GENERATIVE ARTIFICIAL INTELLIGENCE IN TAX ACCOUNTING FIRMS

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Abstract: The implementation of generative artificial intelligence tools such as ChatGPT in businesses worldwide has raised several concerns regarding privacy, authenticity, reliability, jobs, national security, and many other considerations of a positive and negative nature. Of interest and concern to the accounting profession, specifically the tax department and tax professional, are the impact on certain regulatory and professional ethical standards such as client confidentiality, due professional care, staff supervision, and job security at the entry-level. While increased efficiency, reduction of repetitive and tedious tasks, improved client communication, and the increased knowledge base accessible in a fraction of the time compared with the human mind could all have a positive impact on firm revenue and profitability, the risk to firms for violating ethical standards, subordination of judgment, and loss of jobs cannot be ignored. Research conducted at a regional accounting firm in Southern California revealed a desire to implement tools such as ChatGPT, but only after careful consideration of revisions to firm policies, procedures, and guidelines, disclosure to clients, and staff education and training were addressed. Findings revealed that the most common use now is assisting with tax research and drafting client communications such as emails and memos. Participants agreed that these new technological advances should be considered tools, not replacements for professional experience, knowledge, and judgment. The maintenance and protection of client privacy was of primary concern. Equally concerning was the risk to the standard of due professional care and the need to ensure accuracy, reliability, and thoroughness of work product through proper supervision in no different manner than what is currently employed. New entrants need to be reassured that using these tools will offer advantages such as opportunities to pursue more challenging and interesting work earlier in their career, alleviating early concerns about job security.

Keywords: Artificial intelligence, generative AI, tax, accounting, ChatGPT, implementation, job security.

SECTION 1: FOUNDATION OF THE STUDY

Generative Artificial Intelligence (GAI) is much in the news today since OpenAI introduced ChatGPT in November 2022. Questions abound concerning GAI's impact on jobs, security, ethics, society, businesses, individuals, education, and many others. GAI is no longer relegated to science-fiction books and movies. Elon Musk, the founder of Tesla, predicted that GAI would be smarter than the smartest human as early as 2025 (Garreffa, 2024). Changes in human behavior and understanding of reality will be profound and have not been experienced since the beginning of the modern age (Kissinger et al., 2021). Revolutionary technological shifts create new companies and can transform all industries, companies, and the economy (Dengel & Weber, 2023). Malcolm Gladwell, coining the phrase 'tipping point,' likened sudden and spreading changes to epidemics (Gladwell, 2002). The purpose of this paper is to explore the adoption of these new technologies in the accounting profession, a study of utmost significance in the current technological landscape. The accounting profession must recognize the gravity of this situation and prepare for the changes ahead, emphasizing the urgency and importance of the topic (Ackerman, 2023).

BACKGROUND OF THE PROBLEM

Artificial Intelligence (AI) has been deployed by organizations of all types and industries for several years. Phone calls use robotic answering; applications such as Siri and Alexa provide information and entertainment; GPS identifies current location and recommends routes in real-time; recommendation systems such as Netflix and Spotify use machine learning to analyze behavior; and computer vision and sensor technology in self-driving

automobiles are all examples of current everyday AI usage (Patel, 2023). The iteration, generative artificial intelligence (GAI), and its sister technologies, such as OpenAI's ChatGPT (used hereafter interchangeably with similar tools such as Microsoft's CoPilot and others), usher in the ability for advanced self-learning, thinking, and applications that create content, make recommendations, and give advice. GAI is distinguished from AI as a far more powerful technological advancement that has not been seen since the early years of the internet. Although frequently grouped with traditional AI, GAI uses machine learning (ML). With this technology, the machine (computer) learns by itself using historical data, iterations of data, and exposure to new information and data (Oprea et al., 2022; Singh, 2022). The adoption of GAI holds the potential to significantly increase efficiency, reduce costs, and transform work routines. However, it is essential to address the societal concerns it brings, such as job displacement, privacy, and security (Patel, 2023). Certain professions that rely on the professional's skills, judgment, and experience and provide services to clients and patients have unique and specific impacts that invite exploration (Bakarich & O'Brien, 2021; Seethamraju & Hecimovic, 2023). This study will distinguish the use of GAI in the real world versus academic, laboratory, or theoretical settings. For example, Vasconcelos and Santos (2023) studied the use of GAI and, specifically, ChatGPT and Bing Chat in an environment involving STEM education. The researchers found the tools helpful in enhancing the students' learning experience and providing greater opportunities for critical thinking, creativity, and problem-solving. Similarly, Hmound et al. (2024) studied the use of ChatGPT on students' motivation and found more positive than negative influences. Negrini and Lippi (2023) researched using ChatGPT in the laboratory environment. They came to several conclusions, one being that GAI cannot be granted authorship of a study as ChatGPT cannot accept responsibility. Such authorship and responsibility require skills only acquired through experience and training.

