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Implications of Emerging Technologies on the Accounting Profession

Collin Peace

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By:

Collin Rian Peace

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Collin Peace 4/05/21

Collin R. Peace Date

Michelle Freeman 4/5/21

Dr. Michelle Freeman, Thesis Mentor Date

Ashley Bentley 4/5/21

Dr. Ashley Bentley, Reader Date

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Executive Summary

Automation recently implemented for some and awaiting to be implemented for others is set to revolutionize the field of accounting, as well as the roles and responsibilities of those who work in it. This study will present and analyze the impacts of current emerging technologies on the accounting profession through first-hand interviews with current accounting professionals. Secondary data obtained will provide the reader with the proper context and background of these technologies, while the primary data acquired from the interviews will explain the implications such technologies will have or are currently having in their respective companies/firms. The results of this study are meant to further inform, educate, and provide clarity as to what current or aspiring accounting professionals can expect as they venture into a transformed accounting landscape.

Introduction

"Bean counters," "number crunchers," "provisions peddlers," "journal lovers," and "spreadsheet slaves." These are the terms that have historically been used to describe accountants. Even to this day the popular conception of an "accountant" is an individual barred away from the rest of humankind in a cubicle deep within the recesses of an office building, ticking and tying numbers for twelve or more hours a day. This stereotypical accountant is taken to have no social skills, no ability to think in the abstract, and no function outside of menial data entry. Given this popular image, accounting is often labeled as bland, archaic, tedious, uninteresting, and unglamorous. However, these pencil pushers are a picture of the past, as the accounting profession is undergoing a data-driven revolution that will permanently change the role of accountants and the industry landscape moving forward. Amidst these changes, the question remains, how prepared do current accounting professionals actually feel to adapt to these changes, and what are their actual opinions in regard to the nature of these changes? To display what current accounting professionals expect from such technologies, a sample of accounting professionals from a variety of job levels and industries were interviewed, and their responses provided valuable insight which simply could not have been captured by secondary sources.

Literature Review

Benefits of Automation

Accounting automation has the ability to rid accountants of the myriad of mundane, trivial, and manual tasks they do on a daily basis, as well as lead to increased efficiency improvements, cost reductions, and overall accuracy (Brands, 2016). With transactions documented immediately by workflow automation software, an organization experiences faster processing time, yielding information quicker and easier (Brands, 2016). Internal controls are also improved as human error and negligence is replaced by consistent application of business processes (Brands, 2016).

Robotic process automation (RPA) will make the dreaded month-end close for accountants smoother and less frantic as they no longer have to spend hours manually matching transactions, combining large data sets, and assembling Excel reports which they must update continuously (Tucker, 2017). Through RPA, manual, error-prone tasks are removed from human responsibility, giving organizations the ability to make efficiency and accuracy improvements at a lower cost, while simultaneously bestowing their accountants with higher-level, more human-adapted activities like strategy and analysis (Tucker, 2017).

The financial close period is an area of particular significance automation can transform. The record-to-report model used commonly compresses an expansive amount of work into a short time period and delays processing and reporting until the end of the period (Tucker, 2017). This makes for a very reactive, expensive, and error-risky approach that excludes adequate time for actual analysis (Tucker, 2017). Inversely, the new practice of Continuous Accounting transforms not only an organization's accounting function, but the entire organization itself by

delivering real-time financial data which frees it from a rigid accounting calendar and ensures full confidence of an updated reflection of financial performance (Tucker, 2017). With automation, control, and period-end tasks incorporated into day-to-day activities, corporate leadership has constant access to real-time information, allowing them to overcome the hurdle of waiting weeks to months for updated financials (Tucker, 2017). Continuous Accounting transforms business processes by emphasizing real-time processing by employees, paired with a significant component of deep analysis (Tucker, 2017).

Additionally, the workload is more evenly distributed as the tasks reserved for the last week of the month are spread over the month as a whole, allowing individuals to perform tasks in smaller sections more frequently (Tucker, 2017). Being able to access financial data anytime allows for constant monitoring for errors, inefficiencies, and measuring the impact of economic events (Tucker, 2017). According to PwC, the premier financial organizations integrating this new accounting practice are operating at 40% lower costs compared to other firms while being able to spend 20% more time analyzing financial data rather than collecting it (Tucker, 2017). These same companies are experiencing faster financial close periods, doubled efficiency in accounting functions, and a collectively more satisfied accounting and finance organization (Tucker, 2017).

Tools like artificial intelligence and cloud-based technologies like Blockchain are what is spearheading accounting automation and making practices such as Continuous Accounting possible (Accountants, 2018). The ability to input data through optical character recognition (OCR) is revolutionizing the preparation of tax returns through tax preparation software (Accountants, 2018). Computer-assisted audit tools and techniques (CAATT) software is now enabling auditors to perform audit testing at unprecedented rates (Accountants, 2018). Such

software is providing continuous accounting practices like continuous auditing of transactions while AI reports any problems to audit teams and upper management (Accountants, 2018). Blockchain, on the other hand, transforms the traditional financial transaction system by grouping transactions into blocks and organizing them in a global network (Accountants, 2018). Once in the global network, the new block is time-stamped and added to the entire chain of "blocks" which are organized in chronological order (Accountants, 2018). Bookkeeping functions are therefore rendered almost unnecessary since blockchain will track transactions in real-time, thus ensuring the proper validity, maintenance, and completeness of the transactions (Accountants, 2018).

The technologies thus far discussed will be used in the quickly developing Robotic Accounting Department (RAD), which employs two kinds of accounting robots: task-oriented and process-oriented (Tucker, 2017). Task-oriented robotic process automation, also referred to as "robo-accountants," fill the role of automating manual work by relying on a set of rules and algorithms to know what to do with accounting information as well as when to perform its function (Tucker, 2017). Before RPA, accountants manually had to perform time-intensive tasks such as matching transactions, identifying discrepancies, and creating journal entries (Tucker, 2017). Due to the introduction of robo-accountants, human accountants can now save loads of time and shift their focus to investigating any discrepancies the RPA software finds (Tucker, 2017).

The second type of robot used in the RAD automates processes rather than tasks (Tucker, 2017). Process-oriented robotic process automation uses artificial intelligence to manage whole processes, like the close cycle, without the need for human intervention (Tucker, 2017). Rather than sending any discrepancies identified to human accountants, process RPA sends these

discrepancies to the robo-accountants for additional investigation (Tucker, 2017). The process-oriented RPA tools are essential for the integration of true Continuous Accounting since they provide real-time financial information and therein allow human accountants to focus on strategy and analysis (Tucker, 2017). A fully integrated and functioning RAD begins with data import, where the process-oriented robots perform the data gathering by harvesting company systems, bank files, credit cards, and other relevant sources (Tucker, 2017).

Next comes data processing and verification, wherein the robo-accountants manipulate the collected data in the form of matching transactions, identifying fees, adjusting, and noting significant fluctuations (Tucker, 2017). In the next step of exception management, the robo-accountants identify any exceptions, and if there are any discrepancies it cannot solve, it will forward it to a human accountant for deeper investigation (Tucker, 2017). The robo-accountants then perform reporting and analysis by using the manipulated data to create reports and providing light analysis (Tucker, 2017). It is the role of the human accountants here to perform deeper, more in-depth analysis of the reports to draw conclusions (Tucker, 2017). The final step of the RAD in practice is auditing, which, due to the robo-accountants having performed the significant portion of the manual, rote work, is a less cumbersome task for the human accountants who can now focus on essential audit functions rather than proof-checking (Tucker, 2017).

Among the noted benefits of accounting automation, numerous firms are reporting positive returns on investment with Robotic Process Automation (RPA), as well as higher productivity and overall happier customers (Castellanos, 2019). RPA is a system of software bots equipped with machine-learning algorithms to complete tasks like object recognition (Castellanos, 2019). According to a Computer Economics Technology Trends 2019 study, early

adopters of new technologies are experiencing positive returns on investment within just 18 months of deployment (Castellanos, 2019).

Skillset Adjustment to Automation

In order for accountants to adjust and adopt these roles, accounting students and seasoned professionals alike must receive education crafted towards honing analytical, technical, and interpretative skills (Brands, 2016). Students and professionals in the field need to take courses incorporating information technology and focusing on process improvement in order to be prepared to work with the technology currently being implemented (Brands, 2016). Each individual who is either preparing to be or currently is an accountant needs to evaluate their job functions and their ability to adapt to the oncoming technology changes, as many of the transaction processing and data entry roles are likely to be replaced by automation (Brands, 2016). It is crucial to take technology classes, gain experience through hands-on technology projects, engage in technology webinars and discussions, and proactively embrace the opportunity to take on a new accounting role (Brands, 2016).

An avenue by which individuals can establish a level of expertise in the evolving accounting world is through obtaining technology credentials, such as the AICPA's certified information technology professional (CITP) credential, which acknowledges Certified Public Accountants who take part in additional training in areas including business solutions, data analytics, and emerging trends (Brazina, 2018). Additional credentials accountants can pursue include the certified information systems auditor (CISA), a certification for information systems audit professionals, and the certified in risk and information systems control (CRISC) certification, geared for those with experience in the management of IT risk and controls (Brazina, 2018).

By implementing the RPA tools and practices discussed, contemporary accounting roles will change. “Staff accountants” will become “RPA standards leaders,” since the RPA tools require human guidance regarding exceptions, materiality, and other areas calling for extensive judgement (Tucker, 2017). The RPA standards leader uses their broad knowledge of accounting processes to set up and maintain rules and risk profiles to guide the robots into smooth operation. “Accounting managers” now become “business advisors,” providing analysis and advice to clients and leadership based on the reports generated by the RAD (Tucker, 2017). Robotic integration in the accounting industry is allowing accountants to participate in more intelligent and meaningful careers by shifting their roles to more human-characteristic tasks like creating, analyzing, and interpreting (Tucker, 2017).

