Available online at www.rsu.ac.th/rjsh
RJSH Vol. 5, No. 2, July-December 2018, pp. 11-20

ISSN 2286-976X / Online: ISSN 2539-5513

Modifying Accounting Standards to Evolve with Modern Technology

Pandate Romsaitong

Faculty of Accountancy, Rangsit University, Pathum Thani, 12000 Thailand
Email: pandate.r@rsu.ac.th

Submitted 6 November 2018; accepted in final form 5 December 2018

Abstract

The purpose of this qualitative study was to identify trends in current literature regarding accounting standards to address the improving accounting firms' ability and IT competency standards in order to utilize artificial intelligence. Artificial intelligence (AI) is likely vital to the success of accounting standards. However, if these standards enforce the use of technology without ensuring that businesses have appropriate resources then they will be pointless. The methodology of this research follows the formula of many qualitative studies that utilize content or thematic analyses. Scholarly databases such as ProQuest were searched for articles possessing the keywords 'artificial intelligence' and 'accounting standards' and 'accounting technology' for some. Numerous academic journals, historical texts, firm reports, and news reports were accessed. The results indicate the need for modified accounting standards. The need to use artificial intelligence (AI) and evolving technology can either mitigate or perpetuate resource issues. While there is a fear that technology will replace the accountant, there are many ways in which technology will simply make accounting easier. Cloud computing and real-time financial reporting/credit loss prediction models are promising uses of artificial intelligence. The use of accounting information systems (AIS) in the future of accounting standards will be vital to meet the new technological needs of modern businesses. To effect accounting standard changes that will benefit enterprises and financial institutions, the issue of access to AI must be addressed before the argument for AI technology and resource management can be seriously considered.

Keywords**:** *accounting standards, financial reporting, artificial intelligence (AI), financial institutions, cloud computing, accounting information systems (AIS)*

1. Introduction

This paper first and foremost analyzes the research question of whether or not accounting standards should be modified to satisfy business needs spurred by evolving technology. Financial reporting, known as the language which "communicate[s] information about the financial condition of a company," exists as physical representations of finances in the form of balance sheets, income statements, and more (FAF, 2018, par. 1). Accounting standards are the guidelines and rules, which determine how the language is written; the U.S. calls this Generally Accepted Accounting Principles (GAAP). When accounting standards are of a high quality—they are evolving with emerging needs and technology-businesses receive more accurate information and make better financing decisions, which leads to investor confidence.

The objectives of this research study reflect the need to address deficiencies within the realm of accounting standard design and evaluation. The chief objective is to explore what weaknesses lie in the development and application of these standards and what perceptions from the accounting industry are potentially causing these issues. Specifically, the paper will address the role that accounting information systems (AIS) plays, or could play, in current accounting operations and whether or not accounting standards are currently capable of utilizing this new technology. The guiding research question will be whether or not accounting standards should be modified to evolve with technology and if AIS technology can be used to solve current problems.

Historically speaking, financial reporting has affected U.S. economic growth since even the Industrial Revolution, and these patterns exist overseas as well (Unegbu, 2014). Accounting standards have long been divisive, with many changes implemented to alter how companies can and cannot do business with each other and sell goods and services to consumers; accounting for business combinations has been particularly difficult since before the 1970s (Ramsey, 1977). Yet, experts generally agree that accounting standards must shift overtime in fact, they are changing at this very moment. Some researchers believe that standard changes can even alleviate some abuses and credit losses in accounting (Hartgraves & Benston,

2002); the secret to the success is almost always the use of technological advancements that lead to greater accuracy and real-time reporting for financial institutions. AI is perhaps the advancement the changes the industry most. Because of AI, computer can do things that previous only a person would be able to do. This has significantly changed the industry, because computers are taking up tasks accountants do, and rendering much of the work they do obsolete.

