6
- Supreme Court's Verdict: Dwaipayan Bhomwick v. Union of India.....9
- Impact of EU Privacy Laws on Blockchain11
- Artificial Intelligence and Citizenship.....12

IMPACT OF BLOCKCHAIN ON THE BANKING SYSTEM¹

The banking system is one which impacts everyone's lives. Blockchain is a technology that is going to fundamentally change the way the banking system operates. It is obvious that blockchain will have a massive influence on the lives of every one of us. Blockchain is slated to revolutionize the world at large the way the internet did in the mid-90s. But, what exactly does the term blockchain mean? In what ways will it impact the banking sector? This article aims to break these questions down and explain them.

What is Blockchain?

In the simplest of terms blockchain is an online register (ledger) of transactions, copies of which are stored across thousands of computers. Every transaction is validated by a network of computers and software. This ensures that no transactions are duplicated or faked.

To explain with an analogy, "You (a node) have a file of transactions on your computer (a "ledger"). Two government accountants have the same file on theirs (so it's "distributed"). As you make a transaction, your computer sends an e-mail to each accountant to inform them. Each accountant rushes to be the first to check whether you can afford it. The first to check and validate hits "REPLY ALL", attaching their method for verifying the transaction ("Proof of Work"). If the other accountant agrees, everyone updates their file."² This scenario is only in case the blockchain exists on a public network. One of the most important things to understand

about blockchain is that it can exist on a private network as well. The nodes can just be virtual files on the said network. Additionally, this kind of a system can be used in all those industries where there is a need for transparency and traceability. Supply chain management companies would greatly benefit from the incorporation of blockchain in their systems as it allows for a step by step verification of the tasks being completed.

Impact of Blockchain on the Banking System

Financial Institutions are in a precarious position right now. Banks all around the world are becoming targets of loan scams and have to deal with a massive number of non-performing assets. All of this amid the fact that blockchain is coming for traditional banking services. It is going to revolutionize the industry.

Let's understand how exactly blockchain will impact the system. Banking is a centralized system, there is an authority which dictates and oversees all transactions. It verifies the fact that one has enough money to complete a transaction when paying. **Payments** are governed by the bank and it is up to the bank to allow or disallow a payment. Blockchain, however, is a decentralized system wherein there is no central authority which governs payments. Instead, the payments take place peer-to-peer, directly between the two parties taking part in the transaction without any overseer or middlemen.

The way it will change banking is in the form of **reduction of fees**. In some countries, such as Switzerland, the Banks earn up to 50% of their revenue in the form of transactions fees and overheads charged to the customers. But with blockchain, as there is no middleman (banks), there can't be an overhead charge on the transaction charged by the bank. This would mean that banks

¹ Dhairya Sharma, IIIrd Year, Rajiv Gandhi National University of Law, Punjab.

² Richard Bradley, *Blockchain explained... in under 100 words*, <https://www2.deloitte.com/ch/en/pages/strategy/operations/articles/blockchain-explained.html>.

would receive lesser money as more and more transactions will fall out of their purview.

Additionally, as the transactions will become more decentralized it'll be tougher to keep track of them, which is where blockchain will step in again. Banks no longer would have to maintain a centralized record of all transactions; instead, the transactions can directly be settled on the blockchain. **It will alleviate the processing and settlement time of a transaction.** There is no clunky, centralized record that needs to be verified, in its place is a direct verification of the credentials of the two accounts involved in the transaction.³



Fundraising is another aspect that blockchain is severely changing. Raising money through venture capital is a gruelling activity. Entrepreneurs endure long negotiations over equity in the hopes of exchanging some part of their company for a sum of money. Raising funds on a blockchain doesn't require a platform. Any person can raise money from anyone who might be interested in their project. It is free, dispersed and you get the money instantaneously.

What then is the future one might ask? There is no certainty that as to what degree blockchain will

affect the way we transact today. Certainty lies in the fact that change is inevitable.