Human Element Amid Automation

While RPA tools are crucial to driving efficiency and accuracy, human beings are the paramount part the Robotic Accounting Department (Brands, 2016). Humans engineer the systems the robo-accountants draw data from, create the decision-rules and algorithms the robo-accountants follow, and decide how exceptions are determined by the robots, thus emphasizing how humans still drive key decision-making in even technologically-revolutionized organizations (Brands, 2016). The introduction of task and process-oriented RPA tools has simply transformed the role of the human accountant, not replaced it (Brands, 2016). These tools enable accountants to enjoy a fuller potential, as they are liberated from the dreadful work of menial data entry and have access to more interesting, higher-level work that contributes both to individual and organizational achievement (Brands, 2016). Such tools make possible the practice of Continuous Accounting, which allows access to real-time financial data so financial reporting and analysis can be done perpetually (Brands, 2016).

Automation's Impact on Accounting Jobs

While certain accounting jobs will indeed most likely be replaced by automation, there will be new jobs created which will offset those lost due to the automation revolution (Tucker, 2017). The new jobs created will require more special, in-depth skills such as critical thinking, consultancy, and analysis (Hassan, 2019). RPA and AI will provide task automation such that traditional accounting roles will change in favor of the creation of new roles more valuable in the accounting workspace (Marshall, 2018). A 2017 PwC study stated 40% of accounts payable processes can be automated, and traditional accounting jobs like bookkeeping are the highest at risk of becoming replaced by digitalization in the next 20 years (Morehouse, 2019). The study further states automation enables over 40% of finance efforts to align with more value-driven activities (Morehouse, 2019). Entry-level jobs may be some of the most at-risk jobs in the accounting industry, as junior staff roles typically include maintaining financial records, analyzing balance sheets and general ledgers, and reconciling these accounts (Sullivan, 2019). These positions may be most at risk of elimination as artificial intelligence can easily replace such responsibilities and do them more efficiently (Sullivan, 2019). However, automation and artificial intelligence is not meant to outright replace CPAs; rather, their duties, responsibilities, and contributions will change for the better. Further, automation will transform their roles, not necessarily their jobs (Tucker, 2017).

Challenges/Obstacles to Automation

Current research has also been performed as to the impediments standing in the way of accounting automation (Brands, 2016). The Law of Diminishing Returns may play a factor in slowing the progress of further automation in organizations, since, at some point, increasing

automation may be met with incrementally less marginal return, meaning certain firms may hesitate to incorporate some of the new technologies if they determine the return on investment is not worth it (Brands, 2016). Also, some of the tax preparation software packages do not provide 100 percent accuracy for tax practitioners who use optical character recognition (OCR) to input their client's data (Tucker, 2017). Accuracy here depends on a multitude of sources, varying from the OCR software used, tax software compatibility, and the complex tax code further complicates getting the appropriate data input (Tucker, 2017).

As far as blockchain is concerned, there are numerous platforms and rules for blockchain transactions, with no particular platform being the primary system preferred (Tucker, 2017). Therefore, no process standards are universally required, allowing hackers to take advantage of the discrepancies and deficiencies possibly found among the various platforms (Tucker, 2017). Another impediment lies in organizational leadership (Tucker, 2017). Among the 977 senior finance professionals who took part in the Future of the Finance Function Survey 2017, only 40% believe the financial close will be replaced by real-time reporting by 2030, potentially reflecting either a resistance or fear towards replacing their current reporting systems (Tucker, 2017).

Further, the survey found only 17% of senior finance executives felt they played an active role in strategic planning and decision-making on their company's board, therein limiting their ability to voice recommendations for new technologies in their accounting and finance departments (Tucker, 2017). The survey also concluded CFOs do not appear to view their role to include coaching and encouraging business units to make better commercial decisions (Tucker, 2017). If the finance and accounting functions of organizations are to experience accounting automation, CFOs have to be more assertive and proactive in convincing their organizations of

the benefits automation provides (Tucker, 2017). Additionally, the survey found only 40% of senior finance professionals have been able to clearly determine how new sources of data can give their organizations a competitive edge (Tucker, 2017). Data incompetence and confusion; therefore, stands as one of the biggest potential barriers to companies successfully transitioning into the new accounting world (Tucker, 2017).

Other writers speculate the auditing function will be performed by only 50 to 100 accounting firms, and those actively incorporating the technologies discussed will be the few in this select group (Sheedy, 2017). The author suggests the greater majority of accounting firms left out are complacent in their current business operations and resistant to change processes they view as effective enough already (Sheedy, 2017).

Research Objectives & Study's Contribution to Present Research

Given the numerous proposed advantages of the accounting automation revolution, there still remains uncertainty as to why all accounting professionals are not as quick to embrace these changes. Aside from author opinions and general survey responses, the goal of this study is to discover how current accounting professionals actually feel towards the new technologies being implemented in the accounting profession and answer the essential research question: How prepared do current accounting professionals actually feel to adapt to these changes, and what are their actual opinions in regard to the nature of these changes?

Right along with the essential research question, the overall purpose of this research study is to display how current accounting professionals are feeling towards emerging technologies in accounting. An understanding of what this accounting automation exactly looks like today, first and foremost, paired with what this means for their particular accounting roles and responsibilities, will allow individuals either preparing to enter the accounting field, or who are well into their careers, to recognize the changes they must make to successfully adapt to the new data-driven world of accounting. The research study is crucial in that current researchers, bloggers, and writers are left guessing at a number of questions, including why some businesses are not embracing the technologies discussed above. These individuals speculate various reasons for why a degree of resistance, distrust, and uneasiness towards automation exists, but this is, of course, not a true portrayal of how accountants in the field actually view these changes, nor how smaller, regional businesses are approaching accounting automation. Therefore, this study looks to build on similar research done in the past few years and fill in their gaps with first-hand answers from accountants currently dealing with the technologies in question.

Methodology

Research Design

In order to achieve this study's research objective, reputable secondary sources will be used to provide context and background information to acclimate the reader to the research topic of emerging technologies and explain some of the examples of these and how they work. The primary sources, in the form of personal interviews, were the driving force of this research study, as the responses obtained from these interviews showcased how exactly current accounting professionals are feeling and reacting towards these technologies.

Since many of the current technologies being implemented have only become popular in the last half-decade, there is not a great amount of research or statistical data available to conduct quantitative experiments. Therefore, a qualitative approach to the research study was chosen with the intention to accomplish the research objective through a synthesis of secondary and primary data. The questions asked of the interviewees were largely open-ended and not directed by the researcher in a certain way, with the intention being to allow the responses to be authentically candid and honest, free of the constraining effects of leading and pointed questions. The end product of this approach provides clarity as to what current accounting professionals are actually expecting from these technologies and to help prepare the members of the accounting world for the changes potentially impacting them.

Data Collection

The data presented in this research study was collected from one-on-one interviews with accounting professionals currently operating in the field, intentionally selected from a variety of backgrounds, industries, and position levels. The interviews were one hour and were driven by an Interview Questions List, which has been attached to the Appendix of this study. The

researcher used the comprehensive questions list to engage the interviewee to provide their specific hopes, concerns, and expectations regarding accounting automation, as well as their general outlook on the accounting profession in the coming decades.

Responses from the interview sessions were recorded and presented in the Results section located below. The responses were analyzed and categorized according to their similarity and appropriate grouping within the sample population in the proceeding conclusion to this report. Here, the principal investigator synthesized the key themes gathered from the results section to form and disclose to the reader their perception regarding current emerging technologies and what those entail for the accounting profession.

Results

In carrying out the aforementioned methodology for this research study, fourteen current accounting professionals were interviewed, ranging from a variety of backgrounds, industries, and positions so as to reflect a representative sample of the greater accounting professionals population. Each participant was asked the same thirteen interview questions, which have been included in the attached Appendix.

Accounting Role Changes

The first question surrounded how the role of the accountant will change with the onset of emerging technologies such as robo-auditors and robotic process automation. Only one of the interviewees, a financial accounting supervisor, expressed that in their professional career nothing much had changed in the past twenty years. While they conceded emerging technologies will indeed free up time for accountants, the traditional role of the accountant will still be needed in the form of verifying the outputted data. Overall, it was their viewpoint that looming emerging technologies will not change the accounting world as drastically as individuals may think they will.

The general sentiment among the other interview participants was that accounting roles will change significantly in some capacity. A staff accountant in the Accounts Payable department at a prominent American aerospace manufacturer mentioned their role will become more automated by Artificial Intelligence, minimizing the need for human input in their everyday tasks. At the same aerospace manufacturer, a senior financial analyst explained automation will highly reduce errors from manual involvement in posting and creating reports. Coming from an auditing background, they pointed out how, with an automated process, the need for manually having to determine and increase the sample size every time is reduced,

therein providing greater efficiency. Another participant, an entry-level financial accountant, said particular accounting roles could dwindle as companies perform more streamlining of systems and tasks, as well as potentially merging certain positions altogether. They emphasized; however, the need to still have humans checking for errors the systems and technologies may make.

