**Toward Blockchain-Based Accounting and Assurance**

**Critical Analysis**

1. **Explain the three phases of blockchain technology? What is the potential use of blockchain technology in accounting?**

The emergence of blockchain technology has been witnessed in three phases, naming blockchain 1.0, 2.0 and 3.0. The association of blockchain 1.0 is with digitally induced financial services that mainly deals with cryptocurrency, digital financial transactions and remittances transactions. The blockchain 1.0 has introduced virtual currency system, under which no individual can bring modification in transaction record, assuring secure network of financial transaction (Weigand, Blums & de Kruijff, 2018). The second phase of emergence is blockchain 2.0, the industries have embraced the importance of blockchain and thus technology was accepted as blockchain as service (BaaS) (Wang, Lin & Luo, 2019). Under this smart contract and similar financial applications were introduced, which have substantially broadened the scope of financial applications. Smart contract enable autonomous verification, enforcement and execution of terms in financial contracts. It has been highlighted by Wang & Kogan (2018) that decentralization is the core aspect of second generation blockchain technology, which has eliminated the need of third party and thus counterparty risk has reduced substantially. Therefore, in second generation Blockchain technology, financial services scope has been supplemented by business applications. Finally, the third generation of blockchain technology is 3.0 which has expanded beyond financial and business applications (Wang et al., 2019). The implication of third generation blockchain technology are witnessed in the area of cloud storage, voting, attestation system and in Governmental services. Third generation has allowed the linkage of blockchain technology with internet of things, such that connection of physical objects with virtual aspects of blockchain technology can be facilitated (Rozario & Vasarhelyi, 2018).

It has been provided in the study of Kozlowski (2018) that Blockchain technology is expected to support real time accounting, such that involved parties could gain instant access to financial information. Likewise, the technology can support creation of one’s own financial statements with complete integrity and auditing professionals could make comparison of financial information in easy way (Kokina, Mancha & Pachamanova, 2017). Additionally, based on analysis of Dai & Vasarhelyi (2017) research, it has been noted that blockchain technology can enable the banking ledger processing, which provides that there is huge prospective application of blockchain technology in accounting.

1. **In your own words explain your understanding of Triple Entry Accounting**

Third Entry Accounting system encompasses the contribution of three parties (two parties involved in transaction and one intermediary), with an aim of assuring that transactions are recorded independently and reliably. In triple entry accounting system, the role of intermediary is played by blockchain technology, which is a distributed ledger that automates the storage process of transactions and contributes in prevention of unreliable transaction recording (Rozario & Vasarhelyi, 2018). Immutable nature of blockchain assures that an entry cannot be altered once it is recorded and inserted into blockchain. The bloackchain based accounting system is considered as self-verifying accounting information system, which is transparent, secure as well as highly reliable. This system generally allows to create additional record of transactions which is stored in blockchain ledger (Weigand, Blums & de Kruijff, 2018). The stored data is saved at various nodes and levels, through which multiple users can view the needed information. The ability of blockchain technology to enable verification of accounting information allows to track any errors of transaction record and thus transactions are verified in effective way. The smart contract feature of blockchain technology is also considered as important in triple accounting system as it enables to maintain enhanced control over the recording process in accounting. Additionally, based on insights obtaining from the study of Wang, Lin & Luo (2019) it has been noted that in triple accounting system, blockchain technology can be used in compliance with Enterprise Resource Planning (ERP) system, with an aim of assuring more accurate and transparent record keeping of financial transactions taking place within an organization. The submission of transaction in blockchain network is verified through multiple procedures, which enhance credibility of triple accounting system (Rozario & Vasarhelyi, 2018). For instance, the verification is done for recording of transaction by ERP system of organization, relative posting of specific transaction, asset transfer, correction of amounts and accounts and finally the verification is done of the party which post transaction (Kozlowski, 2018). The invalid transactions might be cancelled followed by verification and valid transactions are entered into blocks, from where each concerning and authorized party can view it, without manipulating it (Kokina, Mancha & Pachamanova, 2017). This process can be used to record data related to sales, procurement, transactions with suppliers and multiple cash based transactions performed by specific organization and thus more credible and authentic accounting procedures can be performed through triple accounting system.