Working towards a more secure future is the State Bank of India, leading a consortium of 27 banks, which have come together to form the 'BankChain', to which IBM and Microsoft will reportedly be providing technical assistance for the group as it explores ways to leverage blockchain to **reduce fraud** and improve operational efficiency.⁴

"The project, built on a blockchain called Primechain-ASSET, will see the creation of an exchange for selling and buying stressed assets."⁵

Allowing banks to divide up stressed assets and sell them to other banks, asset reconstruction companies or funds, the blockchain platform comprises a smart contract-powered auction system, built-in regulatory reporting and other features. The blockchain will also offer a repository for documents related to the assets. Currently, financial institutions must perform a labour intensive multi-step process for each new customer. **KYC** costs could be reduced through cross-institution client verification and at the same time increase monitoring and analysis effectiveness.⁶

Blockchain promises a largely problem free future, at least in theory. The only thing that remains now is the implementation and adoption of these systems in the banking industry. The banks and consumers should be excited about what's to come and the myriad ways it'll be changing banking.

⁴ Stan Higgins, *State Bank of India Launches New Blockchain Finance Consortium*, Coindesk (Apr. 21, 2018, 1:29 PM), <https://www.coindesk.com/state-bank-of-india-launches-new-blockchain-finance-consortium>.

⁵ Sujha Sundararajan, *BankChain Project Launches Blockchain Exchange for Stressed Assets*, Coindesk (Apr. 21, 2018, 1:47 PM), <https://www.coindesk.com/indian-startup-launches-blockchain-exchange-stressed-assets>.

⁶ Ameer Rosic, *What is Blockchain Technology? A Step-by-Step Guide For Beginners*, BlockGeeks (Apr. 21, 2018, 2:59 PM), <https://blockgeeks.com/guides/what-is-blockchain-technology>.

³ *How Blockchain Could Disrupt Banking*, CB Insights (Apr. 20, 2018, 10:23 PM), <https://www.cbinsights.com/research/blockchain-disrupting-banking>.

BAN ON BANKS TO DEAL WITH CRYPTOCURRENCY

On April 5, the Reserve Bank of India (RBI) stated that in view of the associated risks, it has decided that, with immediate effect, entities regulated by the RBI shall not be dealing with or providing services to any individual or business entities dealing with or settling virtual currencies. Accounting for almost 10% of the Global Bitcoin trade, the announcement led to crypto-economy and market stirred and shaken in the country. The announcement followed after a number of warnings were issued by the government regarding the risks associated with virtual currency like market integrity, money laundering, concerns over consumer protections; thereby now rendering cryptocurrency an illegal tender.



However, the announcement soon brought upon itself an online petition against it and a suit filed by Kali digital, running crypto- exchange CoinRecoil, in Delhi High Court, alleging violation of Article 19(1)(g) and 14 of the Constitution. Where RBI seems more open to blockchain, the technology that underpins virtual currencies, claiming it to possess potential to improve the efficiency and inclusiveness of the financial system, it will be interesting to note development in the soon-to-follow regime of virtual currency in the country.

DUBAI EMBRACES THE BLOCKCHAIN

Smart Dubai launched a city wide Blockchain strategy in October 2016 with the objective of becoming the first Blockchain powered city by

2020. The Smart Dubai Office (SDO) is leading the implementation of Dubai's Blockchain Strategy launched by His Highness Sheikh Hamdan, is a result of collaboration between SDO and Dubai Future Foundation. In March 2017, SDO kicked off collaboration with IBM as its Blockchain Lead Strategic Partner, and Consensus as Blockchain City Advisor.

To counter the problems of rapid development, as permissions; transaction verification; tracking; outdated processes, Blockchain seemed to be the potential solution to Dubai.

Now, the question arises how this will work? The answer lies in 3 Pillars Strategy: Government Efficiency: Required documents, visas and licenses will be processed and stored digitally through blockchain; Industry Creation: Creation of blockchain industry where private companies and start-ups thrive and innovate. It has set four key action areas: Policy Development; Blockchain Accelerator; Global Blockchain Start Up Competitions; Private Sector Engagement; International Thought Leadership: Opening Blockchain platform for global counterparts , partnering with Europe, North America and Asia. and becoming the hub for blockchain intellectual capital and skill development.