Similarly, an accounting support specialist insisted with roles such as theirs, the new automation will take away the majority of the manual tasks involved, shifting their role to "manning" the robot, in which they couple their accounting knowledge with an increased emphasis on technical skills and verifying the outputs of the robot. Sharing a similar opinion, an Information Security Shareholder at a regional accounting firm stated emerging technologies are harder to implement in the realm of audit since audit processes are often unique firm-to-firm. On the other hand, tax is more receptive to quick automation since it is generally more uniform across companies and industries. In explaining the impact of these technologies, the interviewee said the grunt work typically performed by newer staff, often tedious, unenjoyable, and time-intensive, will be eliminated, and thereby allow entry-level staff to contribute to more value-added activities they enjoy. A tax analyst at a Fortune 500 manufacturing company also spoke into how automation will allow accountants to spend more time on high value tasks as their role will become much more analytical in nature and decrease the amount of time they spend doing manual work.

In this same thought process, another senior accounting manager said journal entries and detailed tasks like these can be done automatically already through current ERP systems, so emerging technologies will just further augment the capabilities of companies to consolidate and manage data more easily. According to a full-time accounting professor at a prominent public

university, due to disruptive technologies being introduced in the accounting profession, repetitive and redundant tasks will become less relevant to the accounting model. Accountants will need to become critical thinkers capable of utilizing both technology and analytics. The traditional role of the accountant will change from mere reporter of information to essential individuals possessing real, valuable business insight. As explained by an Assistant Controller and Director of Accounting, Reporting, and Research at a state-owned electric utility, there is a surging need for accountants with understanding of coding/programming. They expressed the most essential competency required for accountants in the increasingly technology-dependent accounting world is the ability to analyze effectively. Coupled with this is the need for critical thinking skills to analyze reports and recognize the need to verify outputs rather than blindly trust the programs.

A Risk Analyst at the same state-owned electric utility similarly explained the dramatic change from the traditional accounting skillset towards a role more centered on being a Strategic Business Partner serving in a more analytically focused capacity to upper management and external clients. An Associate Dean of the College of Business at a notable Southeastern public university stated machine learning and AI will eventually take care of most of the fundamental accounting work companies routinely do. Firms are now hiring accounting professionals equipped with business analytic skills, displaying the need for individuals to embrace technology and cultivate their higher-level thinking skills. For point of reference, they indicated enrollment by major within their own College of Business was on a downward trend for accounting and a stark upward trend in business analytics and information management.

A Senior Internal Auditor at a large energy company, possessing a heavy background in data analytics, data reporting, and coding, highlighted the many benefits to automating tasks they

currently are responsible for, such as reducing tedious work, increasing employee job satisfaction, improving efficiency, and cutting down on excess costs. However, they did point out all tasks cannot be automated, since there are some crucial responsibilities companies need humans to execute, such as explaining data, monitoring the operations of automated processes, and performing higher-level data analysis. They further reiterated being able to automate those mundane tasks is greatly beneficial to accountants, as this allows for better time value, challenging tasks, and greater job and role diversification.

Outlook of the Accounting Profession

The second question posed to the interview participants concerned what their ten-to-fifteen year outlook was for the accounting profession considering the technological advancements presently being made. Only one of the interviewees, a financial accounting supervisor, expressed that they do not expect there to be much dramatic change in the accounting profession in the next ten-to-fifteen years as it relates to emerging technologies.

The other remaining thirteen interview participants all suggested at least some kind of change coming to the accounting profession in the next ten-to-fifteen years. A staff accountant in the Accounts Payable department at a prominent American aerospace manufacturer responded that they see a lot more centralized work at companies in the future, with a great amount of it being done through automation. There will also be less need for clerks and bookkeepers, as well as less menial data entry. Likewise, a senior financial analyst at the same aerospace manufacturer mentioned businesses will become more streamlined, demanding less headcount to perform tasks. As reports are more readily prepared, there will be an increased emphasis on analytics and forecasting, reflecting the transition to more decision-based tasks versus routine procedures.

Along with an increased emphasis on analysis and forecasting, an entry-level financial accountant stated in the coming decade there will be a high amount of cross-over between interactive technology and accounting. While lower-level jobs might diminish, analytical roles will grow exponentially, as well as the need for database administrators and consultant positions. An accounting support specialist voiced their position that, as the access to readily available information becomes greater, functions such as V-lookups, pivot tables, and data consolidation will be largely performed by robots in the coming years, with the human interaction coming to play in the form of maintaining said robots. According to a full-time accounting professor at a prominent public university, in the next fifteen years the accounting profession will be first and foremost more digital with automated processes. The title of "accountants" will most likely shift to "analytics expert," in which these individuals look at voluminous data and real-time financial reports to serve in a more predictive, forecasting capacity.

Likewise, an Information Security Shareholder at a regional accounting firm indicated there are more technological tools than ever before, such as JupiterOne and Tugboat, and this trend will only continue on into the next decade. Facing auditing fatigue and other complex business dilemmas, more organizations will start implementing technologies they feel will help close their business gaps. A tax analyst at a Fortune 500 manufacturing company posited that, in the future, there will actually be an increase in the need for accountants. As companies increase their global footprint, expand into new markets, and experience the pressures intrinsic to a turbulent business landscape, organizational leaders will seek innovative ways to harness automation.

A retired partner from a Big-4 accounting firm and current chairperson on a State Society of Certified Public Accountants discussed how, since they started in the profession in the

eighties, the changes they saw in the auditing profession in the last five years of their career dwarfed that of the first fifteen-to-twenty years of their career. For example, while a senior manager at a Big 4 firm in the nineties, the go-to tool for an auditor in an audit program was a physical APM (Audit Practice Manual), which was updated annually. Now, an electronic APM is updated weekly in real-time. Change in the accounting profession has also affected the accounting standards themselves, as can be shown in the fact that different accounting principles, standards, and bodies have appeared globally. Such a promulgation of standard setters has made it all barely manageable due to the great divergence of standards. There is a need to get more convergence in auditing standards. A chief culprit of hampering such progress is the PCAOB, who have largely committed "standard-setting malpractice" according to the interviewee as it relates to adjusting their standards to accommodate the oncoming technologies and the changes they promise. The PCAOB has largely drug their feet to respond to the technologies being implemented and so will be even harder pressed down the road to exercise adequate oversight over public companies. The interviewee then claimed that ninety percent of the PCAOB's standards are antiquated and reflect their complete lack of preparation to address both the current and oncoming technological landscape. They recommended the PCAOB step out of its current standard-setting role and let the FASB set standards as they are better equipped to do so and further standard setting will continue to be hobbled in the hands of the PCAOB.

Speaking into similar changes they see coming to the accounting profession, a Senior Internal Auditor at a large energy company, possessing a heavy background in data analytics, data reporting, and coding, stated signs of a shift to a more technologically-driven accounting world can already be evidenced by the CPA exam starting to incorporate more data analytics, showcasing the need for accountants to start balancing technical skills with business analytical

skills. Soft skills will continue to be important going into the future, including the ability to communicate and interpret the results obtained from systems and programs.

Hopes for Automation Integration

The third question asked of the interview participants regarded their personal hopes for automation integration in accounting departments nation-wide. All of the interview participants cited at least some kind of hope for what automation will bring to their workplace. A staff accountant in the Accounts Payable department at a prominent American aerospace manufacturer expressed their desire for automation to enhance accounting roles rather than replace them, achieving this by working hand-in-hand with the technology to produce faster and more efficient deliverables. Similarly, one financial accounting supervisor voiced their hope accountants will still be needed in businesses going forward. While automation may cut down on the overall number needed to perform the necessary jobs/tasks, there will hopefully, and, most likely, still be a need for human accountants. Additionally, a senior financial analyst at the same aerospace manufacturer wished for automation to eliminate the majority of menial tasks they are burdened with since this will reduce redundancy and repetition in their work, as well as improve delivery time, curb errors, and open the way for more centralized information depots. Likewise, an entry-level financial accountant hoped to see invoices become more readily available with the onset of greater automation implementation, as well as technologies performing more of their routine tasks such as manually entering invoices, since there is a lot of room to commit human error when doing these activities. Another senior accounting manager voiced a nearly identical sentiment, saying they were interested in more intercompany journal entries being created on their own, reducing the amount of manual human input which can easily lead to errors and employee fatigue.

Speaking more into hopes for automation, an accounting support specialist stated their optimism towards automation in that it will ideally maximize their time to work with the data and perform more analysis to be communicated to upper management. They wish to see automation in certain target areas such as the Accounts Receivable and Accounts Payable departments, and for companies to come to a better level of efficiency in the processes involved therein. According to a full-time accounting professor at a prominent public university, accountants will hopefully never have to manually record transactions for any business going into the future. The interviewee also wished that accountants become more respected as "financial forecasters," reflecting a transition in the overall profession to a more futuristic and forward-thinking industry.

In expressing their hope for automation, an Information Security Shareholder at a regional accounting firm indicated an area which organizations have struggled with: how to identify audit risk and evaluate potential fraud. For accounting firms, an area of weakness is comprehensively evaluating where the opportunities may exist for fraud. Moreover, with increased automation companies will have the ability to further automate processes to prevent and catch fraudulent activity. A tax analyst at a Fortune 500 manufacturing company stated they see real value in automation integration within their own workplace in the future due to the fact that having more real-time data will allow them to add more value at the company and free them from the more tedious tasks in their day-to-day work life.