Ultimately, modifying accounting standards is beneficial and necessary, but some might question the role of technology. As the firm Deloitte reports, recent changes to revenue and leasing accounting standards will lead to greater compliance, collaboration, and financial evaluations which will lead to better financial decisions (Deloitte U.S., 2018b). This means that accountants and auditors are in an unprecedented position. It may look as though it will changes the accounting standard, but it really refers to the idea that accountants, auditors will have to change the way they go about their jobs. They will have to adjust to artificial intelligence and other new technology. Accountants may worry about being replaces but there is always going to be new technologies developing so they will adjust. It is possible that because of this there is a fear existing within the field that has hindered research in this area. This paper seeks to observe research reports regarding this topic and make suggestions as to the possible ways in which accounting standards can be modified to effectively utilize artificial intelligence technology for businesses.

When it comes to addressing some deficiency in the space of finance research business management strategies the first thing we seek to do is acknowledge how the landscape of the industry has had to evolve. As Ransbotham, Kiron, Gerbert, and Reeves (2017) discuss in their report, the business and finances world first have to define how emerging technology such as artificial intelligence fits into their models, the business practices and the accounting standards to monitor the financial outlook of those companies. The importance of this identification, and the chief reason why such research must be conducted, is because of reports such as theirs which noted that 85 percent of executives across the nation believe that AI will change the way they do business, and thus accounting standards must undoubtedly evolve as well.

Recently there has been an increased need to evaluate accounting standards and how to handle the rules regarding financial reporting in the age of artificial intelligence. In fact, in 2014 the Financial Accounting Standards Board (FASB) announced new changes to the GAAP which could create a volatile environment (Tilley, 2017). Most of these changes are impacting how executives do business such as the promotion and sale of goods and services, as the Wall Street Journal reports (Shumsky, 2018). One change that could have technological implications is the credit loss standard which measures credit losses on financial instruments. Current GAAP requires that companies report credit loss costs with the incurred loss model that delays recognition until it determines that a credit loss is probable (Tilly, 2017). The changes will require financial institutions to immediately record estimated losses in loan portfolios. One way that accounting standards could evolve to better serve financial institutions and efficiently utilize artificial intelligence is to create a model which accurately predicts credit losses for the financial institution.

2. Literature Review

While there is significant scholarly research on this topic, there is little evidence that academics and professionals are analyzing the need for accounting standards to utilize artificial intelligence to better aid financial institutions with their financial reporting duties. As the accounting professor, Muhammad Islam states in his article (2017) emerging smart and digital technology will pose challenges for the profession if accounting standards do not evolve. This could very well be the case as digital technology and other emerging smart technology will greatly affect how accounting firms conduct business. It could shift how they record business transactions for instance Islam also states that new technology will replace the old way of doing business. Also these new technologies will make outsourcing even easier. Social media will also reveal more data promoting stakeholders to utilize the tools of social media to interpret “big data.” Social media gives more information to the consumer than consumer reports and corporate press releases. They face more informed customer.

Several researchers have questioned how the information age and the prevalence of ubiquitous data impact accounting standards and auditing standards. Data inundates investors and current accounting standards are, according to Krahel and Titera (2015), not keeping pace with modern technology, instead focusing on “presentation, aggregation, and sampling” (Krahel & Titera, 2015, p.1). They and other

researchers such as Huerta and Jensen (2015) believe that accounting and auditing standards should emphasize "data, the processes that generate them, and their analysis, rather than their presentation" (Krahel & Titera, Abstract, 2015, p.1). Meanwhile, Huerta and Jensen (2015) focused on the impact of artificial intelligence on automation in the accounting industry, which Moffitt, Rozario, and Vasarhelyi explain has been bolstered by robotics (2018). This, by extension, reveals an anxiety of researchers and field professionals in finance.

While it is easy to identify a failure to modernize accounting standards as a crucial issue, the underlying forces which perpetuate this inefficiency must be uncovered to provide explanations and solutions for the issue. In 2010, William Niskanen, former chairman of President Reagan's Council of Economic Advisers, wrote an article published with the *New York Times* that detailed several concerns and issues regarding the current accounting standards. According to Niskanen (2010), the primary issue with accounting standard theory now is that is deciding "whether accounting standards should continue to be set by the [FASB] and approved by the Securities and Exchange Commission (SEC)" (par. 1). He outlines three reasons for why the FASB and the SEC should no longer be in control of accounting standard guidelines and regulations (Table 1). The attributes of versatility, timeliness, and advantages and disadvantages are outlined and described in the following order of importance. Also, the SEC and the FASB are growing less and less powerful because they watch over less and less of the money. Technology is making it easier than ever to outsource service to India and China, where it gets much harder to monitor business practices.