1. **Do you agree or disagree with any arguments made by the author? Explain your point of view and provide evidence in support of your point of views from other academic resources.**

Most of the views of author are agreeable, as they have explained blockchain as technology which has huge potential for accountancy and financial system (Dai & Vasarhelyi, 2017). It has been argued by Casino, Dasaklis & Patsakis (2018) blockchain can be viewed as technology which has its basis in accountancy, as it helps in recording transactions and serves as a way of recording cash flow details. The provision of immutable and transparent features of blockchain technology, the accounting professionals as well as auditors have obtained an opportunity to assure that data transactions are processed in accurate and authentic manner, in contrast to transactions which were recorded through traditional accounting system. One significant instance of organization that has adopted blockchain technology is [i-House.com](https://i-house.com/), whose chairman has mentioned that adoption of blockchain technology has added features of permanency and immutability in their accounting system, such that documents are traceable and un-editable over their life span (CGMA, 2018). It shows that arguments of author in underlying research paper have practical grounds and thus these benefits are embraced by practitioners at large (Dai & Vasarhelyi, 2017).

It has been noted from the views of Faccia & Mosteanu (2019) that blockchain technology aids in verification and fraud prevention, which is in line with authors’ view that smart contract and blockchain based accounting ecosystem are suitable for storing, verification and reporting of accounting information in effective way. Moreover, it has also been addressed in the study of Grover et al. (2018) that blockchain technology allows to view the accounting related information by all concerning parties, which is in compliance with the views of author in chosen research article. In addition to this, the views of author about assurance and information auditability are also of huge importance, as through implication of blockchain technology, easy track of accounting information can be carried out and auditing can be carried out in effective manner (Dai & Vasarhelyi, 2017). Based on the alignment of broader research insights with views of author, it can be mentioned that blockchain technology is of huge importance for accounting procedures.

1. Comment on any potential issues or problems with blockchain technology being used in accounting?

Implication of blockchain technology in accounting is exposed to some issues. In terms of technological issues, blockchain technology has substantial demands in terms of storage capacity, computational power, and bandwidth power in terms of data transmission. This can put extensive pressure in terms of resource acquisitions, which could act as hindering factor for organizations while adopting blockchain technology for automation of accounting system. As noted by Dai & Vasarhelyi (2017) the extensive resource requirements related to blockchain technology can create issue of adoption among small and medium size enterprises, which have limited resource base. Additionally, the risk of unknown is also evident in case of blockchain technology, as lack of awareness can hinder the practitioners to adopt blockchain for accounting (Hughes et al., 2019). This challenge can be catered through effective training of professionals regarding the implementation as well as usage of blockchain technology for automation of accounting system and thus can be considered as costly. Additionally, likewise adoption of any other disruptive technology, implementation of blockchain for accounting also requires substantial changes within internal structure, culture and business model of organization (Rozario & Vasarhelyi, 2018). It has been noted by Dai & Vasarhelyi (2017) that change adoption is always exposed to substantial level of resistance, which makes it hard for organizations to immediately embark on adoption of new technology. Thus, the adoption of technology could be resisted by practitioners as it might intervene with their existing model and existing system compliance might be hard to assure. In relation to it, it has been argued by Faccia & Mosteanu (2019) that legacy transaction systems are mainly regarded as more efficient than blockchain based accounting system. For instance, legacy system records thousands of transactions in one second, while the blockchain technology is bit slow and number of recorded transactions is comparatively low. Finally, it is noted that regulatory clarification is also considered as one factor which might hinder the adoption of blockchain technology for accounting (Kozlowski, 2018). For instance, existing legacy systems are well regulated with clear guidelines, which is meanwhile less inclusive in case of blockchain technology and thus legislator’s understanding is crucial prior to successful and mainstream adoption of this technology.

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