A retired partner from a Big-4 accounting firm and current chairperson on a State Society of Certified Public Accountants discussed two trends they have noticed which they hope will continue into the future. The first is an increasing trend in real-time auditing. Auditors will have the tools to audit items of interest throughout the year, opening up possibilities unforeseen in

years and decades prior. For example, computer software firms were always hard to audit because of the detailed contracts and revenue recognition used. The Big 4 firm of which the interviewee was a partner developed their own tools to do a comprehensive test of details from the sample, allowing them to download one-hundred-percent of all software contracts put through the AI software they engineered to look for the programmed criteria. The trend towards real-time versus after-the-fact auditing will only continue. The second trend the interviewee noted is a shift towards more tools to monitor and detect fraud in real-time. Since perpetrators of fraud will devise more tools as well, companies must continue to push AI and automation in their Information Security departments to keep pace in terms of detective and preventative controls.

As explained by an Assistant Controller and Director of Accounting, Reporting, and Research at a state-owned electric utility, automation should increase efficiency in accounting departments overall and reduce many of the manual inputs required in processes, thereby creating more time for accountants to focus on career development, detailed analysis, and continuous improvement. A Risk Analyst at the same state-owned electric utility noted that, compared to private and public companies, governmental organizations are typically slower to adapt, so it was their sentiment that governmental organizations particularly need to embrace more paperless technology. The interviewee also expressed their wish to get many routine tasks out of Excel into a technology even more systematic in nature. Additionally, the amount of human decision-making with basic-level tasks should be transferred to more gray-area responsibilities requiring human judgement.

An Associate Dean of the College of Business at a notable Southeastern public university responded with a desire to organize the accounting classroom around more real-world problems and introduce more inter-disciplinary collaboration into accounting curriculums nation-wide.

Corporations are experiencing difficulties in becoming more digitally literate and adopting technologies faster, proving the need for accounting students entering the business world to be better equipped at cultivating a technological skillset earlier on so they can make an immediate impact upon employment.

Concerns Regarding Automation Integration

Inversely from the third question, the fourth interview question sought participants' concerns regarding automation integration in the future. Only one of the interviewees, a financial accounting supervisor, stated they do not have much concern whatsoever, as they are readily awaiting automation to become more popularly implemented. They see their own job role as becoming even more appealing since the automation will make their tasks more time-sensitive and provide them with a greater space for analysis.

The other remaining interviewees all expressed concerns of some fashion regarding automation integration in their organizations. For instance, a staff accountant in the Accounts Payable department at a prominent American aerospace manufacturer mentioned their concern that the creators of automation would remember the importance of human interaction in certain roles, as there are particular elements which should be handled by human beings rather than robots. Additionally, a senior financial analyst at the same aerospace manufacturer described encroaching automation as a potential job killer, eliminating the need for clerks and bookkeepers. An example they cited was the QuickBooks software, which does many of the same tasks as a tax clerk. Similarly, automation will eliminate headcount, reduce human error, and cut down on personnel costs for companies.

While automation may put certain accounting roles in jeopardy, an entry-level financial accountant emphasized the importance of not trusting a computer one-hundred-percent since a

human eye should always verify the end output to ensure the system is working properly. As automation increases, organizations will be required to adhere to homogenous processes from the top-down, such as uniform invoices, wider communication across business units/departments, and remedying conflicting procedures potentially preventing business groups from collaborating. Along with organizations having to implement homogenous processes with automation integration, an accounting support specialist voiced their personal concern surrounding companies having the capability to invest the necessary time to train the accountants and ensure their comfortability to work with the new programs and software.

Issuing a similar opinion, another senior accounting manager stated that, as companies implement new technology, expensive training and data cleansing will be required, as well as personnel equipped to monitor the systems to ensure it is operating correctly. In a similar vein, a full-time accounting professor at a prominent public university said their concerns related to cyber security issues. The global access to company data opens vulnerabilities to hackers, and due to the increased emphasis on preserving privacy and confidentiality, any attack could expose this information and thereby ruin effectively whatever competitive advantage the company had created. An Information Security Shareholder at a regional accounting firm also explained cybersecurity threats. Newly-developed machine learning and AI can create internal threats by developing a system so sophisticated it begins to go its own way outside the bounds set for it by the programmer. Moreover, auditors themselves need to exercise professional skepticism as it relates to the technological tools they are using and intentionally perform manual reliability checks on systems. The more systems utilized necessitates an equal need to be cautious and not over-rely on technology.

A tax analyst at a Fortune 500 manufacturing company listed a number of concerns they hold in regard to automation integration. First, companies could potentially become overly reliant on the technology, paving the way for material errors to occur. Second, due diligence should be consistently performed by checking the data outputs. Third, those responsible for building the automation software and monitoring them should ensure individuals interacting with such technology are well-equipped to use them. Lastly, universities must update their curriculums to reflect the changing technological geography around them, putting more emphasis on adapting students to I.T. and data analytics. A retired partner from a Big-4 accounting firm and current chairperson on a State Society of Certified Public Accountants expressed concern over the lag of standard setting bodies to set standards dealing with the oncoming automated technologies. The paramount skillset of an auditor is the capability to adapt to change, and the livelihood of the profession is in jeopardy if the general body of accounting professionals do not embrace this mentality.

As explained by an Assistant Controller and Director of Accounting, Reporting, and Research at a state-owned electric utility, their chief concern is how to harness automation to greater ensure completeness and accuracy in the payment and processing cycle for Accounts Receivable and Accounts Payable. A Risk Analyst at the same state-owned electric utility qualified that if automation is not well done, it can in fact be more harmful than beneficial. Human accountants will still be needed to come in and handle niche transactions and incorporate those into the system. Poorly programmed or rushed automation creates a bevy of problems which could go unnoticed for some time potentially. Or, worse yet, automation in companies could become a “black box” in which no one understands what steps go into the process to produce the end result. Without proper documentation, automation could easily become the

"tribal knowledge" of the twenty-first century. Once companies start to lose the individuals that designed or governed the automated processes, the knowledge gap about these processes becomes greater and the possibility for misuse/misapplication increases rapidly.

Challenges/Obstacles Faced by Companies

The fifth question put to the interview participants concerned the challenges/obstacles they believed companies will face in trying to implement emerging technologies. All of the participants interviewed expressed similar challenges they believe organizations will face. For example, a staff accountant in the Accounts Payable department at a prominent American aerospace manufacturer responded that, as companies seek to incorporate more automation, there will inevitably be more glitches in the systems, which can create enormous problems such as delays and hampered processes. As a result, companies would have to spend considerable time fixing said glitches, not to mention the additional costs and salaries likely required to help solve them.

A senior financial analyst at the same aerospace manufacturer highlighted that certain companies may face a capital obstacle as they simply lack the cash resources to invest in such technologies. Additionally, the operating system behind these technologies will be varied across companies and industries, with different packages offered depending on business needs, reflecting the significant amount of time which must be given to planning and preparation before even investing in a new technology. The principal issue lies with companies having the available capital, technology support team, and thorough preparation necessary to make the transition from old systems to new technologies. An entry-level financial accountant echoed these same sentiments by explaining how it takes a lot of manpower to switch whole systems, normally requiring years of data cleanup and personnel training to make the transition feasible. The front-

end expenses, chiefly time, and capital, will be high, but the increased profits and efficiency later on will more than prove the new technologies' worth later on for most companies. One financial accounting supervisor pointed to potential accuracy issues stemming from newly-implemented systems as a result of glitches and bugs. The need for the human element in verifying the produced data is shown here, as inaccurate data generated would need to be identified and steps taken to remediate the faulty system/programming.

Along the same lines of capital-accessibility, an accounting support specialist mentioned that numerous companies will be constrained budgetarily in the technologies they can purchase, and there will certainly be considerable discussion given towards the creation of new roles/positions considering the innovative and disruptive technologies currently being produced. A full-time accounting professor at a prominent public university shared a similar viewpoint in regard to companies having to identify candidates possessing the appropriate skillset to interact and utilize these technologies. Organizations are quickly shifting their focus towards stocking their accounting departments with personnel possessing data visualization and programming competencies, as well as high emotional intelligence such that they aid in creating a high-functioning accounting team.

Approaching the question from a different view from the others, an Information Security Shareholder at a regional accounting firm said that many companies will struggle with the fear of change. Beyond that, implementing new technologies takes time and there will be a considerable learning curve attached with it. Accounting firms must embrace a willingness to invest in different services instead of solely those they have traditionally offered. Exponential growth is found in the realms of data analytics, security, and privacy, and those companies will have innumerable benefits competitively. Echoing the previous interviewee, a tax analyst at a Fortune

500 manufacturing company likewise discussed the obstacle companies may face of push-back from employees who are unwilling or fearful to accept change. The current company infrastructure may pose a problem in itself, since the technologies may not even fit in practically to the organizational business model as presently constructed. Additionally, the company must weigh its own cost-to-reward ratio to determine if it would even be a viable and worthwhile investment to make.

A Senior Internal Auditor at a large energy company, possessing a heavy background in data analytics, data reporting, and coding, expounded on the fact that the implementation process for emerging technologies is very complex and laborious in nature, usually demanding a minimum of two years before full-implementation. Companies must be particularly wary during the implementation phase that individuals in charge of the systems are effectively prepared for how the newly automated processes will interact with the rest of the business.

Notable Gains/Losses From Automation

The sixth question given to the interview participants asked if they expected there to be notable gains or losses from the implementation of emerging technologies. On the whole, most of the interviewees saw there being more gains than losses from automation integration. A staff accountant in the Accounts Payable department at a prominent American aerospace manufacturer highlighted significant gains in the way of reduced labor costs, efficient processes, and greater accuracy. The interviewee also noted key losses may include glitches, additional costs, and delays in reporting. An entry-level financial accountant listed some more of the benefits of automation integration, such as quicker turnaround on payments and easier detection of material errors. Inversely, the negative side of automation could manifest itself via job reduction and company re-organizations.

