The Characteristics of Data Ecosystem for Assurance and Determination of Business Measurement – Focusing on Big Data[1]

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Review Paper

INTROCUTION

There is no fix definition for Big Data exist as its meaning varies across various domains. Even Big Data for small accounting firms may not be similar to those for big four audit firms, and Big Data for big audit firms may not be considered as big for companies like the Google. Even though defining particular data rather big or small, this data bringing challenges for information systems that work with this data. In auditing for example, sets of interrelated systems are required to be able to make best use of data both for monitoring and assessment purposes. But, before touching upon the needs and requirements of those systems, professionals need to have overall understanding of big data in assurance and auditing industries, and the potentials and boundaries it may produce for both service providers and customers. Auditors facing many challenges in gathering, categorizing, and synthesizing Big Data from multiple sources in order to form clear judgments. Indeed, these struggles in understanding patterns suggestive of customers fraud or going-concern issues, rather than inefficient auditing, are generally the cause of audit failures. This problem can overcome by forming an auditing

data ecosystem that introduces data, tools and techniques to auditors. The data Ecosystem generally consists of two main components. The first part includes internal and external data and the second part is related to the tools used to extract, classify and analyze existing data. The purpose of this article is to review the two main parts of the data Ecosystem, including how to extract and classify data. In this paper, business measurements, assurance methods, and introduction of technological tools such as robotic automation process, machine learning, Blockchain, and data analytics are introduced, and basic knowledge regarding each was provided.

While Big Data itself is not a recent phenomenon, it is a phrase somewhat new to the accounting and audit industry in the sense that the industry has neither created a formal means to evaluate it nor applied it in assessments. Big Data has multiple definitions; however, two of the more common definitions are data exceeding the level of efficient manageability within traditional databases or as a concept referred to in describing the process of analyzing a large volume of diverse data, in any variety of form, using ground-breaking apparatus to identify opportunities to improve overall value. The commonality among definitions of Big Data is the large population of data, which many organizations have utilized to make better and timelier decisions about their business, such as risk assessments and marketing. In this way, Big Data has enabled organizations to gain knowledge about associations among phenomena and use that knowledge to understand correlations. Thus, Big Data can be thought of as a resource and a tool meant to inform organizations about whether some things are likely or not to occur; as opposed to providing an explanation of why or how things happen. Therefore, as compared to traditional data analysis (i.e., using smaller data sets) the power of Big Data lies in the ability to find patterns, which drives the way Big Data is analyzed.

The emergence of new forms of automatically generated data of progressively larger size, expanding set of variables, and stochastic linkage to data artifacts poses major challenges and provides new opportunities for the assurance process. Large systems are progressively more and more opaque to human (non-computer aided) observation, more complex in structure, richer in data, and interact with an expanding set of external systems and web services. Inevitably some parts of the expanded data will have potentially significant (material) implications to the financial report and will need to be verified. However, the audit value-chain will provide more forms of audit evidence often prior to the first recording of a business transaction and frequently parallel to the traditional stream of evidence. As systems increase in size and

complexity, there will be little possibility that primary assurance can be accomplished in a manual fashion. Rather, assurance will require automated audits, independent from the actual business process and containing a process of identifying data anomalies and performing an "audit by exception." This process will have to be close to the rapidity of the pulse of the system and work in sync with management anomaly detection and resolution processes. To allow for this form of first harmonic "automated audit", the rules of accounting and assurance in the emerging environment will have to be formalized. Big data will play an important role in auditing because it complements traditional evidence with sufficient, reliable and relevant information.

MATERIALS AND METHODS

For collecting data, learning, and understanding them, a library research technique was used.

RESULTS AND DISCUSSION

Big Data will be used to decrease auditors' dependency on client data and provide an independent benchmark to evaluate internal audit evidence. The change in the auditing environment brought by Big Data gives auditors unique opportunities to build up first-mover advantage and achieve economies of scale. In educating auditors and accounting students, the curriculum should reflect changing audit evidence sources and ensure more content on advanced data analytics. Despite the advanced data analytic tools available to collect data, the use of Big Data in the audit process potentially poses significant problems related to auditor judgment and decision making in a number of ways. First, the use of Big Data involves extracting information for analysis from an extremely larger population of data from multiple non-financial sources than auditors are accustomed to having to collect and analyze during the conduct of an audit. Research demonstrates that individuals have limited capabilities in collecting and processing information from multiple sources.

CONCLUSION

Big data has dramatically revolutionized businesses. Businesses are constantly faced with a huge amount of data, establishing an Ecosystem where data can be categorized according to user needs is doubly important in recent decades. According to this need, providing comprehensive knowledge and

mechanism that components related to data and tools for their extraction, classification and analysis in the accounting and auditing environment is mandatory; which has been tried to be provided to readers in this article. The results of this study indicate the importance and position of Big Data and the need to develop a data Ecosystem in the accounting and auditing professions. The need to study and explore the potential capabilities of technologies in the field of Big Data is another finding of this article. Accordingly, this manuscript's knowledge Accruals are a preliminary introduction of Big Data features, data mining systems, and data analytics in auditing.

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