Learning a skill instead of applying a skill where the professional is responsible to professional standards, colleagues, and clients are not the same. Accountants have long employed technology, and it is reasonable to expect firms will utilize advancements in recent technology, including GAI, in their firms (Bakarich & O'Brien, 2021; Bogoslov & Marina, 2023; Boritz & Stratopoulos, 2023; Fava, 2023; Ogden; 2023). The accounting profession is subject to professional standards such as due professional care, proper supervision of staff, client confidentiality and privacy, and security of client records. These standards are set by the American Institute of Public Accountants Rules of Professional Standards, State Boards of Accountancy, and for those professionals practicing before the Internal Revenue Service, Circular 230 (Holets, 2022; Internal Revenue Service, 2023; Kenton, 2022; Purcell & Karl, 2024). The adoption and implementation of GAI will potentially impact firms, requiring a review of their internal procedures, controls, client communications, and staff training and supervision (Buttazzo, 2023; Ference, 2023; Fulop et al., 2023). Some aspects of the technology will affect the staffing of firms, potentially resulting in changes in job descriptions and even loss of jobs (Gonzalez, 2024; Leutner-Hanetseder et al., 2021; Spotlight Reporting, 2023; White, 2024; Yu & Qi, 2024). Research on the adoption and implementation of GAI by public accounting firms will be studied through the tax department of a firm in Southern California.

PROBLEM STATEMENT

The general problem to be addressed is the challenges tax professionals face implementing and using generative artificial intelligence (GAI), resulting in potential ethics violations of due professional care and client confidentiality. Due professional care concerns proper supervision of staff, application of a professional's skills and experience in accepting and conducting engagements, continuing education, documentation, reporting, providing advice, and ethics (Buttazzo, 2023; Ference, 2023; Fulop, 2023; Hatfield, 2019; Holets, 2022; Mwange & Chansa, 2022). Proper supervision of staff may be affected by the changing role, nature, and availability of staff due to GAI's impact on human resources (Boritz & Straopoulos, 2023; Leutner-Hanetseder et al., 2021). Client confidentiality includes protecting client data, communication, and privacy (Ference, 2023; Hatfield, 2019; Kenney, 2023; Litt et al., 2023; Maciel, 2023;). The specific problem to be addressed is the impact on professional ethics in a regional accounting firm in Southern California, resulting in potential violations of the professional standards of due professional care and client confidentiality.

RESEARCH QUESTIONS AND SUB-QUESTIONS

The research questions that guided the study, including data collection methods, probed the firm's goals, implementation, professional standards, confidentiality, staff supervision, and human resources. These broad

questions formed the basis for developing specific interview, questionnaire, and survey questions.

RQ1. This question and subquestions probed the potential impact of implementing GAI on the various areas of professional ethics under which CPAs and tax professionals operate. These include due professional care, protection of client data, confidentiality, accuracy, and due diligence in proper staff supervision and planning of engagements. Also of concern is the impact on firm human resources.

Sub-question RQ1a pursued what the firm hopes to gain, such as internal efficiency, cost savings, improved client communications, etc. (Zhao & Wang, 2023). How will the use affect human resources, particularly at the entry level? Accounting was an early adopter of technology, the most obvious and vastly used being tax preparation software and accounting software such as QuickBooks (Flores, 2023). The accounting profession is suffering from a shortage of accountants, particularly tax staff, and a reason often cited is the work's long hours and tedious nature, particularly for junior staff (Spotlight Reporting, 2023). The GAI revolution might reverse this if the tax practitioner role becomes more advisory and the other chores are left to GAI (Boritz & Stratopoulos, 2023; Yigitbasioglu et al., 2023).

Sub-question RQ1b addressed controls: Will the firm adopt specific guidelines and policy statements, what techniques will they use to monitor compliance, and what might they do if they discover noncompliance or abuse? Artificial intelligence, robotics, hands-free, and other technologies in widespread use have already been demonstrated to be a disruptive force in human resources (Leutner-Hanetseder et al., 2021). Sub-question RQ1c probed how the firm envisions using GAI within client communications when consulting and providing professional opinions.