Additionally, an accounting support specialist spoke into the gains achieved through automation by saying that Accounts Payable and Accounts Receivable departments will be able to get collections and payments done faster. The process of posting and receiving invoices will be expedited, and cost savings will surface eventually. The losses, on the other hand, will consist primarily of additional costs upfront and a loss of personnel. A full-time accounting professor at a prominent public university explained that, as far as gains are concerned, automation will assist companies in reducing inventory counts and generating cost savings down the road. Losses from automation may include a steep learning curve for company personnel as they adjust to the new systems, as well as the cost investment from hiring, training, and building the accounting team.

Potential Over-reliance on Automation?

The seventh question offered to the interview participants requested their opinion on whether there will be any concern regarding accountants becoming over-reliant on the technology. The first of two interviewees to express no concern towards this topic was an Information Security Shareholder at a regional accounting firm. They expressed how, especially in auditing, they do not believe over-reliance on technology will pose much of a problem since the standards promulgated by the PCAOB and AICPA serve to make sure the completeness and accuracy of the financials is present. While the interviewee did admit there is a certain degree of risk for blind dependence on the automated processes, they did not see this problem surfacing until seven-to-ten years down the road.

Similarly, a Senior Internal Auditor at a large energy company, possessing a heavy background in data analytics, data reporting, and coding, possessed the belief that there is not a significant risk of over-reliance on technology, although, it is reasonable to expect individuals handling bookkeeping activities may be too reliant on the systems in place. As an I.T. auditor,

there are individuals routinely checking the performance of the systems, leaving the window for over-reliance on the whole smaller compared to someone in a clerk or bookkeeping role.

The other remaining interviewees, on the other hand, expressed a concern of some capacity towards accountants becoming over-reliant on the technology. For example, a staff accountant in the Accounts Payable department at a prominent American aerospace manufacturer discussed their concern that, after leaning on technology to perform a portion of an accountants work, they will tend to forget their base accounting knowledge over time. Accountants still need to know how to do what the software is now performing for them. Therefore, accountants could easily become overly dependent on the technology and as a result their own intellectual ability to think on a manual basis diminishes.

An entry-level financial accountant reiterated the same sentiments by saying that, as accountants depend on machines, they lose the ability to perform those basic accounting functions, thus warranting the need for continuing education or certification such as the CPA exam. One financial accounting supervisor mentioned that, when we solely rely on a computer, we become complacent to what it is generating and increasingly careless in terms of verifying the accuracy of the outputs. Therefore, the need for accountants to be vigilant to spot and correct errors while interacting with emerging technologies becomes crucial. A full-time accounting professor at a prominent public university voiced that there is an obvious risk for over-reliance on technology, since the automation will perform a lot of the tasks which accountants used to do. As this presents a big risk to companies, the responsibility falls on the accountants themselves to understand the processes and tasks that have been automated so they can hold the technology, and themselves, accountable.

As explained by an Assistant Controller and Director of Accounting, Reporting, and Research at a state-owned electric utility, there is very much an opportunity for over-reliance on emerging technologies, citing how, in their own career, such an error has occurred with spreadsheets and systems before. For example, a project system had been set up to allow the accountant to enter a series of inputs, and based on a project accounting programming string, the system would auto balance journal entries. The interview participant explained that what they soon found was the newly-hired individuals did not understand the accounting going on behind this system. These individuals did not know how to do adjusting entries since they had only seen one side of the journal entry, therein displaying how overreliance on the technology and complacency in their role played a large factor here.

Moreover, an Associate Dean of the College of Business at a notable Southeastern public university disclosed that if an accountant does not retain their grasp on accounting fundamentals, they will have no way of being able to tell when an error is present or the system is operating erroneously. Additionally, accountants will need to know how to properly handle and account for discrepancies that may occur in the system's outputs.

Value Added/Lost From Automation

For the eighth question, the study participants were asked to give their opinion as to whether, speaking solely in terms of value, the value added from these emerging technologies will significantly exceed the value lost. The majority of interviewees issued a similar stance that the value added from automation will overwhelmingly exceed any value lost. For instance, a staff accountant in the Accounts Payable department at a prominent American aerospace manufacturer explained that, overall, the value added will exceed the value lost. The value to be lost here might take the form of expensive and time-consuming upgrades that must be done to

keep the technologies operating smoothly. When the general business climate is a hot-bed for technological implementation, the cost of implementing new technology is vast. However, the value added will come into effect after the implementation process has been completed.

Similarly, a senior financial analyst at the same aerospace manufacturer expressed that, from the company's perspective, automation will limit human interaction in manual tasks, reduce headcount, as well as costs like healthcare and insurance, which will help the company bottom line. An accounting support specialist mentioned that the value added from emerging technologies will win out due to faster collection and payment windows for Accounts Receivable and Accounts Payable departments. A full-time accounting professor at a prominent public university stated that value added will certainly exceed value lost, since accountants have always been at the forefront of the economy, and moving forward accountants will maintain that role, only repositioned in terms of the value they bring to companies. The value accountants add will be amplified as they stand to make valuable business contributions equipped with these new technologies and can use them to serve in a more predictive capacity to key decision-makers in the business.

A Senior Internal Auditor at a large energy company, possessing a heavy background in data analytics, data reporting, and coding, agreed that the value added will overwhelmingly exceed the value lost through automation integration in accounting departments, as it eases the workload of employees, cuts down on repetitive tasks, and also frees up their time to focus on more value-added activities that they actually enjoy doing.

Guidance for Other Accounting Professionals

The ninth question surrounded the interview participants' suggestions to other accounting professionals on how to best prepare for the oncoming technological changes. A staff accountant

in the Accounts Payable department at a prominent American aerospace manufacturer encouraged other accounting professionals to learn the programs currently being introduced, as well as having good technical support when utilizing these programs. A senior financial analyst at the same aerospace manufacturer recommended that other accounting professionals position themselves for success in the coming new accounting landscape by becoming more analytics-based and adapting their skillset towards more forecasting-friendly and technology-oversight roles.

An entry-level financial accountant suggested that current and aspiring accounting professionals seek out continued education such as classes to learn more about how accounting systems work, or take advantage of training opportunities to get more familiar with current technologies out there. One financial accounting supervisor maintained that accounting meshes well with Information Technology, so it is necessary that accountants have exposure to the skills of an I.T. professional in order they may develop their technical skillset and background knowledge on tools such as queries, macros, and databases.

An accounting support specialist mentioned that part of the onus of employee preparation for the oncoming technologies falls on the companies themselves, as companies should provide trainings and opportunities for development for their personnel. However, it remains the responsibility of the accountant to stay open-minded and adaptable – willing to change to fit into new roles and positions as automation increases. Another senior accounting manager asserted the importance of accountants to continually be interested in education, as well as curious and seek out why the technology operates in a certain manner, not simply following it in blind trust. More than anything, accounting personnel must possess and exercise a detective mindset in which they trust technology and the many benefits it provides, while simultaneously taking efforts to verify

that the processes involved and outputs produced are correct. A full-time accounting professor at a prominent public university exhorted accounting professionals by saying that any step taken to learn about emerging technologies is a step in the right direction. Researching more into automation, reading up on what certain terms mean, and learning about new/foreign topics, allows the accountant to overcome their fear and dread regarding disruptive technologies and effectively empower themselves to find a place in what will be a more technically-inclined profession.

A retired partner from a Big-4 accounting firm and current chairperson on a State Society of Certified Public Accountants discussed how there are a plethora of avenues by which one can equip oneself with the necessary skills and knowledge to thrive in the accounting profession going into the future. Continuing Professional Education is required for Certified Public Accountants. They recommended that individuals take additional college classes geared toward developing technical skills, or courses aimed at teaching Power BI and Tableau. The hallmark of every good auditor and accountant is a high degree of intellectual curiosity, which is a trait that can be honed and cultivated by all. As explained by an Assistant Controller and Director of Accounting, Reporting, and Research at a state-owned electric utility, accountants must have an open, accepting mindset to prepare themselves to be open to something new. Additionally, they must strive to address their weaknesses by seeking out additional trainings and books in order to feel more confident in those areas, as well as being unafraid to ask questions which will draw them closer to an understanding of automation and how to utilize it to augment their own job role.

A Senior Internal Auditor at a large energy company, possessing a heavy background in data analytics, data reporting, and coding, encouraged accountants to get familiar with

programming language such as Sequel and software like Power BI and Tableau. Data visualization tool research and independent practice can also be incredibly beneficial in just exposing individuals to an area that is foreign and intimidating to them.

Maintaining Soft Skills Amidst Automation

The tenth question posed to the interview participants regarded their thoughts on, in this current climate of rapid technological innovation, how accountants achieve that optimal balance between technical skills and interpersonal/soft skills without allowing the latter to erode away. A staff accountant in the Accounts Payable department at a prominent American aerospace manufacturer explained that not relying overly on the technology is crucial, as well as realizing that human interaction is still important for accountants in terms of the customer service and delivery aspects of their roles. A senior financial analyst at the same aerospace manufacturer discussed the need for accountants to ask why they are doing what they are doing and seek to understand the general stream of steps in the automated process.