Dubai focuses to bring Blockchain system primarily in real estate sector, transportation, finance, tourism etc. and accordingly Dubai Land Department, Dubai Municipality, Dewa and the Department of Naturalisation and Residency Dubai are expected to launch the earliest pilot projects. Dubai has already started working on that road when it signed a new agreement with U.K. to create digital passports for entry at Dubai International Airport by way of using Blockchain technology.

DO YOU KNOW: HOW BLOCKCHAIN CAN REDUCE BUSINESS RISKS?

Before evaluating the suitability of blockchain in business, we need to understand the proper meaning and working of blockchain vis-a-vis its effect on business. The blockchain is open, shared, incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value that cannot be modified. It is a decentralised platform for innovation.

This technology works on the consensus received from all network members which validates the transaction and all such validated transaction are stored in data blocks permanently and this whole process makes altering or deleting the data almost impractical. Access to a blockchain requires both a public and a private key. Keys are cryptic strings of characters of sufficient length to make the odds of guessing them truly astronomical. It is practically impossible to access data within a blockchain without the right combination of public and private keys.

Blockchain system removes the need of 'middlemen' and brings trust and transparency. It allows the digital currency to be used in a decentralized payment system with no central bank or clearinghouse involvement, removing the need of a middleman and putting power into the hands of consumers, or individual trading partners, as the case may be. However, by eliminating the middlemen, using technology for verification and keeping records, it increases trust factor, eliminates the risk of subjectivity, fraud, human error, reduces per head costs and increases efficiency. Utilizing the Blockchain technology will transform business models from a human-based trust model to an algorithm-based trust model which will in turn not only result in reduced risk as operational risk, fraud risk, credit risk, settlement risk but also benefit the business in respect of Authentication of identity; Accounting system, Payment system, Speed and Security.

NITI AAYOG WORKING TO ADOPT AI AND BLOCKCHAIN IN GOVERNANCE

Though blockchain technology was originally used to create crypto-currencies but has found its use in other fields as well. Niti Aayog is exploring ways in which blockchain can transform governance for India. It is also working on a platform named 'India Chain', a shared India-specific blockchain infrastructure which is to use the power of Trinity-mobile, Aadhaar and Jan Dhan Yojana, to enable blockchain developers to build social applications.

The policy-making body is expected to soon come out with a national policy on artificial intelligence, outlining the scope of research and for the adoption and commercialisation of the technology. The goals

are to be achieved by 2022, 2026 and 2030 and commercial rollout of AI in sectors such as agriculture, health, education, banking, retail and transportation, may be considered.

The Aayog believes that the adoption of AI and Blockchain in the areas of governance will result in significant benefits among others. NITI is also partnering with ISRO and IBM for AI solutions to improve crop productivity and soil health in the farming sector. It will also use remote sensing satellite images and data for the project. The CEO, Amitabh Kant, also talked about possibility of using AI for intent recognition on indigenous languages.

The body said that it is also leading an initiative of making India a leader in the global space on the

Artificial Intelligence (AI) research with focus on adopting AI to address problems faced in developing countries. If all policies materialise smoothly in the reality, India would soon be countering China's thrust towards AI.

SIERRA LEONE: FIRST COUNTRY TO CONDUCT VOTING THROUGH BLOCKCHAIN

After the maximum period as allowed by the Constitution of Sierra Leone, it was time to conduct elections on March 7, 2018 for the successor of the then President, Ernest Bai Koroma. This time, the National Election Commission of the country authorised Agora, a Swiss company to digitalise the system of elections. The company offered to use a Blockchain to tally the votes in the country's most populous district. The exercise involved Agora to have stored over 400,000 ballots on its blockchain-based voting system, which also lets registered voters see the vote tally. Leonardo Grammar, creator of Agora, explained the storage of votes in an immutable ledger, and this technology leading to creation of legitimacy around election, i.e., reducing corruption and reduction of fall-out from opposition parties; believing this election to be beginning of a much larger blockchain voting movement.