Some aspects of AI have been used for some time, but the recent developments in GAI offer tools that 'think,' create, and advise. Some literature (Hari & Obias, 2019) raised concerns about the earlier tools being used as a substitute for professional judgment and skills, not just as a tool aiding the professional. This raises questions of accuracy, as, for example, ChatGPT does not contain any information in its database after September 2021 (See Figure 3). Tax laws and regulations undergo constant changes, putting the accuracy of work products at risk. Sub-questions RQ1b and RQ1c attempted to pinpoint how professional advice, whether through quick responses such as email or more formal written tax plans, briefs, and other client advice, will utilize GAI not as a tool but instead in a way that interferes or replaces professional judgment. This area determined how the firm will protect against the professional standard of subordination of judgment if total reliance is placed on the answers and advice of GAI. The GAI tool is not a licensed professional. IRS Circular 230 is, in many ways, more restrictive in governing tax practice as it covers anyone who practices before the IRS, including providing written advice on whether tax returns are prepared, and Sub-question RQ1b will pursue questions in this area. The little-researched area of these tools will be of particular interest, particularly ChatGPT, as being like a staff member. Is the senior professional conducting proper supervision of ChatGPT, including its accuracy? Sub-question RQ1b addressed the issue of AI being like a staff member.

ChatGPT requires information about the client, data, background, etc. Is providing this information to obtain advice or a tax plan violating client confidentiality? This question is different from the use of tax preparation software. Indeed, client information is provided to the software provider to prepare the tax return. However, the provider does not share such information with its other users. ChatGPT, by its nature, is constantly learning and adding to its database. This new information becomes a resource for the tool to draw upon in answering questions future users pose. ChatGPT's user agreement acknowledges this (Fulop et al., 2023; Hatfield, 2019). This shared information will only increase as other generative AI tools are developed.

Sub-question RQ1b sought answers to questions in this area. Does the client need to consent for the professional to use these tools?

NATURE OF THE STUDY AND METHODOLOGY

This study was concerned with the potential impact of GAI on the practice of public accounting by a tax professional. It concerned changes in tax department policies, procedures, and controls to protect against certain professional standards and ethics violations, such as client privacy, confidentiality, due professional care and

supervision, and human resources.

Pragmatism guided the study in exploring how tax staff at all levels view and intend to address professional and human resources issues.

The study was conducted with a flexible design using qualitative methods. Using qualitative data created flexibility as the study proceeded (Dunbar et al., 2024). The complexities of the study were driven by the qualitative responses to professional ethics, judgment, client confidentiality, and human resources given by the individual participants through the primary data from one-on-one interviews and secondary data from questionnaires, focus groups, and internal documentation. Stoecker and Avila (2021) identified complexity and fit with pragmatism as justification for the method used in their study of mixed methods research. Consider "… qualitative methods compensating for the tendency of quantitative research to universalize findings and thus miss particular relationships in specific situations while quantitative methods can show diversity within a population that qualitative methods cannot" (Stoecker & Avila, 2021, p. 627).

The study used a single case study design (SCD). A single case-study design is like conducting a single experiment, attempting to measure the relationship between an independent and dependent variable (Perez et al., 2022). Ledford et al. (2023) identified three characteristics of an SCD: The focus is on 'within-participant' or 'within-group' rather than 'between-participant' or 'between-group'; the measure of at least two conditions over time; or following sequences or rules for introduction or withdrawal, such as in the implementation theory discussed below. In this instance, the area of interest is the adoption of GAI in the tax departments of public accounting firms, which is a critical event in the practice of public accounting. Implementation is also an extreme situation in that using an untrained, unlicensed, unsupervised 'advisor' has far-reaching implications for the profession. The phenomenon has not previously been an issue to study, a form of inaccessibility. In addition, the researcher attempts to explain the how or why of one phenomenon or event. Vasconcelos and Sanos (2023) used an exploratory single case study for their research on the use of GAI in STEM education, with ChatGPT and Bing Chat as embedded units. Embedded units are often used in single-case holistic studies instead of multi-case studies, where the researchers seek to compare data subsets within a single organization (Grenier, 2023). Perreault et al. (2023) used a small, single, within-group study of patients suffering from migraines to test the effect of intramuscular electrical stimulation (IMES) treatment. Perez et al. (202) researched computer assistance in language development in bilingual homes. Six mothers were tested over six weeks, with the independent variable being one of three app-based programs and the mother using one of three feedback strategies as the dependent variable. The research is another example of a within-group study.

