International Journal of Multidisciplinary Research and Development
Online ISSN: 2349-4182, Print ISSN: 2349-5979
Impact Factor: RJIF 5.72
www.allsubjectjournal.com
Volume 4; Issue 12; December 2017; Page No. 109-111

Prospects of block chain technology in effective public administration

Dr. Geetha Naik Vislavath
Assistant Professor in Public Administration, MVS Govt. Arts & Science College, Mahabubnagar, Telangana, India

Abstract
Administration of public offices and public policies has veered its direction from the rustic bundles of papers and records towards the sophisticated digital environs wherein Tera Bytes and Peta Bytes of data pertaining to the governance of public offices is stored in centralized servers and retrieved by the stakeholders whenever needed. This development has also got a flipside in the form of data security which is vulnerable to hacking and cracking by the mischief groups. Off course government has got its own policy to safeguard the information of public offices, despite which there are spasmodic incidents reflecting the gaps in data management policies. It lead to the contemplation of technology stream not explored by Indian public offices at a length i.e. Block Chain Technology, the prospects of which need to be investigated to check whether it can make public office data more secured. It is the reason why a research paper titled "Prospects of block chain Technology in effective public administration" is brought to fore.

Keywords: block chain technology, secure data, public administration

Introduction
India being a country with 1.2 billion odd populations generates trillions of records every day in the normal course of administration ranging from social security payments and local land records to the most strategically important records and stores them in the servers of respective departments. It has been a common practice of the governments to outsource the obligation of maintaining such servers to the third party service providers having hands on experience in data management technology. The introduction of asymmetric crypto system and digital signatures has provided a security mechanism and authenticated a systematic retrieval process. But technology is a double sided sword that cuts either side and holds good for data management as well. Because there are examples in the recent past, indicating the trespasses of hackers into public office servers. Banks and other financial institutions and witnessed a prejudicial change in terms of the malware entering their systems and halting the operations. The possibility cannot be ruled out in other public offices. For example the data base of revenue department can be hacked or accessed by the land grabbers to change the titles and survey numbers of the land and misuse the same for their benefit. Under such circumstances the holistic aim of the state to digitalize land records may not hold the waters. Similarly the medical records and legal documents pertaining to the confidentiality and proprietary nature can be accessed by the hackers to claim undue advantage. Thus, government has recognized these possibilities in the very advent stage of digitalizing public documents and introduced two stage authentication in the form of OTP (one time password) which has served the purpose of securing data to a large extent but any collusion or compromise with data retrieving executives can hardly consume any time to undermine the existing technology and access the data. Therefore the best remedy to this problem lies in the use of Block Chain Technology which stores data in multiple servers and categorized in to blocks of records converted in to different algorithms using multi variant cryptography. This technology is still at very nascent stage in South Asian countries like India but US, Spain and Cyprus have proved how effectively Block Chain Technology can be used in effective path and inspired researchers to review the literature on Block Chain and attribute the same to public offices by identifying the pros and cons.

Review of Literature
Broad & Henry (2017) [1] found in their study that the present data base administration protocols adopted by the server managers largely depends up on the efficiency of data mining techniques which in turn are correlated to the data layers. Therefore, mere storage of data in the absence of efficient DBMS is found to be sensitive for manipulation. This problem can be addressed through Block Chain mechanism which is free from the conventional structured query language issues. Singh and Luther (2017) [2] have also found in their study that Block Chain technology can fix those problems which often arise due to multiple authentication system. They have observed the merits of Block Chain technology of two large scale entities and drew that, Block Chain mechanism has got a huge scope to expand in public utility services like transportation and social security payments.
Ivan (2017) [3] has interpreted in his study that Block Chain will emerges disruptive technology by 2020 and replaces all the traditional data base management tools irrespective of the domain of operations. This interpretation helps understanding that the radical change shall also occur in the public offices and their utility services as per as data management is concerned. Rocka (2017) [4] who brought a paper on IT applications in public services has examined national data base management systems of three countries and stated that, excess dependency on third party service providers by the

public offices to maintain the servers is prone to the misuse of data. Because such TPS entities have strong trade interests in using the data for their ancillary business portfolios. Thus, he advises the public offices to draft guidelines and mandate the usage of data management techniques like Block Chain. Murthy (2017) [5] has expressed in his paper that, Block Chain technology is still at very experimental stage and not advisable for public offices. Very few entities have so far found customized solutions to their data security issues through Block Chain and whether it can be had in all the lines of operations is not yet clear. He also wrote in his paper that, pilot projects must be conducted for every new technology before applying the same to public domains at large.