Agora stated that it will launch a more decentralized version of its technology as it is in talks with other countries who want to utilize blockchain to curb elections fraud and increase transparency. The journey of blockchain has come

a long way from used solely for creating cryptocurrencies to being used for election process to further beginning a full-fledged era of blockchain in the world.

KERALA TO BE A BLOCKCHAIN TECH HUB IN INDIA

The city of Thiruvananthapuram now joins Vishakhapatnam as Indian centres that will develop blockchain applications. Led by the government's initiatives, the latter is, in particular, fast-tracking its way toward becoming India's Fintech hub. Vishakhapatnam's state government is already looking at using blockchain technology to fight cybercrime. More recently, it was revealed that Visa, the world's largest payments network and Thomson Reuters, a global data and technology provider, will launch operations in Vishakhapatnam to develop financial innovations in digital payments.

To nurture a new breed of high quality professionals in Blockchain Technology. To act as a platform enabling international research/industry collaborations. To serve as a collaborative ecosystem for solving socially relevant problems. To provide a nurturing ground for entrepreneurs and new business development initiatives.

Recently, The Indian Institute of Information Technology and Management-Kerala (IIITM-K) has planned to set up a Kerala Blockchain Academy, arguably the first of its kind in the country. Saji Gopinath, Director, IIITM-K, said that the academy will seek to explore the possibilities of leveraging blockchain technology for public good. Several globally recognised leaders in blockchain technology have expressed willingness to join the advisory and mentor groups at the academy.

DO YOU KNOW: MACHINE LEARNING?

Machine Learning is a data analysis method which uses pattern recognition and minimal human interaction to compute complex data and provide reliable results. It involves computers independently adapting to fresh data and completing tasks for which they weren't programmed. Machine learning has vastly improved the effectiveness of web searches, medical diagnosis and self-driving vehicles amongst a host of other things. Businesses have started to invest in machine learning seeing the development of models with growing ability to process large volumes of complex data. This will help corporations avoid risks and make effective decisions in regard to their business models. There have been progresses in the field of machine learning in the legal industry as well with the development of AI research tools that help in legal research, analysing and reviewing contracts, and other non-client activities. Legal start-ups have started using machine learning driven tools to analyse facts and judgments of cases to logically deduce how a judge might rule and advise clients about their arguments.

TESLA CAR ACCIDENT

Tesla finds itself in a position of discomfort after the 23rd March crash of one of its self-driving cars on US Highway 101 just outside Mountain View, California which resulted in the death of the driver after the car crashed into the median and got quickly engulfed in flames. The Tesla crash is the latest in a series of crashes involving self-driving cars. Earlier in March, a self-driving Volvo being tested by Uber crashed itself in Arizona.



Tesla, in their blogpost stated that the driver of the Model X, Wei Huang, “had received several visual and one audible hands-on warning earlier in the drive and the driver’s hands were not detected on the wheel for six seconds prior to the collision.” Tesla further stated, “We care deeply for and feel indebted to those who chose to put their trust in us. However, we must also care about people now and in the future whose lives may be saved if they know that Autopilot improves safety.”

ARTIFICIAL INTELLIGENCE AS A THREAT TO DEMOCRACY- FRENCH PRESIDENT MACRON

French President Emmanuel Macron, believes that Artificial Intelligence could “totally jeopardize democracy” if left unchecked. In a recent interview with the Wired magazine, Macron said, “AI will raise a lot of issues in ethics, in politics, it will question our democracy and our collective preferences.”

He further said that he is passionate about the development of AI especially in the field of healthcare and mobility, and want France to play an important role in this new technological revolution. He said that technology should be open to scrutiny by the public to ensure public trust, otherwise “people will eventually reject this innovation.”

Keeping up with his ambitions, the president recently pledged to invest 1.5 million Euros to support research and encourage start-ups in the field of AI. France might have missed out on previous technological revolutions but Macron and his aides believe that France has a big card to play in the development of an AI ecosystem in Europe and the rest of the world.

DO YOU KNOW: ETHEREUM?