Table 1 Issues within the operations of the FASB and the SEC, from Niskanen (2010)

Reasons for Change in Accounting Standards		
Attribute	**FASB**	**SEC**
Versatility	The FASB establishes all accounting standards that are to be used by firms regardless of their makeup, purpose, or intent. Niskanen argues that there is little to no obvious reason why, or evidence to suggest that one set of fixated accounting standards would be appropriate for use by all types of firms. This limits their capabilities to monitor their finances and maintain professional standards if the practices they have to follow are not applicable. Thus, the issue of modernizing accounting standards is not simply whether AIS is effectively being used or not, but rather the issue is much more ingrained and formative. If the very guiding notions of accounting standards or the theories behind their creation are not adapting to modern needs then it begs the question of how we possibly expect modern technology to be used effectively.	The SEC's primary responsibility is to protect financial investors while maintaining the function and fairness of security and exchange markets and facilitating the generation of capital. Regardless of what the FASB puts forth, it is not necessarily in the SEC's best interest to commit to accounting standards that are potentially not beneficial for all firms. There is no evidence to suggest that accounting standard boards have an advantage over the SEC with regard to setting accounting standards. Also, Congress does not have any advantage either.

Reasons for Change in Accounting Standards		
Attribute	**FASB**	**SEC**
Timing	Another issue that the FASB has been known to run into is the issue of timing. According to Niskanen, the FASB is at times slow to develop accounting standards that are applicable to new and innovative types of technology for financial transactions such as mobile payment applications like Apple Pay, Android Pay, Samsung Pay, etc. This means that accounting standards in the U.S. become "unusually complex" and "vulnerable" to interpretation that is mostly subjective; this, in turn, makes it susceptible to controversial accounting doctrines (Niskanen, 2010, par. 3)	If the SEC upholds or approves accounting standards that are beneficial and meet the technological innovation that prompted their creation than the SEC is doing its job and meeting its own responsibilities. If the SEC fails to approve accounting standards that do align with new technology for financial transactions than these new methods will lack adequate accounting standards; furthermore, if the SEC fails to approve the FASB standards in a timely manner then this can compound upon the issue that the FASB is known to churn out new accounting standards slowly. Effectively, both authoritative agencies will fail to operate efficiently.
Advantages	The FASB is in the powerful position of setting accounting standards that can either benefit or harm firms if they do not meet the new technological needs of the industry. Unlike the SEC, which has no significant advantage when it comes to evaluating the standards, the FASB can take the advice of the SEC and put it toward new endeavors and ensure that new accounting standards are approved; this is particularly important when the SEC has declined the accounting standards because at this stage the FASB must draft new guidelines. The FASB is at times at a disadvantage because they have a more narrow view of standards, and thus they can be hard to convince of the need to establish unique and innovative accounting standards for modern technological advances.	As Niskanen indicates, the SEC chiefly interprets the current political demands for financial standards to keep the balance and protect the efficiency accounting across sectors and industries. However, they lack any particular advantage when it comes to reviewing and approving changes made by the FASB as they are supposed to assess the functionality of the standards and this is subjective; for example the SEC once straddled the issue put forth by Congress to "study the comparative value of rules-based and principles-based accounting" (Niskanen, 2010, par. 4). Furthermore, the SEC endorses a more objective point of view but they fail to define what that entails.

3. Methodology

The goal of the research was to understand how technology is currently being used, how it might be used but is currently not being implemented, and if such changes really need to occur to evolve accounting standards. The process of determining whether accounting standards should be modified to suit evolving technology by utilizing artificial intelligence first and foremost began with research regarding the uses of technology in accounting and financial reporting. After researching the current accounting standards and GAAP changes that have taken and will continue to take place within the next few years the author began to notice gaps where artificial intelligence was not being used to the fullest capacity such as for credit loss models. During this process, a number of resources were used to develop a comprehensive perspective of the topic, including the Journal of Accounting Information, the foremost journal in the accounting field. It was essential to establishing the validity of AI in the AIS field.