Speaking into an organization's role in this topic, an entry-level financial accountant mentioned that companies themselves need to hold classes and training to better equip their employees for the future. Also, employees need to be proactive to seek out accounting classes and personal education opportunities that would further develop their interpersonal and communication skills. One financial accounting supervisor emphasized the importance of maintaining one's interpersonal/soft skills by forcing oneself to seize and create opportunities to exercise these skills, which becomes more important in an increasingly virtual world. Similarly, an accounting support specialist expressed that accountants must frequently use and exercise their soft skills so they do not begin to rust away due to lack of practice. It was also recommended that accountants hone their levels of emotional intelligence and eye for detail in

order to better catch errors committed by the technology. They indicated that, aside from attending required Continuing Professional Education courses and various other company trainings, accountants should be intentional to stay up-to-date with the rules and regulations dictated by GAAP or IFRS. In doing this, individuals can maintain and stay current in their accounting knowledge.

A full-time accounting professor at a prominent public university voiced the opinion that accountants must maintain dialogue with the key decision makers pushing these emerging technologies. Instead of allowing the process of using the automated tasks to become a blind, one-sided affair, the appropriate level of balance necessitates open communication between accountants and technical support surrounding the systems and outputs since, when these conversations stop, that overreliance on the technology poses a significant threat. An Information Security Shareholder at a regional accounting firm encouraged other accounting professionals to understand the importance of soft skills and actively pursue training that is offered to strengthen these. Regardless of the technology introduced, there will still exist the need for human interaction since, at the end of the day, customers will still want the customer experience that only a human can provide. Most accounting firms are essentially professional service organizations. Consumers reward their business to the firm that they most enjoy interacting with, thus proving the need for accountants to have strong customer service skills.

In a similar vein, a tax analyst at a Fortune 500 manufacturing company stated that current accounting professionals should continually encourage team-building and collaboration, maximizing whatever opportunity they may have to practice their interpersonal skills such that they can contribute to a high-functioning accounting team. A retired partner from a Big-4 accounting firm and current chairperson on a State Society of Certified Public Accountants

communicated that the Big-4 firm which they worked had courses teaching a variety of subjects, ranging from interviewing skills to non-verbal communications of fraud. Skills such as these are just as important today, if not more so, and must be intentionally developed by today's accounting professionals. Several audits currently are being performed remotely, further displaying the need for auditors to pick up on visual and verbal cues given by the client being audited. The interviewee further explained that, while robots are excellent for the black-and-white areas in work, humans are needed for the gray area that is not as objectively differentiated. "Gut instinct," based on a solid foundation of knowledge and experience, is simply irreplaceable when judgement calls are involved in the accounting workplace.

As explained by an Assistant Controller and Director of Accounting, Reporting, and Research at a state-owned electric utility, the accountant today will actually be liberated to focus on their interpersonal skills more than ever before since these individuals are given more opportunity to grow interpersonal working relationships and communicate higher-level data analysis to key business partners as reports and other manually-involved tasks are automated. A Risk Analyst at the same state-owned electric utility asserted the need for accounting professionals to obtain training and certification in more specialized areas such as business analytics and business information systems. The present accounting groundwork does not properly groom future accounting professionals to balance the key ingredients necessary for success in the future accounting realm: accounting knowledge, technical knowledge, and an analytical skillset. Universities must focus more effort into doing all three of these elements equal justice, starting with incorporated more Information Technology aspects into every accounting class. In meetings with their advisors, students should be encouraged early on in their undergraduate studies to seek out technology-related courses to complement their accounting

classes. Accounting professionals currently operating in the business world need to be proactive to adapt themselves to the oncoming changes, drawing on their own experiences to assist them in making the transition.

A Senior Internal Auditor at a large energy company, possessing a heavy background in data analytics, data reporting, and coding stated that technical skills are easier to learn and can largely be taught on-the-job. Soft skills, on the other hand, are much harder to teach and train, as these are fundamental skills that require extensive time and intention to cultivate. Moreover, the overwhelming focus of an accounting professional should be on ensuring their soft skills are adequate, while simultaneously making sure their technical skills are also on par to where they should be.

Most Impactful Technologies

The eleventh question given the participants concerned whether there were certain technologies which they saw as potentially having more of a practical impact than others. A staff accountant in the Accounts Payable department at a prominent American aerospace manufacturer explained that some software is indeed more practical compared to other on the basis of the size, resources, and industry that the particular company is in. Larger firms may employ some of the newer technologies built around Blockchain and machine learning, while a smaller business proving basic tax services could function well with only the QuickBooks software.

A senior financial analyst at the same aerospace manufacturer mentioned that AI technologies often require four or more years before full implementation due to the unique needs of the company and the intricate nature of streamlining entire processes. However, once such flexible systems, software, and items like customizable transactions are worked out, they are

usually seamless barring glitches, which are themselves evidence of the need for sound IT support. AI transforms the accountant into more of a trusted Business Advisor, wherein they review the data and perform more analysis. One financial accounting supervisor expressed their affinity for the tax software that has recently been introduced that does most of the tax filing automatically, making the process much smoother as they no longer have to follow so many detailed line-by-line instructions.

Similarly, an accounting support specialist said a technology they personally hoped to see implemented in the near future is something that would provide automatic invoicing, where the lag-time between the supplier sending the invoice and the Accounts Payable department receiving it would be eliminated, saving the accountants hours each month. A full-time accounting professor at a prominent public university voiced their opinion that among the current emerging technologies, Artificial Intelligence, Robotic Process Automation, and Blockchain stand to make the most immediate impact due to the time they will save accountants from having to perform the repetitive and mundane tasks in their day-to-day work.

An Information Security Shareholder at a regional accounting firm addressed some of the areas of accounting that will be affected by the oncoming automation. In the tax sector of accounting, software introduced here has already been revolutionary, as can be seen with the likes of TurboTax, which has greatly decreased the time it takes both companies and individuals to file their taxes. As far as the Information Security sector, automation that will better check the company's firewall setup and other cybersecurity measures is crucial. Processes developed thus far to maintain information security, such as multi-factor authentication, has provided a very much need layer of protection. However, companies must continue updating their security measures in order to avoid being at a significant risk of getting hacked. As for the auditing arena,

technologies like Power BI show the most promise going into the future, as these tools offer a practical and insightful means to approach more effective data analytics.

Sharing similar thoughts with the previous interviewee, a tax analyst at a Fortune 500 manufacturing company described some of the tools they have used thus far in their career, including the RPA tool, "Automation Anywhere," as well as the test automation platform, "Worksoft Certify." These two tools are great for short processes, but the interviewee expressed their desire for an improved version of these tools that can be used for longer and more complex processes. Additionally, Power Query was cited as providing a tremendous benefit to their work since report formatting is performed automatically whenever a report needs to be run.

A retired partner from a Big-4 accounting firm and current chairperson on a State Society of Certified Public Accountants stated that today's technology can audit millions of transactions in their entirety and even identify outliers that may exist. Artificial intelligence and other analytical tools allow for unprecedented analysis capabilities that provide valuable insight to auditing teams and management groups. These tools also enable greater data-disaggregation, as well as increased employee productivity and broader economic insight. The interviewee further expressed that Tableau and Power BI are becoming increasingly popular, as well as contract reading software that will save copious amounts of time. Technology that will most easily allow accountants to communicate essential data to decision makers in an efficient manner will be in the highest demand.

Affect of Automation on Small vs. Large Firms

The twelfth question given to the interview participants regarded their viewpoints on if smaller-to-medium size companies and accounting firms will be affected more significantly than larger, global-scale companies and firms. A staff accountant in the Accounts Payable department

at a prominent American aerospace manufacturer explained that, the smaller the company, the less need there will likely be for large scale automation. Inversely, the opposite will likely be true for larger companies due to the sheer size of their business and the services they provide to clients. An entry-level financial accountant mentioned that smaller companies will indeed have a harder time implementing the emerging technologies as they will have less resources available and more limited accessibility to capital and manpower. Smaller firms, though, will possess the advantage over bigger organizations in the way of there being fewer people to have to train and transition over to the new systems.

An accounting support specialist asserted that smaller companies will struggle with implementing the new technologies more so than larger companies due to the stark differences in the resources they both have available. Smaller organizations will more likely be less willing to commit the capital necessary to obtain these products as they may not be very practical for these smaller firms. A full-time accounting professor at a prominent public university mentioned that the most important factor to consider are the clients they firms serve, since firms cannot move ahead of the preferences/expectations of the client. While clients of larger accounting firms may be more amenable to transitions to more automated processes and interactions, smaller firms may not need to introduce these automated processes since their clients might prefer the human interaction that a small firm provides. However, a certain need remains for even these smaller firms to nudge the client forward along with them so as to avoid complete obsolescence in the business landscape.

An Information Security Shareholder at a regional accounting firm explained that the Big 4 firms often create their own technology in-house and keep it for themselves, with the larger firms directly beneath them often developing similar products and selling them to more mid-size

firms beneath them. Smaller firms such as tax offices will likely be hurt the most and are at the largest risk of getting phased out. On the whole, there will be an increasing trend towards larger accounting firms absorbing others, meaning there will likely be a reduction in the number of small firms in the future. A tax analyst at a Fortune 500 manufacturing company voiced a similar opinion that while all firms will be affected, larger companies will be affected the most on the basis that they generally have more resources and will be the most likely to make significant changes to their existing operations. Small companies, on the other hand, may resist implementing the new technology since they either do not have the capacity to do so or do not see as much value in the implementation.

As explained by an Assistant Controller and Director of Accounting, Reporting, and Research at a state-owned electric utility, larger companies seem to have more ability to implement technology quicker since their greater amount of resources, personnel, and support enables faster automation to take place. While smaller companies can adopt something granted the proper personnel, they most likely will not have the adequate resources to support these technologies long-term due to the large time and capital commitment required. A Risk Analyst at the same state-owned electric utility maintained that governmental organizations will not likely be affected greatly due to the very rote and rigorous nature of the established standards that are unlikely to be changed quickly. Commercial business, meanwhile, are more likely to implement analytics and the new technologies. Larger firms such as the Big 4 drive the technological changes for the rest of the industry. Smaller accounting firms will be slower to incorporate these changes in their business due to the nature of their client base and their view that such radical changes might not be as practical for their business. Moreover, these small firms often possess a "change when they have to, not want to" mentality.