In simple terms, Ethereum is a decentralized platform that runs smart contracts: applications that run exactly as programmed without any possibility of downtime, censorship, fraud or third-party interference. Ethereum's token, "Ether," works in a similar manner to bitcoin. You can buy and sell it, with confirmations for transactions handled over the blockchain. It's entirely decentralized, with no banks providing the confirmations needed to validate transactions. Instead, "miners" around the world fulfil that role by running powerful computational algorithms. Completing them rewards Ether, much like mining bitcoin rewards bitcoin.

Ethereum enables developers to build and deploy decentralized applications. A decentralized application or DAPP serves some particular purpose to its users. Bitcoin, for example, is a DAPP that provides its users with a peer to peer electronic cash system that enables online Bitcoin payments. Because decentralized applications are made up of code that runs on a blockchain network, they are not controlled by any individual or central entity.

Moving on towards the pros and cons of Ethereum, a third party cannot make any changes to data because these are decentralized applications run on the blockchain. Further, the apps are based on a network formed around the principle of consensus, making censorship impossible. Moreover, with no central point of failure and security using cryptography, applications are well protected against hacking attacks and fraudulent activities. Last but not the least, the apps involved never go down and can never be switched off.

Finally, pondering upon the disadvantages, because smart contract code is written by humans, smart contracts are only as good as the people who write them. Code bugs or oversights can lead to unintended adverse actions being taken. If a mistake in the code gets exploited, there is no efficient way in which an attack or exploitation can be stopped other than obtaining a network consensus and rewriting the underlying code. This goes against the essence of the blockchain which is meant to be immutable. Also, any action taken by a central party raises serious questions about the decentralized nature of an application.

CONSORTIUM OF JAPANESE BANKS WITH RIPPLE

Ripple is San Francisco-based provider of financial settlement solutions, announced that the Japan bank consortium would continue to drive and attract interest among the banking community in Japan. This would thus, bring in the total member count to 61 that represents over 80% of total assets in Japan. Ripple is a blockchain firm that has developed a payment app that settles transactions instantly, in partnership with a consortium of 61 Japanese banks. This consortium was recently joined by 42 local and regional banks of Japan focused on cross border payments.

This is gaining more momentum since SBI Holdings and SBI Ripple Asia joined hands, where each bank will have the ability to use Ripple solutions to send real-time, low-cost, transparent domestic and cross-border payments.



Soon to follow is as announced by Japan Bank Consortium is the development of the MoneyTap smartphone application which will be powered by Ripple blockchain technology. Provided the

application turns out successful, this application may prove to be a complete game changer for all parties involved since Japan Bank Consortium at the moment already controls 80% of all the banking assets of Japan.

MEXICO TO USE BLOCKCHAIN TO TRACK PUBLIC CONTRACT BIDS

Mexico's National Digital Strategy Coordinator, Yolanda Martinez, has recently detailed a project in which the government of Mexico is working towards using Blockchain to track bids for public contracts using the Distributed Ledger Technology. The revelation came at a recent Tech conference in Jalisco, Mexico. She explained Blockchain HACKMX which is an initiative of the National Digital Strategy and the Ministry of Public Administration, in collaboration with Campus Talent Mexico, to improve public services.

The issue of public contract corruption is a sensitive one in Mexico, given a recent high-profile scandal that involved a major South American construction firm and allegations that bribes were funnelled to the political campaign of President Enrique Pena Nieto.



Martinez explained that Distributed ledger Technology can eliminate the easily corruptible human element from the public auction process; can provide highly secure and reliable digital services, at low cost, based on open technology and increase its transparency, since the Blockchain will store the records of the bidding process, allowing it

to be thoroughly audited. Further, adding to the advantages of using Blockchain in Public Contracts, it can be said that Smart Tender uses a hybrid Blockchain system to ensure that any registered citizen can participate in decisions that could affect them and to be able to vote at a local, state or federal level. At the same time, it allows certified evaluators to vote and rate proposals anonymously, preventing companies from contacting them to influence their decisions.