3.1 Methods

The study itself is more appropriately described as a content analysis or thematic analysis qualitative study. The definition of a qualitative study is one which evaluates qualitative data and the content of the materials to assess the emerging themes, and qualitative data is that which provides insight into the problem, the causes of the problem, and how the study participants relate to the problem. Thus, qualitative research is the "systematic inquiry into social phenomena in natural settings" (Teherani, Martimianakis, Stenfors-Hayes, Wadhwa & Varpio, 2015, p. 669). Qualitative data analyses are subjective because the researcher or scholar

is actively interpreting the data to determine what patterns exist. The subjective nature of qualitative studies sets them apart from quantitative data. For this study, an analysis of current literature as the primary source of data makes it appropriate for a qualitative data analysis.

3.2 Materials

When selecting what type of qualitative data analysis to conduct, one must assess each in relation to the objectives of the study. The research goal of the study is to identify trends in current literature on accounting standards in order to do several things: 1) to determine deficiencies in current literature and identify what gaps exist that need to be satisfied with future research; 2) to determine what the current literature says about accounting standards and whether the recommendation is that they need to be modified to fit new technology avenues; 3) to determine if the use of AIS or artificial technology methods are a topic of interest as far as actual application in accounting beyond simple theory-essentially, does the literature suggest ways that AIS can legitimately be used to make accounting standards more effective?; 4) and to assess in general the future direction of firms to determine if there is a legitimate need to incorporate and use AIS technology in new accounting standard modifications—essentially, are businesses moving from less physical and more digital operations to the degree that not using AIS technology would be a setback?

Given these research goals, the methodology includes the research of scholarly databases for the purposes of identifying key literature on the subjects of both AIS technology, current accounting standards, and recommendations for accounting standard improvements. The databases for this research largely consisted of the American Accounting Association, Science Direct, and ResearchGate, with the former used primarily. Some of the most heavily used journals were the *Journal of Emerging Technologies in Accounting*, *Accounting Horizons*, *Procedia Technology*, and the *Research Journal of Finance and Accounting*. Other sources such as news outlets including Wells Fargo resources and the *Wall Street Journal* were analyzed to determine the timeline of changes to accounting standards as well as to document concerns of executives with the status of accounting standards going forward. Some academic resources were used for background research and other field information without the addition of unnecessary references and citations.

This is a qualitative research study which means that the data analysis of the gathered materials must include a data collection process that facilities the subjective inquiry of the researcher. First, the materials must be selected based on their merit to the issue, which entails isolating articles that refer specifically to the issues addressed within the study. For this study, articles with the keywords artificial intelligence and accounting standards were selected, and those which included both keywords were preferable but for separate analyses given the varying objectives.

Next, the articles were read several times and coded using professional qualitative data analysis software such as Atlas.ti. These tools provide the option of coding written content to determine trends within the data itself and across the selected literature. In this case, the identifiable trends which the researched expected to see were going tone similar to the literature review previously conducted, only the discussion would include the importance of AIS and its possible uses for facilitating efficient accounting standards and practices; more specifically, the idea is that accounting standards should support the evolving technological needs of the industry and include guidelines for AIS use. Finally, the results of this codified data were written up and presented as the following content analysis for this report.

4. Results and Discussion

Before addressing the issue of emerging technology in accounting and how to address change, the research aim first must be to address not only what changes are occurring for accounting standards but also to identify the anxieties and opinions of financial institutions and executives. New revenue recognition standards will change how businesses conduct contracts with customers and it will improve disclosure and transparency (Deloitte U.S., 2018a; Ostiller, 2018). The ultimate goal of this new change is to remove inconsistencies with the treatment of revenue, which technology can do.

However, other new changes such as leasing accounting standards are in a difficult space. According to Michael Cohn from Accounting Today, public companies which will have to comply with new leasing accounting standards will face technological hurdles, including “new data elements, data housed in various systems, relevant information being spread across multiple lease agreements, a high volume of data fields,

and multiple languages, contracting parties and currencies" and a lack of electronic lease agreements (Cohn, 2018, par. 2).