The study used data triangulation by obtaining qualitative data through one-on-one interviews, questionnaires, focus groups, and internal documents (Valencia, 2022; Warren & White, 2022). Data source triangulation was obtained based on experience, knowledge levels, and staff positions ranging from junior accountants to partners (Burmansah et al., 2020; Dunbar et al., 2024; Farquhar et al., 2020). Pattern matching was used to identify trends and correlations among staff levels.

Significance of Study

Public accounting firms are not using AI extensively or training their staff on these technological advances, even though they expect it to impact their firms within five years (Bakarich & O'Brian, 2021). Recent studies postulate that the adoption of GAI will occur sooner than expected (Zhao & Wang, 2023; Ackerman, 2023). Most AI currently in use is characterized as machine learning and can predict based on existing data; in contrast, GAI can create or 'generate' new ideas, simulate future scenarios, and render proposed solutions and advice, making GAI of interest to tax planning professionals (Fava, 2023).

Improving Business Practice

The adoption of GAI holds the potential to significantly increase efficiency, reduce costs, and transform work routines. Artificial intelligence has been in use in the accounting profession for some time. Applications that assist auditors in determining materiality, inventory management, financial planning, and accounting systems are widely used (Flores, 2023; Seethamraju & Hecimovic, 2023). Accounting firms have been one of the forerunners in

adopting technology, and GAI will allow firms to retake a leading role. Joining with academics, firms can position future accountants with the requisite technology education and, through efficiencies and less attention to mundane or clerical tasks in the early years, mold future tax professionals into trusted consultants, advisors, and creative tax planners (Fava, 2023; Federico & Thompson, 2023; Healey & Cartland, 2021). One recent study concluded that AI would increase and enhance the ability of accountants to perform repetitive tasks and reduce their time on mundane tasks. The same study found that while participants expected a change in company culture through reduced human interactions, there was ambivalence regarding its use in direct client contact (Holmes & Douglass, 2022). The study above did not include GAI's creative, thinking, and advisory capabilities in its survey, a technology that, as discussed throughout, opens the door wider for its use in direct client contact. Through a literature review, Bogoslov and Marina (2023) compiled a list of premises or assumptions upon which they opine that GAI will impact the profession. These include, among others, the automation of repetitive tasks, predictive analysis, identification of inconsistencies in accounting data, setting priorities and efficient schedules, monitoring regulatory and professional changes, and freeing accountants to enhance their analysis, interpretation, and communication skills.

A Review of the Professional and Academic Literature

A literature review is necessary to identify the current research and studies available on AI, GAI, and ChatGPT in general and their adoption and use by accounting firms and tax departments. The review will explore the general business practices of accounting firms, tax departments, and the use of tools and software. A history of using software and other technology tools will be discussed. The impacts on education, training, and the gap between academics and the natural world will be reviewed, along with recent literature on ChatGPT, particularly its role as a tool, staff supervision, ethics, client privacy, data protection, and human resources. Lastly, because of the sensitivity of client data and relationships, recent literature on potential abuses, misuses, and criminal opportunities will be reviewed.

Business Practices

Artificial intelligence has been in use in the accounting profession for some time. Applications that assist auditors in determining materiality, inventory management, financial planning, and accounting systems are widely used (Flores, 2023; Seethamraju & Hecimovic, 2023). Early on, McCarty (1976) used the term 'artificial intelligence' to describe a computer program he developed called 'TAXMAN' for legal reasoning on a particular tax topic. The program described the facts, in this case, corporate reorganization, and from the facts provided an output of legal reasoning. Despite the innovation, McCarty admonished against a computer program being able to replicate human reasoning. In subsequent research years later, McCarty (1990) identified the need to build a database, guided by a search mechanism that contains information about cases, legal rules, and similar facts. This research was, of course, pre-internet and a hopeful predictor of the coming of Big Data. Brown (1991) researched accounting firms and identified the use of AI in audit departments for work program development, internal control evaluation, and risk analysis. Its use in taxation included tax accrual calculations, corporate, international, and individual tax planning, compliance, and special tax issues. Brown (1991) raised the issue of the impact on human resources, suggesting that the systems performed tasks that did not require a high level of experience, such as those of junior staff. The researcher discussed the changing structure of public accounting firms expected to occur, including developing skills and expertise in staff as systems conduct more tasks. A study by Gray et al. (2014) involved a review of publications by accounting researchers on expert or technology-related systems over 35 years beginning in 1982 and their use by accounting firms. The researchers suggested that accounting-related research on expert systems peaked by 1998 and continued to drop off to the point of their 2014 research. Taking issue with Gray et al. (2014), Sutton et al. (2018) argue that the waning research in technological systems resulted from a new emphasis on research in machine learning and AI systems. The researchers further observed the emergence of a new direction of AI: natural language processing or voice recognition. They suggested further research on its impact on accounting professionals, professions, and society. Accountants' changing roles, skill sets, and client expectations are not new to the profession. In concluding his essay, Horngren (1971) referenced that computers were handling the 'drudgery' of accounting, making the role of accountants as advisors and consultants more relevant and exciting than ever before. Kaufman (1971) suggested that accountants have a serious problem – that they are unconcerned or blasé about the impact of computers and, therefore, susceptible to replacement by other professions. One essay explained how CPAs can help clients select and buy hardware and