LEGAL DEVELOPMENTS

SUPREME COURT'S VERDICT: DWAIPAYAN BHOMWICK V. UNION OF INDIA

Mr. Dwaipayan Bhomwick, (a lawyer at Delhi) has recently in November 2017, in a petition under Article 32 of the Constitution, submitted before the Supreme Court that certain countries have made Bitcoin (a digital currency that allows people to buy goods and services and exchange money without involving banks, credit card issuers or other third parties)⁷ subject to their respective tax regimes, while a few other countries have designated it as a commodity, thereby making Bitcoin subject to government regulation and accountable to exchequer but no such mechanism exists in India till date.⁸

It was argued by Dwaipayan, the petitioner in the instant case, that the money that is used to purchase Bitcoin from foreign countries is completely unknown and untraceable, and thus may be used as black money or other financial activities directly from crypto currency accounts without any

⁷ Live Law News Network, SC Notice to Centre on Plea to regulate Crypto Currency, (2017), available at <http://www.livelaw.in/sc-notice-centre-plea-regulate-crypto-currency-read-petition/>.

⁸ *Dwaipayan Bhomwick v Union of India*, Writ Petition No. 1071 of 2017.

accountability. Moreover, such traders affect the market value of other commodities inevitably.

Dwaipayan also made reliance on the Chinese government which has recently banned the issuance of new digital coins for fundraising, also known as initial coin offerings, as well as the Russian courts pronouncing the transfer of cryptocurrency into Roubles as illegal. The Reserve Bank of India regards cryptocurrencies as a violation of the country's existing foreign exchange norms.⁹ This is because the conversion of Bitcoins into foreign exchange does not currently fall under the purview of the central banking institution making such transactions highly unsafe and vulnerable to cyber-attacks. The Reserve Bank of India (RBI) has issued a statement dated 24.12.2013 & 01.02.2017 against the usage of virtual currencies/encrypted money like bitcoin.



In the end, the petitioner prayed to the SC that appropriate directions be made to the Respondents (the Govt.) to regulate the flow of Bitcoin and that the same be made accountable to exchequer. Further, it was prayed that there must be a constitution of a committee wherein the Committee must be given the role of regulating the flow of Bitcoin and other cryptocurrencies.

Further, it was prayed that the same must be made accountable to Exchequer.¹⁰ On one hand, where

the judgement of the Hon'ble Supreme Court is awaited, on the other hand the Government has not clarified its stance whether it is in favour of the Bitcoin system or not.

TENNESSEE LEGISLATION ON SMART CONTRACTS

March 22, 2018 witnessed governor of Tennessee signing the Senate Bill 1662, recognizing the legal authority to use Blockchain technology and smart contracts for electronic transactions. A smart contract is defined in the bill as an "event-driven computer program that executes on an electronic, distributed, decentralized, shared, and replicated ledger that is used to automate transactions."¹¹

According to the new law, a blockchain-based signature will now legally be considered an electronic signature. Also, legal contracts cannot be invalidated only on the basis that they were 'executed through smart contract'. Therefore, passage of the bill may also witness increased investment and entrepreneurs. With this bill becoming a law, Tennessee has joined Wyoming in accepting blockchain-based electronic records for legal purposes.

Tennessee's law is similar to efforts in Florida and Nebraska to store legal information on a blockchain. However, the Florida bill hasn't materialised so far and Nebraska bill has not yet been voted on by the full Assembly.¹² Though there are certain words in the law, like 'contracts' and 'executed' which are not defined among other poorly defined terms, Tennessee has become one of the few nations to have formally accepted smart contracts.

⁹ B. Asha Latha, "Bitcoin, the Internet Money" Boon or Bane, SSRG International Journal of Economics and Management Studies (SSRG-IJEMS), Vol. 5 Issue 1, January 2018.

¹⁰ *Dwaipayan Bhomwick v Union of India*, Writ Petition No. 1071 of 2017.

¹¹ *Senate Bill 1662*, 2018 (Tennessee).

¹² Nikhilesh De, "Smart Contracts Now Recognised Under Tennessee Law", *Coin Desk*, Mar. 23, 2018, available at <https://www.coindesk.com/blockchain-bill-becomes-law-tennessee/>.