A Senior Internal Auditor at a large energy company, possessing a heavy background in data analytics, data reporting, and coding, stated that the effect of emerging technologies on firms is entirely dependent upon their industry and customer base. Bigger companies have more consulting and typically offer more services, while smaller firms offer more tax-centered and routine services. Although, smaller firms can offer more personalized services that a bigger firm might not take the time to offer, meaning that smaller firms should consider whether the new technologies will help them in these ventures.

Approach to Automation of Participants' Companies

The thirteenth question asked of the interview participants requested how their companies or firms are preparing for the oncoming accounting technologies, as well as the general sentiment in their organization towards these technologies. The majority of the participants interviewed responded that their organization has an optimistic outlook on automation and is currently in the process of implementing these technologies. A staff accountant in the Accounts Payable department said that since the American aerospace manufacturer they work at is continuing to become more globalized, they made the decision a couple years ago to transition to the SAP Enterprise Resource Planning platform, as well as the Microsoft Teams collaboration software, reflecting the general sentiment in the company that is very open and receptive to automation. Their company is continually trying to figure out how to effectively implement further technology in the future as more become available.

An entry-level financial accountant at the same aerospace manufacturer claimed their company was open to automation, particular tools that will allow for greater interaction and communication across departments. They also admitted that their company was not quite expecting how time-intensive the process would be to convert to the new SAP system. One

financial accounting supervisor at the same aerospace manufacturer expressed their opinion that their company is trying to stay current with the existing technologies on the market, as can be seen from their transition to new and improved ERP platforms and collaboration software. An accounting support specialist said their company similarly possessed a very positive outlook on automation, willing to put up the capital and time to buy it, incorporate it, and use it in their departments company-wide. They also mentioned that their company looked particularly at software that would aid in consolidating the means of communication across their many global sites.

Another senior accounting manager explained that their company wanted to be known as "technologically well-versed" in their industry, even making an entire brand transition from a solely rotorcraft company to an aviation technology company. In all of their system implementations, they desire "homogeneous implementation," wherein the entire organization is shifted to the same system such that departments do not become individual silos operating on different technologies. In doing this, the interviewee's company is able to maximize the incorporated technology company-wide and streamline their processes efficiently. A full-time accounting professor at a prominent public university discussed that their university is trying to revamp their accounting curriculum to gear more towards honing students' analytical and critical thinking skillsets, as well as connect them with increased computer engagement. In response to the increasing demand by students to pursue concentrations in information management and technology, their College of Business has developed and pushed more disruptive technologies courses and I.T.-driven accounting classes. As part of the revamp of their accounting curriculum, the interviewee said that less memorization of content will be involved and more time will be given towards cultivating the students' cognitive and technical skills.

An Information Security Shareholder at a regional accounting firm stated that their company is very proactive in staying on top of the current technologies being advertised today through three primary means. The first they described was the acquisition of companies, as they considered how can their organization build upon this new business unit. The second means was via strategic hiring of highly skilled personnel in the areas of business analytics and business information systems. The last means they mentioned was through significant investment in technology, which the company has accomplished through its plan to lay aside investment capital for the next ten years so as to be able to invest in new technologies. A tax analyst at a Fortune 500 manufacturing company explained that their company has embraced emerging technologies since it is heavily encouraged in the accounting department there in particular. They also added that while most personnel in the company see the value in the technology advancements, they have seen a degree of resistance towards the automation among certain team members.

Limitations of the Study

There may be some limitations encountered during this research study, which are reported in this section. Some limitations might include lack of participation in the interview or perceived deficiencies in the interview questions asked. One such limitation is identified for the research study and is explained as to how future researchers into this topic of accounting automation could come in and build upon the research results that were found in this study.

A limitation to be noted about this study in particular is that the sample chosen by the researcher was a convenience sample, as the participants were not randomly selected and an existing relationship existed between researcher and participant. While the information presented in this study is largely driven by qualitative data and is not scientifically reliable, the insights obtained and presented in this study still provide a strong indication of what current accounting professionals actually think and feel about current emerging technologies.

It should also be noted that this study was conducted during the height of the COVID-19 pandemic, which posed significant difficulties to the principal investigator as they attempted to 1) find accounting professionals willing to participate, 2) deal with logistical issues in transitioning many in-person interviews to remote settings, and 3) properly implement the privacy and confidentiality protocol set by ETSU's Institutional Review Board that proved exceedingly harder to carry out virtually than in-person.

There was also a passing mention in the literature review about accounting automation within the education sector, but only a brief description of this development was given since this area surpasses the bounds and scope of the research objective for this study. Other studies are currently being conducted regarding accounting automation within the field of accounting

education, so it is suggested the reader refer to these studies for more information about this issue.

Conclusions and Recommendations

Accounting automation, in the form of RPA, Continuous Accounting practices, and the potential shift to a Robotic Accounting Department, is driving a revolution in the accounting industry. The rote tasks historically performed by humans are now instantaneously completed by these technologies, therein shifting the responsibilities of modern accountants from data gatherers to data analysts. The question remains how do accountants feel towards these new roles and changes? The secondary data presented in the literature review, as well as the primary data obtained through interviews with current accounting professionals, showcased the wide variety of views existing in regard to this essential question.

Thirteen of the fourteen interview participants indicated their belief that the role of the accountant will change significantly in the years to come. While a small percentage of the interviewees expressed their belief that accounting roles will dwindle going forward, most of them expressed optimism towards oncoming automation. Their optimism was founded on the idea that this automation will augment their current role and enable more enjoyable and challenging work, as well as allowing them to transition towards becoming more of a strategic business partner in that they can perform more analysis and other value-added activities.

The general sentiment among the interviewees in terms of their vision for the future of the accounting profession indicated a shift to more centralized work composing less data entry and more technical job functions such as monitoring and running the automation. More analytical roles will surface, as well as what is expected to be an industry-wide shift towards accountants functioning as valuable business consultants in which they contribute in a bigger-picture fashion.

When questioned about their hopes and concerns for automation integration, thirteen of the interview participants mentioned a concern of some kind, with two of the participants citing their fear that accountants will still be needed and that automation assists rather than replaces their jobs. Aside from the fraction that saw automation as a potential job-killer, others voiced like concerns surrounding over-reliance on the technology, inadequate training given to use the technology, and poor documentation of automated processes. Additionally, certain interviewees expressed the concern that cybersecurity and controls for companies may not be adequate to cover the technologies implemented, and, on a national level, standard-setting bodies have not been keeping pace with the automation being introduced. Yet, despite their numerous concerns, the majority of the interview participants agreed that their hopes trumped their trepidations, as they mostly all look forward to fewer menial tasks, faster information, streamlined processes, and centralized information depots. Also, many indicated their excitement towards having more time for analysis and the ongoing implementation of Continuous Accounting practices.

The interview participants largely agreed that challenges and obstacles stifling companies in their pursuit of automation integration include inevitable glitches and malfunctions in the systems which will cause significant problems in the form of delays and set-backs. Also, most affirmed the viewpoint that several companies will struggle with the sheer capital required to purchase the technologies, as well as having the manpower and personnel qualified to incorporate them. Additionally, others asserted the view that some firms will have issues in their capacity to offer adequate training to employees to properly equip them to interact and use these technologies. Businesses may also have to create new roles and positions entirely, which will require significant development and deliberation. Certain interviewees posited the claim that the current infrastructure of the companies may be ill-adapted to appropriately implement

automation in its processes, or those companies may be ill-prepared for the enormous time commitment required in terms of data cleanup to make way for implementation. A fair number of the participants also simply stated that a general fear of change present in corporations may hinder the process of automation integration, as push-back from employees could very well pose a formidable obstacle to the goals of the company.

In response to whether the value added from the implementation of these emerging technologies will exceed the value lost, most of the participants commented that the value added from these technologies will invariably offset any value lost. The general reasoning used was that the increased accuracy/efficiency, faster information/processes, less expansive workload, more enjoyable tasks, and greater opportunity for more value-added activities will displace the value lost from incorporating automation, chiefly finding itself in the form of heavy costs, glitches, delays, loss of job roles, and inner-company turbulence from shifting and creating new positions.

One of the crucial themes to be taken away from the collection of interviews with the fourteen current accounting professionals was their over-arching concern surrounding fellow accountants becoming over-reliant on the automation technologies as they are implemented. As accountants become more technology-dependent, their own intellectual ability to think on a manual basis diminishes, as well as their ability to clearly recall their base accounting knowledge. Moreover, the interviewees emphasized the need for continuous education and training to maintain both their technological and accounting skillsets. A few participants referenced instances where they saw other accountants fall prone to such lapses in complacency and overreliance, as they did not possess an understanding of the accounting steps being performed by the automated process, and, as a result, their team paid dearly for such a lapse in

engagement. Overall, the general opinion among the interviewees was that those dealing closely with manual processes will be the most at risk for overreliance and complacency since their accounting knowledge will most likely be increasingly less applied going forward.