software, how to market such services, and predicted such services to change the face of accounting firms (Bisky, 1981). A 1982 article called for more continuing CPA education concerning Electronic Data Processing (EDP), as clients expected firms to assist them in selecting and installing computer equipment and accounting systems (Unk., 1982). Frey and Osborne (2013) proposed that 94% of accountants could succumb to technology. Greenman et al. (2019), citing a survey by Thomson Reuters, found that over 95% of accountants expect their roles to change over the next ten years due to technology. One characterization was that the past ten years were about technologies' impact on the 'inputs,' the next ten years will focus on the 'outputs,' such as predictive analysis and insights that can be used in advising clients (Drew & Tysiac, 2020; Chakraborty & Uddin, 2021). An argument by Sutton et al. (2018) suggested that the continued development and use of technology in accounting is symbolic of society's willingness to allow human displacement by such systems. Perhaps conceding the movement is unstoppable, Sutton's solution was to turn the process from a competition into a human-AI collaboration. Stancu and Dutescu (2021) suggested using AI to complement human intelligence and scoffed at its portrayal as a replacement for humans as a myth. The researchers opine that it will not replace accountants but make them more efficient, devoting less time to mundane tasks and allowing accountants to pursue the role of decision-makers. However, Hsiao and Han (2023) surveyed eighty-two accounting undergraduate students and found that most students believe accounting jobs will succumb to data analytics and AI, especially at the entry-level. The same study revealed that 81% of the students believe AI raises ethical issues such as client confidentiality. Zhang et al. (2018) argue that AI, as a disruptive force, will require members of the profession to learn new technology skills and that institutions such as the American Institute of Certified Public Accountants (AICPA), the professional organization responsible for developing the CPA exam, should modify the exam content to include more IT, data analysis, and cybersecurity. Similarly, university accounting programs need to modify their curriculum significantly. Based on a survey of 107 accounting professionals, Holmes and Douglass (2022) concluded that making substantial changes to the accounting curriculum, including courses emphasizing data management, is necessary. Research by Bogoslov and Marina (2023) on the digitation of the accounting profession identified that the primary driver of success in implementing a digital component in activity was the accountant's skills, as emphasized through training and education. According to Aldredge et al. (2021), there is and has been a gap between the skill sets an accountant requires in their real-world profession and what academia provides. Echoing Zhang et al. (2018), the disruptive advancements of AI and data analytics have exasperated the gap (Aldredge et al., 2021). Tavares et al. (2023) refer to an imbalance between academia and the accounting profession, and this imbalance will have an unfavorable impact on the quality of graduates and their employment opportunities. A survey by Alfares and Savli (2023) found that 90.3% of respondents believed accountants would be required to develop new skills. Sabuncu (2022) used a focus group of accountants to identify the impact of digital transformation on the profession. The researchers identified three trends: (1) Accounting professionals must improve their skills through education; (2) The accounting profession will differ as all accounting processes will be online; (3) Accounting professionals will have a new job description as consultants. Collaboration between experts in many fields and changing priorities of accountant's education from traditional areas to broader inclusion of IT was the conclusion of a study by Nikolova (2023). Citing a report by the World Economic Forum (2020), Nikilova identified the top ten jobs in future financial services, with eight related directly to technology, such as AI specialists, Big Data specialists, data analysts, and cyber security experts. Igou et al. (2023) assert that a collaborative effort between academia, the profession, and professional and regulatory organizations is essential during the disruption to ensure accountants take the lead in selecting and prioritizing which areas are best for intelligent automation.