IMPACT OF EU PRIVACY LAWS ON BLOCKCHAIN

A set of regulations relating to privacy on the internet has been released by the European Union (EU) creating roadblocks for blockchain-based applications. The applications operate on the premise of ‘immutability’ of transaction records which means that records once authenticated can’t be deleted and this is in danger of being in contravention with the new regulations.

The new regulations issued by the EU are an upgrade to its General Data Protection Regulation (GDPR). The regulations deals with corporations based in Europe as well as those providing services to EU citizens and will come to be effect from the 25th of May.



According the new regulations, all companies have to comply with the request of an EU citizen to completely delete their personal information stored by the company. The definition of personal information according to the GDPR is very broad and might as well include the data used in blockchain-based applications.

This will result in loss of transparency and create loopholes for tampering in transactions. If the regulations are not tweaked to accommodate the blockchain-based companies, they will be forced to move out and this will spell doom for the future of cryptocurrency in the EU.

ARIZONA’S BILL ON BLOCKCHAIN

Blockchain; the digital public ledger for recording transactions has started spreading its wings throughout the world. The State of Arizona passed a bill on April 29th 2017 that explicitly defines and supports blockchain technology for public use. This amendment allows use of blockchain technology in the state, declaring¹³ that “[a] signature that is secured through blockchain technology is considered to be in an electronic form and to be an electronic signature” and “[b] record or contract that is secured through blockchain technology is considered to be in an electronic form and to be an electronic record.”

It legalized blockchain signatures and recognized the enforceability of smart contracts. Arizona’s Revised Statutes now stipulate that data “written” and stored on Blockchain technology is “immutable and auditable and provides an uncensored truth.” In the common parlance, the *House Bill 2417* says that all the data stored on the blockchain will be permanent, transparent, will be accepted and can be used by the state.

The bill has also opened the door for emerging technologies in Arizona. Recently, on April 3rd 2018, the Arizona House of Representatives passed *HB 2603* with 56 in favour, 3 against, and 1 abstention allowing corporations to hold and share data on a distributed ledger. Two more bills; *HB 2602* and *HB 2601* have been passed¹⁴ for consideration, the former would prohibit towns from restricting cryptocurrency mining in residences, while the latter will authorize cryptocurrencies as a medium of exchange.

¹³ Debbie Ginsberg, “Blockchain: What it is, how it’s being used, and what it means for the future libraries”, *AALL Spectrum*, Vol. 22, Issue 1 (September/October 2017), pp. 36-39.

¹⁴ At, <https://cointelegraph.com/news/arizona-blockchain-bill-signed-into-state-law>, (last accessed on April 19th, 2018).

ARTIFICIAL INTELLIGENCE AND CITIZENSHIP¹⁵

Hanson Robotics' female looking robot, Sophia has been making waves in the tech industry and worldwide. Her initiation in the human world has made people curious about the idea and concept of 'artificial intelligence'. Saudi Arabia became the first country in the world to grant a humanoid citizenship that Miss Sophia plans on using well to advocate for women's rights in a country that has long tried to suppress the matter-of-fact rights of its female population. This comes as an intriguing trigger as a food for thought, since the humanoid is a female herself!

The creator of Sophia claims her to be an advocate of potent human rights and values; however the irony of her position doesn't go unnoticed at such grand claims. This article will examine the probable consequences of integrating artificial intelligence with a political concept, i.e. of citizenship and the impact of its union on mankind.

What is Artificial Intelligence?

Artificial intelligence (AI), the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings.¹⁶ The term was coined by John McCarthy, an American computer and cognitive scientist, in 1956. He wanted to make a machine that could reason like a human, capable of abstract thought, problem-solving and self-improvement. He believed aspects of learning and features of intelligence can be principally described, so much so that a machine can be made to simulate it.¹⁷

¹⁵ Ushashi Dutta, IIIrd Year, Rajiv Gandhi National University of Law, Punjab.

¹⁶ Encyclopedia Britannica. (2018). artificial intelligence | Definition, Examples, and Applications, <https://www.britannica.com/technology/artificial-intelligence>.

¹⁷ Science Daily. (2018). Artificial intelligence. [online], https://www.sciencedaily.com/terms/artificial_intelligence.htm.