While the issue with leasing agreements is only one problem among many the implications are vast. Statistical information from the firm Deloitte suggests that executives have concerns about how the leasing accounting standards will be implemented because the small businesses do not have the resources needed to comply with them or the technology that would make them easier to deal with. Figure 1 depicts a graphical representation of the data gathered concerning feelings about the changes to leasing accounting standards.

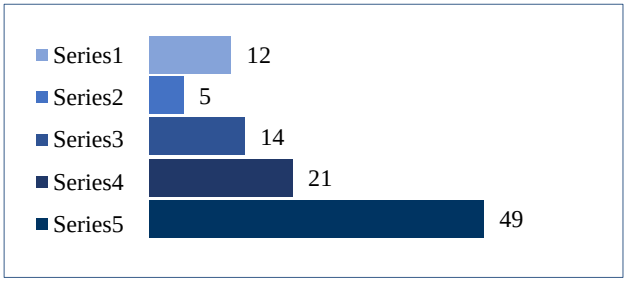

Figure 1 Data collected from the firm Deloitte U.S. indicating executive concerns about accounting standards (Deloitte U.S., 2018a; Deloitte U.S., 2018b)

This is one example of the ways in which certain procedures and processes that do not evolve with time—adjusting with technology and the shifting needs of financial institutions-fail to help the accountants do their job well. Belfo and Trigo (2013) describe Accounting Information Systems as a "computer-based method for tracking accounting activity in conjunction with information technology resources" (p.537). This domain is moving away from a focus on enterprise resource planning to a modular approach where business intelligence and balanced scorecards now play an important role; the need for accounting standards to reflect the need for technology to facilitate these changes will be discussed herein.

After following the methodology and analyzing the materials several conclusions can be made regarding the need for accounting standards to adapt. The reason for this is because professionals in the accounting and business field have accurately predicted and will continue to do so that technology will change the way we do business, and thus it will change the way businesses are run. Many reports suggest that the progressive evolution of technology will specifically impact such processes such as auditing which may improve with faster, "smart" devices and large storage spaces (Fisher, 2004; Issa, 2016). A search for articles from news outlets such as the *Journal of Accounting* showed a trend in the topic of artificial intelligence as a revolutionary force in accounting.

Sarah Ovaska-Few (2017) provides a comprehensive overview of the impact of artificial intelligence in the accounting field that we can already see. In general, the benefits largely consist of the ability to collect and analyze big data and store it in a way in which the data can be easily and swiftly accessed. Instead of focusing on the potential threat of technology to job security, the emphasis needs to be on the ability of accountants to effectively manage the technology. As Ovaska-Few (2017) states, small businesses are especially vulnerable if they do not adapt their own practices. By enforcing changes to accounting standards the FASB can provide GAAP policies which benefit financial institutions and businesses. Creating automatic credit loss prediction models and utilizing the ability for artificial intelligence to collect data like a spreadsheet are just examples of a way in which artificial intelligence can be used and is currently being used, respectively.

Perhaps the best way to use artificial intelligence is via a process known as cloud computing, but there is an infinite number of ways in which technology can and should be utilized. As Trigo, Belfo, and Estébanez (2014) discuss, one of the many ways in which accounting standards need to evolve is to focus on requiring real-time reporting rather than periodic reporting, predictions of future credit losses not assessments of the damage after it can no longer be planned for. The nature of accounting is to provide accurate financial reporting for financial institutions to be able to make sound economic decisions, and new technology including artificial intelligence can make a significant difference. Table 2 breaks down the six areas in which

Trigo, Belfo, and Estébanez (2014) believe that technology can bridge the gap to make real-time reporting less of a hassle, transforming the different technological advances into methods for growth.