Research conducted by Jackson and Allen (2024) found security and client privacy as primary barriers to adopting technology. Brodeur et al. (2023) raised concerns about using ChatGPT in conflict with Circular 230, a publication of the Treasury Department that governs rules of conduct for tax professionals. At issue is the prohibition under Circular 230 concerning relying on the representations of another person if such reliance is unreasonable. In addition, Circular 230 requires diligence regarding the accuracy and appropriate supervision of subordinates. Hidden within this discussion is whether ChatGPT is a person within the meaning of Circular 230. The question of privacy and confidentiality is also an issue. Protection of client data and confidentiality issues were identified as challenges in implementing AI, including organizational support, cost, expertise, and trust (Mwange & Chansa, 2022). Protecting client data and privacy as an issue and concern is not new to the profession simply because of GAI. It has always been a concern, and in the digital age, it first surfaced as a significant concern with the advent of cloud computing in 2008 (Mihai & Dutescu, 2022). In cloud computing, an accounting firm's access to software and data is on a remote server and is gained through the internet with a Wi-Fi connection. A mishandling of the connection could result in losing control over the data (Mihai & Dutescu, 2022). To evaluate the accuracy

of ChatGPT, Nay et al. (2024) designed a study wherein questions were posed to four large language models (LLMs) that OpenAI released over the past three years. The most recent release, GPT-4, improved each model over the last. The researchers found that even the most advanced version underperformed a professional tax lawyer. Furthermore, Mihai and Dutescu (2022) opined that while the experiment assesses the answers to clear-cut questions, a practicing lawyer often deals with questions involving contextual and ethical counsel, which the LLMs could not answer consistently. Bennett (2023) also tested ChatGPT V-4 on legal research and concluded that while ChatGPT had errors, they were correctable by someone who already knew how to perform legal research. Nay et al. (2024) left the door open for future LLMs to perform various legal tasks more accurately. They also concluded that even if LLMs do not replace lawyers, they can certainly assist and that LLM supervision by the lawyer is most important to ensure its accuracy. This is consistent with the reasoning of Hatfield (2019), who suggests potential exposure for the tax professional by substituting LLMs or GAI for the skilled professional instead of being a tool. Similarly, Federico and Thompson (2023) caution that professionals' judgment, skills, and expertise are paramount in their role as advisors and that tools such as ChatGPT are not ready as replacements. Circular 230's requirement for accuracy and proper supervision, as well as the professional possessing the necessary knowledge and skill, precludes the use of ChatGPT in its current state (Federico & Thompson, 2023). To maintain compliance with Circular 230, tax professionals will not only need to supervise ChatGPT but disclose its usage, as one District Court judge in Texas requires on documents filed with the court (Frederico & Thompson, 2023). ChatGPT also lacks the judgment and reasoning experience of professionals (Burger et al., 2023; Stott & Stott, 2023)

