Short Notes on

CONVERGING BLOCKCHAIN AND ARTIFICIAL INTELLIGENCE: POTENTIAL TO HELP CURB INEFFICIENCIES IN BUSINESSES?

Introduction

Blockchain and artificial intelligence (hereinafter referred to as "AI") have been touted as game-changers in both the private and public sectors, and are at the forefront of innovation across almost every industry. This is due to the extensive use and countless benefits attributed to blockchain and AI as independent megatrends, as well as the undeniable benefits of converging the two.

We find ourselves at the centre of a dynamic and ever-evolving global village, where we are continually making use of blockchain and AI in our everyday lives. Even more so as a result of COVID-19, which has intensified our levels of interaction and reliance on technology and online systems. In this article, we explore what these two megatrends can do for businesses and how they can assist in curbing inefficiencies.

In short, blockchain is a digitally distributed ledger system that records the full history of a transaction while storing and transmitting this information in blocks of data connected in a chain and spread across multiple geographic regions.

AI is understood through Alan Turing's infamous question in 1950; "Can machines think?". AI is a set of algorithms with the ability to combine inputs and outputs to produce unique results in both foreseen and unforeseen circumstances - including everyday functionalities such as; online platforms, gadgets, cars and consumer goods.

AI requires data to be effective, and blockchain facilitates secure and collaborative sharing of this data. Converging the two allows for AI to extract insights and create solutions from secured data stored on the blockchain.

Blockchain and AI use in Private and Public Sectors

The decentralized and autonomous nature of blockchain and AI removes the risk of human error owed to third-party intervention and discretion. Businesses can benefit from this, as it allows for

increased trustworthiness and credibility. Time spent on rectifying errors, relying on intermediaries and accounting for procedural delays can instead be spent on satisfying business and client needs, ultimately leading to improved business and customer relations.

Blockchain and AI have been used to improve administrative issues concerning the tracking of ownership documents and digital assets, financial transactions, identity management and electronic voting facilities.[1] Further examples include screening processes for job applications, online submissions and publishing of media such as news and advertisements.

A recent outcome owed to human error that could have been avoided through the use of an algorithm-based screening process is the *Clicks* hair saga. The qualifying advertisement criteria could be stored on a blockchain, and AI could be used to create an algorithm to extract insights based on this data, while screening all submissions to separate ones that fit the criteria, from ones that do not. This sets a benchmark by reducing the number of potential applicants and improving the quality of advertisements published by the company. In doing so, the risk of the wrong advertisement being posted is mitigated.

By leveraging blockchain and AI, businesses have the opportunity to become more sustainable and accessible, through the elimination of paperwork and increased interconnectivity spanning geographical boundaries. Further benefits for businesses include; increased convenience, efficiency, neutrality and programmability while reducing burdensome costs associated with intermediaries such as bankers and registrars.

Data stored on a blockchain is immutable and tamper-proof, removing the risk of fraud and falsifying of information. For a single transaction to be amended or deleted, the entire chain of blocks in that transaction needs to be re-written and verified as legitimate by all the participants on the block.[2] This is an impossible task, and as such, business and client information is protected and immune to manipulation.

Significant development has occurred in the public sector, where blockchain and AI have proven to enhance good governance and prevent fraud and corruption. Sweden and Germany are prime examples of the use of blockchain and AI in the field of land registries and FinTech. Methods used

[1] A Wilhelm Rule of Law 4.0: Blockchain Technology and the Development of Legal Institutions in Africa (2019) extended version of presentation delivered at the 46th Annual Conference of the African Law Association in Stuttgart Germany, 15-˜11-˜2019
[2] S Williams-Elegbe Public Procurement, Corruption and Blockchain Technology: A Preliminary (Legal) Enquiry (2018) unpublished paper presented as an Inaugural Lecture at Stellenbosch University, 25-10-2018

to incorporate blockchain and AI by these countries include foolproof step-by-step phases of implementation, provision through regulatory frameworks, the creation of foundational structures and the education and participation of groups in society.[3] The Swedish government is in the process of transforming the land registry into a blockchain-run platform, resulting in better means of governance through the removal of third-party intermediaries.

South African businesses, financial and government sectors can internalize these methods, and use a progressive and structural implementation of blockchain and AI as done in Sweden and Germany. This would involve phases of testing and educating users by implementing training programs and workshops. Although this seems like a time-consuming approach, once the systems are in place, the benefits will flow, and ease of use will follow.

Conclusion

While there is still much legal development pertaining to blockchain and AI use that needs to happen in South Africa, countries like Sweden and Germany are leading examples who are paving the way for a more accessible, transparent and sustainable future. Businesses, governments and financial sectors have a duty to acclimatize to the ever-evolving global environment. Leveraging these progressive technologies will revolutionize the way business is conducted and effectively curb inefficiencies and corruption.

[3] P Van Eecke & A Haie "Blockchain and the GDPR: The EU Blockchain Observatory Report" (2018) 4 EDPL 531 532; D Harhoff, S Heumann, N Jentzsch & P Lorenz Outline for a German Strategy for Artificial Intelligence (e-book) (2018)