Table 2 Six Opportunities for AIS growth and utilization in accounting, from, Trigo, Belfo, and Estébanez (2014)

Opportunities for Artificial Intelligence Growth in the Accounting and Finances Field	
Business process management	Business process management (BPM) focuses mainly on the issue of providing businesses the ability to monitor and optimize processes; today, Business Process Management Suites (BPMS) now include modules specifically the Business Activity Monitoring (BAM) which can provide real-time dashboards for monitoring processes.
Mobile devices	Mobile devices such as smartphones are an integral part of modern business processes, and the accounting standards should reflect the unique reporting format; As Trigo, Belfo, and Estébanez (2014) explain, mobile information should be based on metrics—such as key performance indicators (KPIs) (p.123) and show the information in a graphical way to allow for the most accurate interpretation of the information's importance for the accountant.
Cloud computing	Cloud computing is unique because not only does it describe the universal data sharing services of modern software but it also exists as a singular technological capability on its own; cloud computing capabilities mean that a business can easily implement real-time reporting and increase collaboration with embedded social tools; additionally, cloud computing exposes the need for accounting standards to evolve in order to make Accounting Information Systems (AIS) accessible to all enterprises, both large and small formerly the small enterprises suffered from a lack of resources and thus could not access AIS (Kordecki & Bullen, 2014).
Business Intelligence	Business intelligence projects include two main activities: data warehousing and enterprise reporting or predictive analytics. Defining metrics and the selection of the most adequate visual representations of information are objectives of business intelligence.
Enterprise Architecture	Enterprise architecture mainly refers to the organization of the enterprise as it is defined by its components, how they are working with and building upon each other, and whether the principles guiding its design and evolution is effective and evolving as necessary. For accounting standards, enterprise architecture is an important concept because components such as business reporting language need to evolve with technology, and if the standards do not require enterprises to evolve their business processes then their real-time reporting capabilities will be compromised.
Enterprise Application Integration	Enterprise application integration is essentially how the applications which coexist within an enterprise's business processes work together and how this impacts the enterprise architecture.

Building off of what Trigo, Belfo and Estébanez (2014) discuss, other researchers emphasize the need for accounting standards to not only evolve to effectively utilize artificial intelligence but to acknowledge the differences in resources for enterprises. As Kordecki and Bullen (2014) note, small businesses have long been at a disadvantage financially, thus with fewer resources and less access to tools which might allow them to make better economic decisions, there will always be a discrepancy. Cloud computing is just one technological advancement which negates some of these differences. This allows smaller firms to better compete with larger firms, and smaller firms might be more flexible with developing accountants that can handle the new technological aspects of the job.

Finally, there is another area in which accounting standards could potentially evolve to suit emerging technology. Auditing technology has consistently been structured; audits themselves provide a business or financial institution with actionable insight into their financial stability (Kinney, 1986). In recent years researchers have acknowledged that scholarly discussions of internal audit technology and the use of technology acceptance models (TAM) has been limited. Kim, Mannino, Nieschwietz (2009) sought to bridge that gap with their article on the use of a TAM on internal auditors. They found that the auditors received the technology differently: ratio analysis, database queries, and audit sampling technology was generally

accepted while classification, digital analysis, and regression/ANOVA were accepted less (Kim, Mannino, & Nieschwietz, 2009, Abstract). What they found was that as the complexity of the technology increased then so the usage of the technology decreased. Accounting standards from the FASB might be altered to require automatic usage of auditing technology. To make the process easier, artificial intelligence should be used with newly designed auditing technology that makes AIS access a possibility for both small and large businesses.

One thing is for certain: businesses believe that technological advances are going to continue changing business processes until the FASB will have no choice but to adjust the GAAP accounting standards to reflect growth. Researchers have noted the importance of AIS in facilitating changes to the accounting standards, and these advancements are primarily guided by emerging technology (Krahel & Vasarhelyi, 2014; Issa, 2018). Today, statistical sampling, enterprise resource planning (also known as ERPs), and spreadsheets are part of common knowledge. AIS and most courses and resources for AIS education are in-depth as opposed to education on specific technological processes. The problem with this philosophy is that adoption of technology without an emphasis on how to best use it means that many tools might be underused or not used properly at all. Also, these methods can be used to helping rectify the current account standard. The trend is using more and more technology so those working now need to be able to work in this environment.