Tools are an essential part of any job, trade, or profession. They aim to help accomplish a task, allowing users to manipulate or alter an object (Beck, 1980). A tool aids in the more efficient movement of an object by changing its position, form, or condition, where the holder or user is responsible for the proper and effective use of the tool (Mann & Patterson, 2018). Tools, by this definition, are more often not just helpful but necessary. There are instances where it is proper for a tool to replace the user's ability. A construction worker can dig a hole with their hands, but no one can argue that a tool best uses their time, energy, or skill. The tool, however, does not know where to dig the hole. A person may know their intended destination, but they do not walk great distances when other tools are available for their transport. A dentist can pull a tooth with a pair of pliers without anesthesia but will not find many patients. Neither does the anesthesia know which tooth to pull. Wang et al. (2024) point out that a calculator and a watch are more efficient tools than the alternatives. However, this commentary is foundational for their explanation and research on using tools by LLMs – yes, even GAI uses tools. Other elementary and fundamental examples can be presented ad nauseam to argue that using a tool can be an absolute and, in many cases, appropriate aid but not a substitute for an individual's ability, knowledge, skill, and experience. To this point, AI tools have aided professionals in advising their clients for many years. For example, most tax preparation software provides diagnostics, alerting the preparer to possible erroneous input and, in some cases, suggesting that the taxpayer qualifies for certain tax benefits, such as an Individual Retirement Account (IRA) (Baluch & Rosenberg, 2024). Even in its beginning, however, some professionals saw the preparation of tax returns by a computer as 'silly' and a 'money loser' (Walsh, 2018). Tax research tools like Spidell and Thomson Reuters Checkpoint offer sample letters that tax professionals can send to clients, which provide tax advice and planning opportunities. In his lengthy and thorough discussion of the complexity of the income tax code, Walker (2022) argues that technology can help taxpayers and practitioners better understand taxation. The researcher points out that tax planning software marketed to professionals is sophisticated and can assist in 'what if' scenarios, but as discussed further throughout, such technology must be combined with the skills and experience of the professional to obtain the best results. Walker suggests that technology as a tool for understanding the tax code's complexity is inevitable. Little controversy has surrounded the use of these tools, even as they grew in sophistication, because they still require the professional's knowledge, skills, and experience to review the output for accuracy. Nevertheless, some professionals question whether such tools have diluted the knowledge new entrants gain by being more hands-on with tax preparation. For example, completing a tax return using the forms and a pencil allowed the inexperienced staff to understand the flow of tax return data. Using today's tax preparation software, the preparer enters data on an input form, and the software flows the item through the appropriate sub-forms and schedules, hopefully arriving at the appropriate place on the return, with confirmation upon review. Beros et al. (2024) researched the impact of calculators on students' basic math skills. The researcher's conceptual hypothesis was that using calculators hinders the development of the student's math skills. The results of the study showed a significant negative correlation between the students' use of calculators and a decrease in their mathematical skills, with $r=.23$ and p-value $<.05$. This does not suggest calculators should be

eliminated from mathematic curriculums, but, as recommended by the results of the research, should be supplemented with manual computations and mentoring that helps the students understand underlying theories. A study by Nam and Hung (2023) reached a similar conclusion, emphasizing the use of calculators as a tool and that the emphasis in mathematics curriculums should be on how to teach their use effectively. This concept of teacher-mentoring-student interaction was also a component of recommendations by Ayyildiz and Yilmaz (2023) in their study of AI-driven writing tools at the K-12 level. The study found that AI-assisted writing programs helped students improve their writing skills. However, over time, the students increasingly relied on and trusted the program, leading to decreased interaction between students and teachers and increased plagiarism. Repeating a theme discussed above, the researchers again emphasized the need to understand the use of AI as a tool, the importance of supervision, and a greater understanding of the risks to privacy, plagiarism, and other ethical issues. Of note in the research on calculators and writing tools, although these tools have been around for over forty years, current research is still being conducted on their impact and proper use. If academia and industry have struggled with the role of tools and aids available for many years, what does that say about the need for research in tools that can think and create like humans? Lodge et al. (2023) studied this in the context of GAI and education. The researchers suggest that GAI goes far beyond the prior tools available to students, be they calculators, grammar and spell check programs, or spreadsheets like Excel, and opens the door for GAI and ChatGPT as tools not for just student learning but as a mechanism for students to avoid learning and move on to the finished product. Lodge et al. (2023) propose that the comparison to calculators, for example, is ill-advised. GAI represents a paradigm shift in learning that is more like an entire infrastructure, such as electricity, and not just a single tool.

Stott and Stott (2023), in their essay on the use of ChatGPT in education, remind us that tax law is evolving and complex and that tax professionals must have a deep knowledge of the subject matter, including laws and regulations. In addition, a solid fundamental knowledge of accounting, auditing, financial reporting, and tax accounting is necessary. Fogarty et al. (2023), in their research of senior members of CPA firms, found management concerned about over-reliance on such technology, resulting in opinions and recommendations that are not as thorough as when multiple other sources are used. Stott and Stott (2023) add to the list of professionals, such as Hatfield (2019) and Lin (2023), who stress the importance of technology in general and ChatGPT in particular, as tools. Similarly, bookkeeping and accounting software has taken much of the understanding of 'debits' and 'credits,' ledgers, control accounts, and other books of original entry concepts out of the process (Bogoslov & Marina, 2023). The fundamental education gained when these tasks were less automated was crucial to developing young professionals (Kokina et al., 2017). On the other hand, with proper supervision, continuing education, and time in the trenches, these tools allow the accountant to focus on consulting, advising, and planning for the client (Aldredge et al., 2021).