The collective response for how to achieve the optimal balance between technical skills and soft skills without allowing the latter to erode away was overwhelmingly that accountants must ask themselves why they are doing what they are doing and seek out an understanding of the how the process exactly works. While some responsibility falls on companies to offer training to its employees, the ultimate onus resides with the employees to capitalize on opportunities to practice and exercise those soft skills. The need for self-accountability and buy-in from each individual is of paramount importance since they must all encourage collaboration and team-building so it does not become a fragmented team with everyone operating in their individual silo. Many of the interview participants also held the view that with more time-consuming, basic-level tasks being automated, this in fact opens up the door for accounting professionals to hone their interpersonal skills by communicating their analyzed findings to business partners.

The most notable suggestions mentioned by the interviewees in terms of how other accounting professionals can best prepare for the oncoming technological changes revolved around positioning oneself in a place to be successful by becoming more analytics-focused and adept at forecasting activities. Accountants will likely take on more oversight roles over the technology in the future, so being able to see the bigger picture and exercising an investigative mindset is crucial to effectively communicate analysis to upper management. Most of the participants also mentioned the need for accounting professionals to remain open-minded, adaptable, and willing to change in order to excel in the accounting realm going forward. Others

also pressed the importance of how simply researching and learning about the new disruptive technologies will eliminate a great amount of fear and dread individuals may hold, thereby empowering themselves to confidently step into the future of this profession.

The technologies posed to make the most immediate impact, according to the interviewees, seem to be artificial intelligence, RPA, and blockchain, as these will reduce the workload of accountants and perform many of the mundane tasks they are accustomed to performing. Tableau, Power Bi, and Tax software were also cited as being exceedingly transformative, but a great many interview participants stated the technologies to be implemented and their correspondent effectiveness depends entirely on the nature and needs of the individual business. The technology must be tailored specifically to meet the size, needs, and client base of the business seeking to implement it. Also, many of the participants discussed their desire for a technology that would automatically perform its own maintenance instead of having to waste tremendous amounts of time and resources to manually do this themselves. A number of other study participants voiced their preference for technologies that would perform automatic invoicing which would save them hours each month.

As far as whether small companies will be affected more significantly than larger companies regarding oncoming automation, most of the interview participants voiced that smaller companies will likely not need large scale automation as much as larger corporations. Smaller companies will tend to have less resources and accessibility to capital and manpower. Additionally, the interviewees expressed that smaller firms will also be less willing to commit to such a significant investment since it may not be practical for them. It was agreed among many participants that smaller firms tend to have a “change when they have to, not want to” mentality.

In response to how their individual company was preparing for the oncoming accounting technologies, most all of the participants responded that their firm was indeed very receptive to automation and making an effort to meet it head-on in an attempt to be proactive versus reactive in their approach to automation. Many of the participants voiced that their company understood the need to incorporate automation early enough so as not to find themselves too far behind their competition at some point in the future. Several other interviewees discussed the primary avenues through which their company is staying alert and vigilant to capitalize on the oncoming technologies. First, many of their companies are acquiring smaller technology firms to bring under their corporate umbrella and aid them in implementing technologies on the market currently. Second, the interviewees' companies are strategically hiring technically-adroit personnel to utilize and oversee the software they incorporate. Third, their companies are also laying aside significant investment capital to actually purchase the technologies and implement them into their business processes.

The results from the interviews completed with fourteen current accounting professionals have hopefully dispelled any misconceptions as to how accountants are feeling towards the future of the accounting profession. The overwhelming majority of the interview participants expressed optimism towards oncoming technological changes in their workplace, while a fraction of participants admitted some firm reservations. As determined through the secondary and primary data collected and presented by the principal investigator over this research study, automation will invariably find its way into the accounting landscape in one fashion or another going forward. There are some valid concerns among accounting professionals which will indeed require equally valid solutions. However, it is the opinion of the principal investigator that, based upon the research performed and responses recorded, the gains from automation and the

discussed emerging technologies, from an accounting-wide standpoint, should displace any drawbacks which may be incurred. Moreover, this study has served to reveal the actual sentiments and opinions among accounting professionals as to automation integration, ideally enabling technology developers and accounting firms to work towards addressing the concerns and challenges accountants actually hold, thus paving the way for a successful integration of man and machine in tomorrow's accounting world.

Considering the limitations of this research study, as outlined previously, the suggestion for future researchers who venture into this topic of emerging technologies in the accounting profession would be to investigate the gaps where this study's research and findings came up short. This might be achieved by using a larger sample size in the interview pool to increase representativeness of the greater accounting professionals population, or by intentionally selecting interview participants with different qualifications/backgrounds so as to test the findings found in this study. For both practicing and aspiring accounting professionals, the insights presented in this study should be used to inform and guide the next steps they take in their professional careers to better prepare for the oncoming changes in their profession. Further recommendations here include being proactive in this rapidly changing accounting industry to be aware and conscious of current changes, as well as crafting an intellectual curiosity to learn from others how to best adopt these changes and thereby gain the requisite skillset to be a new-era accountant.

Appendix

The Interview Questions List ask to every interviewee is provided below:

Interview Questions List

1. How will the role of the accountant change with the onset of emerging technologies like robo-auditors and robotic process automation?
2. What is your 10-15 year outlook for the accounting profession considering the technological advancements presently being made?
3. What are your hopes for automation integration in accounting departments nation-wide?
4. What are your concerns regarding said automation integration?
5. What are or will be perceived challenges/obstacles you believe companies will face in regard to these emerging technologies?
6. Do you expect there to be notable gains or losses from the implementation of these emerging technologies?
7. Do you believe there will be any concern regarding accountants becoming over-reliant on the technology?
8. Speaking in terms of value, do you think value added from these technologies will significantly exceed the value lost?
9. How do you suggest other accounting professionals like yourself best prepare for the oncoming technological changes?
10. In this climate of technological innovation, how do you think we achieve that balance between technical skills and interpersonal/soft skills without allowing the latter to erode away?
11. Are there certain technologies you see as potentially having more of a practical impact than others? If so, which would those be?
12. Will smaller-to-medium size companies and accounting firms be affected any differently or more significantly than larger, global-scale companies and firms?
13. How is your firm preparing for the oncoming accounting technologies, and what is the general sentiment in your organization to these technologies?

Title of Research Study: Impacts of Emerging Technologies in Accounting

Principal Investigator: Collin Peace
Principal Investigator's Contact Information: Collin Peace, Phone #: 423-402-1918, Email: collinpeace073099@gmail.com

Organization of Principal Investigator: East Tennessee State University

INFORMED CONSENT

This paper explains about being a participant in a research study. Please read this carefully. This will help you decide if you would like to volunteer to join this study.

SUMMARY

Here is a brief summary of this study.

- Purpose: Provide insight as to what the impacts will be of the current emerging technologies in the accounting profession.
- Duration: 1 hour(for interview session).
- Summary of Procedures: I will email you directly and ask your willingness to participate in the study, and, if willing, I will set up a time for the interview that works best in your schedule. A copy of the informed consent form and the interview questions will be sent ahead of time.
- Benefits: There will be no direct benefits to you, although you will be providing valuable insight into a crucial issue that many people will be interesting in hearing.
- Risks: There are no perceived risks to you, all personally identifiable information will be kept out of the thesis report and deleted upon conclusion of the study.

If you are interested in volunteering for this research study, please read the rest of this document.

STUDY DETAILS

- **What is this study about?** The purpose of this study is to provide insight about the implications of the current emerging technologies in the field of accounting.
- **How much of my time will it take?** 1 hour (for interview session).
- **What are you asking me to do?** If you decide to volunteer for this study, you will be asked to take part in an interview in which you will be asked a series of questions as to your thoughts, hopes, and concerns regarding current technologies being implemented in the accounting profession.

- **Are there any benefits for me?** There are no direct benefits for you. Possible benefits for others include This study will provide extremely valuable insight as to what changes both accounting students and professionals can expect to see as a result of the emerging technologies in the accounting profession.
- **Are there any possible risks or discomforts?** There are no expected risks for participating in this research.
- **Will I be identified? How are you keeping my information safe?** We will make every effort to keep your study records confidential. The results of this study may be published and/or presented at meetings. You will not be named as a participant. Although your rights and privacy will be maintained, the ETSU IRB, and Collin Peace and his research team have access to the study records. Your records will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as described in this form. A copy of the records from this study will be stored in a secure ETSU network drive for at least 6 years after the end of this study.

- **Will any of my data be used in the future?** Your information will not be used for any future studies.

- **Will I be paid for participating?** You will not be paid for joining this study

- **Do I have to join this study?** No. This study is voluntary. You get to decide if you want to be part of this study. ***You may decide you do not want to participate.*** If you join this study and then change your mind, you can quit at any time. Deciding not to join the study or quitting will not affect any benefits you would normally receive. You may quit by calling Collin Peace, at 423-402-1918.

- **Who should I contact for questions:**
    1. If you have any questions or research-related problems at any time, you may call Collin Peace, at 423-402-1918.
    2. If you have questions about your rights as a study participant, you may also call the Chairperson of the ETSU Institutional Review Board at 423.439.6054
    3. If you have any questions or concerns about the study and want to talk to someone who is not part of the study team, or if you cannot reach the study staff, you may call an IRB Coordinator at 423.439.6055 or 423.439.6002.

By signing below, I confirm that I have read and understand this Informed Consent Document. I also confirm that I had the opportunity to have it explained to me verbally. I confirm that I was able to ask questions and that all my questions have been answered. You will give me a signed copy of this document. By signing below, I confirm that I am an accounting professional 18 years or older, and I freely and voluntarily choose to take part in this research study.

_____ _____

Signature of Participant Date

_____ _____

Printed Name of Participant Date

_____ _____

Signature of Principal Investigator Date

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