Gaps in Literature

Little work has been done to conglomerate the prospects of Block Chain Technology in the business domain. Hardly there is any evidence in the application of block chain technology with respect to public administration in India. Similarly union and state governments have not proposed any policy to specifically promote block chain technology in public administration. Therefore the following objectives are proposed in this paper to cover such gaps

Objectives

1. To study the importance of Public data management
2. To study the prospects of Block Chain Technology in effective Public Administration

Need for the study

It is the need of the hour to seriously rethink on the existing technology of public data management as the unique identification number or Aadhaar numbers of individuals considered as a linking chain of public records and making it obligatory for pensioners, direct cash recipients, beneficiaries of subsidies, public distribution channels, and virtually every citizen to seed Aadhaar numbers with bank accounts, PAN cards, health cards, employment details and such other public office domains. It enables individual data to store in one pocket and simultaneously become prone to hacking or misuse. This issue is also raised by the honorable Supreme Court when a public intrest litigation was filed opposing the mandatory Aadhaar linkage program. Government may effectively address such issues through block chain technology and persuade the stakeholders

Research Methodology

The first objective focuses on collecting sector wise data on public records and investigates the probable threats in each set of data collected. On the other hand the second objective focuses on the functioning mechanism of Block Chain Technology and attempts to link its merit to public data management and their by interprets the effectiveness in Public Administration.

Importance of Public Data Management

Public offices are empowered by the statutory provisions to collect the personal data of the civilians and store the same for the future use by the state. Thus, civilians cannot deny the public authorities from collecting their data even on the very personal attributes. The central KYC registry, Aadhaar, Financial data of individuals and entities, tax particulars PAAN details and many other records forming trillions of documents have started occupying space in the servers and dated technology is still being used by the operators to maintain such servers. There is hardly any evidence of the state authorities exploring the prospects of Block Chain technology which has proved its strength in managing the data of Bit Coins in the western markets. There is also a dogmatism among the policy thinkers of technology that Block Chain mechanism is developed by the unauthorized agencies like bit coin supporters who can become nemesis to the public data of the country if such technology is adopted by the state. But, fact is that, most of the blue chip companies engaged in big data management are very aggressively building their Block Chain portfolios to reap early bird advantage which is overshot by the state. Indeed, the seriousness and dire need of managing public data in Indian public administration is better understood through the following graph.

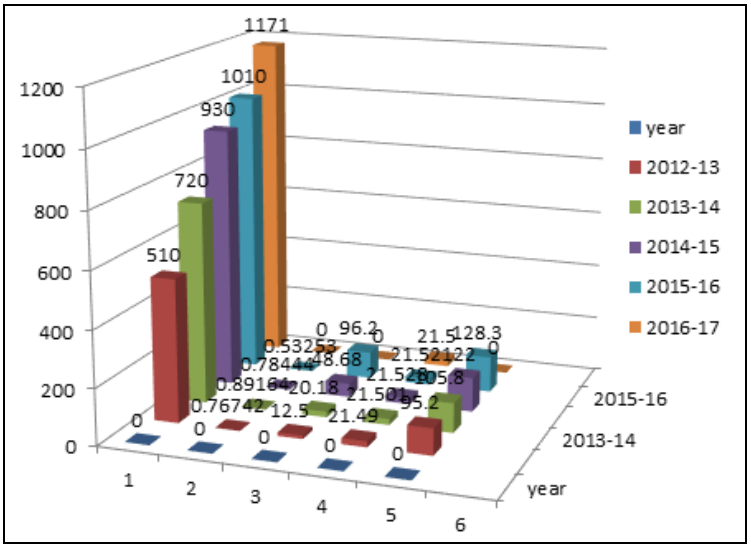

Fig 1

Data converted into in millions of records

It can be seen from the graph very vivdly that Aadhaar data has occupied lion share in all the five years which encompass the most sensitive information of one billion odd individuals.

