The Impact of Big Data and Blockchain Technology on Present and Future Accounting Practices

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Big data includes information from transactions, preferences, video, and audio data that traditional accounting systems have never been able to capture. Big data affects accounting in four ways.

First off, big data provides more accurate fair value estimates for items that do not have an available market value such as start-up programs and companies. Secondly, big data can be used to smooth the valuation differences raised from different judgements by analyzing consumers' buying habits in the business, non-financial information such as feedback on social media. Third, big data increases the transparency for shareholders and reduces the fraud risk, where fraud risk can arise from inflating values of assets and manipulating other sensitive numbers. Finally, big data can be used to calculate complex accounting numbers arising from complex transactions and accounts. For example, big data can be utilized on employees' various pension benefits. For a lot of companies, the biggest expenditure component would be the pension and other post-employment benefit costs. The big data, along with data analytics, can be used to calculate benefit usage, allocate employee benefit needs, and predict employees' behaviors under different simulated post-employment benefit plans. According to PwC UK recent publication, the big data and analytical tools are used to help predict different pension plans among different employee cohorts; construct a better pension scheme that optimize employees and companies' contributions; the impact of risk-related lifestyle options on various benefit plans; and the personalized portfolio that employees bought for themselves, where a typical portfolio contains disability insurance, critical illness insurance and so forth.

Blockchain Technology has its core advantage as automating many of the activities currently performed by humans. It will affect accounting in three general aspects: financial reporting, auditing, and user experience.

In terms of financial reporting, due to unique ledger technology, it avoids the need for entering accounting information into multiple databases. It provides innovative approaches to record and publish the financial information and account. The disclosure of the financial reporting will be changed as the blockchain technology will be storing more information than typical financial statements. In terms of auditing, it affects auditors' work by allowing an auditor to obtain information required for the audit in a consistent, recurring format. However, even though the blockchain technology can increase the trustworthiness of financial reporting due to its unique

characters such as irreversible and real-time, it still cannot eliminate the fact that information from the blockchain may be fraudulent, incorrectly classified in the financial statements, and linked to a side agreement that is “off-chain.” Lastly in terms of user experience, users can now have more information about the company than reading financial statements and searching information on the website. Users will be able to have real-time analysis about the company and do not have to wait for a particular releasing date of the financial statements. Apart from that, information on the blockchain system may not be limited to financial information, and users can have more information about how companies manage their pension funds and employee benefits for example.