5. Conclusion

In conclusion, the results of the study and content analysis suggested that there are several thematic trends in the current literature regarding issues with accounting standards. Not only do accounting standards have the disadvantage of being churched out slowly to the combined action of the FASB and the SEC which at times do not act in the best interest of new financial technology but they also can fail to meet the growing needs of the modern tech and financial world. Accounting standards tend to be rigid in design, and thus they fail to change significantly over the passage of time. Regardless of whether the standards evolve to utilize AI, the standards must first and foremost evolve to effectively bridge the gap between old technology and new technology.

This paper sought to analyze some of the key issues facing accounting standards and why they need to be modified, and what was discovered is that not only must the FASB and the SEC work in tandem to ensure that accounting standards are effective, but that the new standards must be capable of adapting to new business models and new technology such as AI. However, the content analysis was full of limitations. One of the main reasons why it is difficult to analyze the effectiveness of accounting standards is simply because the field lacks abundant research on the topic. Often we take for granted that the FASB will modify GAAP to suit the needs of businesses yet we suffer the consequences when we can neither adequately implement nor comply with new accounting standards; this is mostly due to the fact that non-financial institutions often have few resources that would essentially fund the necessary technology which would make real-time reporting a greater possibility.

Reports indicate that businesses are mobilizing to become more and more digital over time, and currently there are several financial transactions and exchange mobile applications such as PayPal, Apple Pay, Android Pay, and Samsung Pay that require new accounting standards. The obvious benefit of living in the age of technology would be to utilize new technological offerings to work for and with another new tech. But while this is simple in theory it is not so simple in application across the board. Technology is changing how accountants work. All of the new technology: AI, Cloud Computing, Big Data and Robo Accounting Software are affecting the accounting process and the account, the auditor, and the IT auditor will have to change with the profession.

Perhaps artificial intelligence is not the greatest answer to the question of how to fix an often broken system of accounting standards after all, small and large businesses face discrepancies in resources. The issue boils down to the access to AIS which some businesses have and some do not; the technology then comes secondary. If AIS was accessible to all then it would be much easier to implement new accounting standards which reflect evolving technology, because at that point the issue of resource discrepancies would have begun to be resolved.

6. References

Belfo, F. & Trigo, A. (2013). Accounting Information Systems: Tradition and Future Directions. *Procedia Technology*, *9*, 536-546. https://doi.org/10.1016/j.protcy.2013.12.060

Cohn, M. (2018). Lease accounting standard has technology hurdles. *Accounting Today*. Retrieved August 1, 2018, from https://www.accountingtoday.com/news/lease-accounting-standard-has-technology-hurdles

Deloitte U.S. (2018a). The new revenue recognition accounting standard. *Deloitte*. Retrieved August 1, 2018, from https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/new-accounting-guidance.html

Deloitte U.S. (2018b). Cognitive technology to comply with new accounting standards. *Deloitte*. Retrieved August 1, 2018, from https://www2.deloitte.com/us/en/pages/deloitte-analytics/articles/cognitive-technology-expedites-new-accounting-standards-compliance.html#

Financial Accounting Foundation (FAF). (2018). Accounting Standards. *Financial Accounting Foundation*. Retrieved August 1, 2018, from https://www.accountingfoundation.org/jsp/Foundation/Page/FAFSectionPage&cid=1351027541272

Fisher, I. (2004). On the Structure of Financial Accounting Standards to Support Digital Representation, Storage, and Retrieval. *Journal of Emerging Technologies in Accounting*, *1*(1), 23-40.

Hartgraves, A.L. & Benston, G.J. (2002). The Evolving Accounting Standards for Special Purpose Entities and Consolidations. *Accounting Horizons*, *16*(3), 245-258. https://doi.org/10.2308/acch.2002.16.3.245

Huerta, E. & Jensen, S. (2017). An Accounting Information Systems Perspective on Data Analytics and Big Data. *Journal of Information Systems*, *31*(3), 101-114.