Table 1: Table showing the digitalized government records Source Reuters Database and data.gov.in

year	Aadhaar enrollment Million	Supreme court records thousands	Land records* Million	Employee details** Crore	Treasury transactions in million
2012-13	510	76742	12.5	2.149	95.2
2013-14	720	89164	20.18	2.1501	105.8
2014-15	930	78444	48.68	2.1528	122.0
2015-16	1010	53253	96.2	2.152	128.3
2016-17	1171	NA	NA	2.15	N

*data of only 17 states and three UTs

**only central government employees excluding pensioners.

Interpretations

It can be seen from above graph that there has been an exponential increase in terms of public data. For example the records of Aadhaar data were only 100 million observations of each individual encompassing nine attributes. It led to nine hundred million observations of data. This data grew to 1117 million with nine attributes. i.e. 10,053 crore observations of data, this huge data is highly vulnerable as it contains the very personal information like phone number, email id, photo, residential address, fingerprints and Iris which can be used by the hackers to claim undue advantage if any loophole exist in the maintenance of servers. Therefore block chain technology can be effectively adopted to convert this data into multiple blocks with divergent crypto graphics, such that it can't be easily accessed by the trespasses. Similarly it can be observed from column 2 of the table that the legal records which were digitalized, stood at 76917 records in the year 2012, grew to 78444 in 2015 and recorded at 53253 as per the half yearly information available in 2016 after the successful disposal of 82092 cases in the previous year. Each record will reflect minimum five important attributes namely the details of plaintiff, defendant, advocates, case status and proprietary information of evidences which may be prone to unimaginable jeopardy of the judicial decisions if the culprits or accused access such data base. This block chain technology can effectively curtail such misuse of data if these five variants are converted into five different cryptographic blocks. It can be evident from the above table that there are 12.5 million land records are digitalized by the year 2012-2013 and it raised to 96.2 million by 2016.every land record contains six different variables like residential addresses of vendor, vendee, and witness, photo identity, Aadhaar details, id proof and digitalized land area and boundaries etc. if this data is available to hackers or crackers then it will lead to great financial loss to government and public at the large. By using this type of emerging cryptographic block chain technology will effectively control this type of fraud in the administrative system. Fourth column of the table will explain the digitalized employees details at Central Government level each employee data will contain minimum of five elements like name of the employee, designation, ID proof place of work and bank account details. By the year 2013 there was 2.149 crore employee data is stored and by the year 2017 it is 2.15 crore data with five different elements made it to 10.75 crore. This can be lead to data thief ting or data manipulation. equally It is found from the column 5 of the table 95.2 million treasury bills are available digitally by the year 2013 with following attributes they are Government Budget details, different budget allocations, institutional financial and account details and Government bills etc. these bills data developed to 128.3 million by 2016. By acquiring above information criminal can change data has per his intrest or requirement this misuse can badly effect on Government and public. Therefore the block chain technology can control this type of misuse before its operation.

Conclusion

21 St century has opened up new ways in the form of storing data and financial transaction in the digital form and on the other side it has a negative side like rise of cybercrime which were resulting in misuse of data and financial losses to both public and Government. Therefore, government should make aggressive decisions in terms of its data management policy and provide sufficient space for the emerging technologies like Block Chain to vanguard the vulnerable information from the abuse.

References

1. Broad Imanual, Henry R. Block Chain an Alternative Solution, Journal of Advanced Computing, 2017; 3(3).
2. Singh Prhlad, Luther Mary. Problems & Prospects of Advanced Data Management, IT Review, 2017.
3. Ivan Sraz. Future in Block Chain, Learner's Journal of Computer Science, 2017; 2(4).
4. Rocka Paul. Challenges of Public Data Management: A Cross Country Analysis, Trans Pacific Journal of IT & Management, 2017; 9(3).
5. Murthy KS. Issues of Digitalisation, RJIMS, 2017; 4(2).