How is AI different from human intelligence?

Machines replacing human beings have long been contended and with the advancement of research and technology in the field of artificial intelligence the possibility of machines wiping out mankind does not seem impossible anymore. However every task cannot be performed by automated machines or intelligent beings because they lack the basic cognitive ability to perform intricate functions that are specific to human beings. There are wide ranges of jobs that need the human finesse that machines cannot replace, since artificially intelligent beings are run on programs that are fed into them by their human controllers.

As long as artificial intelligence has not evolved to a point of developing machines which can interact, engage, think, adapt, and respond exactly in a fashion as a human can, it is not possible for such intelligent machines to completely replace the human resource. However some humans can facilitate the destruction of its own kind by engaging the help of an artificially intelligent being to create uproar in a political system or society.



Robotic Citizenry

Talks revolving around rights of robots have been doing rounds ever since Sophia was granted a Saudi citizenship. It is important to acknowledge that every citizen has certain rights and subsequent

obligations as members of the society. Robots with limited abilities, making the most of the rights associated to a citizenship, and fulfilling their obligations, is an idea that is hard to conceive let alone achieve. However with Sophia advocating for women's rights puts these apprehensions to test. It is touted that the attention surrounding these intelligent beings can be utilized well to talk about real issues, which are often the beliefs of the programmers or the controller.

Granting citizenship to a being that is currently under development can turn out to be a risky affair despite the optimism surrounding. A citizen of a country is bound by emotions and opinion which is perceived by cognitive ability. They have a mind of their own and can alter decisions by applying reason to them at short notices. However the same is not true for a robot. It doesn't have a mind of its own, lest own an opinion, it is simply a product of a bunch of algorithms and codes fed into it by another human being. Looking from a defense perspective it is definitely a poor choice a country can make. Artificial intelligence and robots are uncharted territory when it comes to integration with mankind, which is the ultimate aim and in a situation as such granting it rights equivalent to that

of a country's citizen opens it up to a horde of new problems, that of killer robots, nuclear attacks, cyber-warfare etc.

The control of the intelligent being is no doubt in the hands of another individual or private company that has a beliefs and minds of their own even if the robots manufactured and programed by them do not. The lacunae lies in the robot-controller relationship, which can easily be manipulated to attack a country, create civil war; disrupt the political scenario of a country among many other creative upheavals. Such a possibility is no longer a distant occurrence as varied ideologies can be coded in the form of algorithms and fed into a robot to cause it to function according to the wishes of its master.

Hence granting citizenship to an artificially intelligent being run by another human being is simply an invitation to another kind of warfare; robotic mercenaries. If an individual does not find a country's policies favorable as per his opinion he can employ the help of a robot to bring down the government or cause some other kind of political turmoil or unprecedented destruction.

-
- ⁱ Photo: Financial Times. All rights reserved.
- ⁱⁱ Photo: Digital Agency Network. All rights reserved.
- ⁱⁱⁱ Photo: Startup Buzz. All rights Reserved
- ^{iv} Photo: Luke Bakies, Cryptocoin Mastery. All Rights Reserved.
- ^v Photo: s1lentway via Reddit.
- ^{vi} Photo: Beth Pattinson, Viral Docks. All rights Reserved.
- ^{vii} Photo: Thomas Sheindl, Steemit. All rights reserved.
- ^{viii} Photo: Concept 71. All rights reserved.
- ^{ix} Photo: Ladas & Perry. All rights reserved.

PATRON-IN-CHIEF

Prof. (Dr.) Paramjit S. Jaswal, Vice - Chancellor, RGNUL, Punjab

PATRON

Prof. (Dr.) G.I.S. Sandhu, Registrar, RGNUL, Punjab

CHIEF EDITOR

Dr. Abhinandan Bassi

STUDENT MEMBERS

Mohak Salva

Hemendra Singh

Dhairya Sharma

Ushashi Datta

Anshita Gupta

Anandita Bhargava

Parash Biswal

Abhishek Naharia

Manmeet Monga

CONTACT:

E-MAIL: lawtech@rgnul.ac.in