Islam, M.A. (2017). Future of Accounting Profession: Three Major Changes and Implications for Teaching and Research. *IFAC*. Retrieved August 1, 2018, from https://www.ifac.org/global-knowledge-gateway/business-reporting/discussion/future-accounting-profession-three-major

Issa, H. (2016). Research Ideas for Artificial Intelligence in Auditing: The Formalization of Audit and Workforce Supplementation. *Journal of Emerging Technologies in Accounting*, *13*(2), 1-20. doi:10.2308/jeta-10511

Issa, H. (2018) AIS Research and Government Accounting Research Compared: Special Section of JETA on the Use of AIS Technology in Government Reporting. *Journal of Emerging Technologies in Accounting*, *15*(1), 103-106.

Kim, H., Mannino, M., & Nieschwietz, R.J. (2009). Information technology acceptance in the internal audit profession: Impact of technology features and complexity. *International Journal of Accounting Information*, *10*(4), 214-228. https://doi.org/10.1016/j.accinf.2009.09.001

Kinney, W.R. (1986). Audit technology and preferences for auditing standards. *Journal of Accounting and Economics*, *8*(1), 73-89. https://doi.org/10.1016/0165-4101(86)90011-X

Kordecki, G. S. & Bullen, M. L. (2014). Evolutionary developments in accounting standard setting for private entities and SMEs. *Journal of International Business and Cultural Studies*, *8*(June),1-18.

Krahel, J.P. & Vasarhelyi, M.A. (2014). AIS as a Facilitator of Accounting Change: Technology, Practice, and Education. *American Accounting Association*, *28*(2), 1-15. https://doi.org/10.2308/isys-10412

Krahel, J.P. & Titera, W.R. (2015) Consequences of Big Data and Formalization on Accounting and Auditing Standards. *Accounting Horizons*, *29*(2), 409-422.

Moffitt, K.C., Rozario, A.M., & Vasarhelyi, M.A. (2018). Robotic Process Automation for Auditing. *Journal of Emerging Technologies in Accounting*, *15*(1), 1-10.

Niskanen, W. A. (2010). Problems with Accounting Standards. *The New York Times*. Retrieved October 25, from https://www.nytimes.com/roomfordebate/2010/12/20/how-to-make-auditors-more-accountable/problems-with-accounting-standards

Ostiller, R. (2018). Changing Accounting Standards: What Corporate Counsel Needs to Know. *Navigant*. Retrieved August 1, 2018, from https://www.navigant.com/insights/disputes-investigations/2018/changing-accounting-standards

Ovaska-Few, S. (2017). How artificial intelligence is changing accounting. *Journal of Accountancy*. Retrieved from https://www.journalofaccountancy.com/newsletters/2017/oct/artificial-intelligence-changing-accounting.html

Ramsey, H.B., Farley, J., Koch, A.A., Robertson, R.S., & Storey, R.K. (1977). Evolution of Accounting Standards and Current Developments. *Record of Society of Actuaries*, *3*(4), 929-941.

Ransbotham, S., Kiron, D., Gerbert, P., & Reeves, M. (2017). Reshaping Business with Artificial Intelligence [PDF]. *Massachusetts Institute of Technology*. 1-30.

Shumsky, T. (2018). New Accounting Rules Change How Some Companies Sell Goods, Services. *Wall Street Journal*. Retrieved August 1, 2018, from https://www.wsj.com/articles/new-accounting-rules-change-how-some-companies-sell-goods-services-1528795800

Teherani, A., Martimianakis, T., Stenfors-Hayes, T., Wadhwa, A., & Varpio, L. (2015). Choosing a qualitative research approach. *Journal of Graduate Medical Education*, *7*(4), 669-670. doi:10.4300/JGME-D-15-00414.1

Tilley, Baker. (2017). Are you ready for these 4 major changes to the accounting rules? *Baker Tilly*. Retrieved August 1, 2018, from http://www.bakertilly.com/insights/are-you-ready-for-these-4-major-changes-to-the-accounting-rules/

Trigo, A., Belfo, F., & Estébanez, R.P. (2014). Accounting Information Systems: The Challenge of the Real-Time Reporting. *Procedia Technology*, *16*, 118-127.

Unegbu, A. (2014). Theories of Accounting: Evolution & Developments, Income- Determination and Diversities in Use. *Research Journal of Finance and Accounting*, *5*(19), 1-15.