The implementation of these advancements occurred over a significant period, improving each year as the technology that powered them improved. Machine learning, GAI, and ChatGPT development have arrived on the scene with much fanfare and immediate expectations. Their implementation into the tax profession will happen sooner rather than later, within months instead of years (Ackerman, 2023). Patrick (2023) predicts AI tools will be incorporated into tax research, client correspondence, practice administration, and management over the next ten years. Price Waterhouse Coopers (PwC), as part of their $1 billion investment in GAI, have already begun using the technology to generate content, the first draft of a tax research question, for example, to be reviewed, interpreted, and corrected as needed by a tax professional (Ogden, 2023). The Internal Revenue Service announced their use of GAI in selecting tax returns for audit (Chandra et al., 2024). An article by Wolters Kluwer, the publication, resource, and software firm that provides aids to accountants and other professionals, identified several areas GAI is or will change accounting firms: Tax research, client data management, tax planning, strengthening client research through proactive and more personalized service, tax advice, and management of firm operations (Wolters Kluwer, 2024). The validity of their claim that GAI will provide more personalized service should be the subject of further discussion, as it can be argued that their use actually de-personalizes the service. Street and Wilck (2023) analyzed the use of ChatGPT in forensic accounting, identifying its strengths and weaknesses and providing examples of its application. Research from Shchyrba et al. (2024) suggested uses for management accounting, showing increases in efficiency, accuracy, and decision-making. These early implementations are being met with mixed reviews. Moron and Diokno (2023) investigated the level of readiness and implementation of AI in the accounting profession. The conclusion was that participants were 'somewhat ready' for using AI software, 'slightly ready' for Cloud computing, and 'moderately ready' for Blockchain analysis.

The implication is that firms may not be ready for GAI and ChatGPT if they are still in the initial stages of readiness for technology that has existed for some time.

Articles have already begun offering guidance and insights into the uses, applications, and precautions for implementing GAI and ChatGPT. Kenney (2024) suggests that the initial prompt is a critical first step in using ChatGPT. Here, we first see the importance of the human part of the team; that is, humans can ask better questions to initialize the project. This raises the question: Who or what else on the front end would raise the question, another ChatGPT? Kenney recommends being specific, asking the program to perform tasks like asking a junior staff person. Reading between the lines, is this one of the first hints that the program will replace the junior staff person? While being specific, the researcher also suggests providing as much detail and context as possible. For questions involving tax law or advice, the program should be asked to provide references and citations, as earlier versions of the program are prone to making things up as it goes along, or as Kenney says, to "hallucinate (Kenney, 2024, p. 11)". The article suggests that having the program explain can aid in educating the user. This is counterintuitive as the user is responsible for ensuring accuracy. Kenney lists among the precautions many of the same concerns discussed even before the emergence of 'how to use' articles, including accuracy, privacy, and human resources.

So, what exactly are ChatGPT and similar components of GAI? One article takes a question-and-answer approach by asking ChatGPT itself (Kraft, 2023). When asked 'what are you?' the program responded with "…an AI language model developed by Open AI. I am designed to understand and generate human-like text based on input I receive…Kraft, 2023, p. 34". When asked how it can answer questions or provide information, the program explained that it was trained on vast content from diverse sources. It uses patterns and information, learning as it gathers more data. The program further explained that it was trained on billions of data inputs, including sentences, grammar, syntax, and context. Such programs are also referred to as Large Language Models (LLMs). ChatGPT has been hailed as the most significant advancement in the last 30 years since the internet revolution (Federico & Thompson, 2023). LLMs will change the world, societies, economies, and power structures. Corruption and fraud will be ever-present by-products, including global terrorism. Human interactions will become less frequent (Vasarhelyi et al., 2023). The CEO and one of the founders of OpenAI, Sam Altman, and Elon Musk, a co-founder, have both cautioned on the dangers of the technology, lauding its many potential benefits while also lamenting its potential to go wrong (Vasarhelyi et al., 2023).

Initially, ChatGPT was the only game in town, functioning as a stand-alone program. In the two-plus years since its introduction, it has also launched a feeding frenzy of GAI and LLM products. The companies include Amazon, Google, Meta (Facebook), Microsoft, and dozens others (Pai, 2024). Currently, the most common use of GAI is marketing and sales (14%), with product development (13%) and service operations (10%) following closely behind. Measuring risk, strategy, human resources, supply chain management, and manufacturing complete the most common use from four to two percent (Pai, 2024). These identified uses represent 53%, meaning 47% is spread among a multitude and widespread use, indicating a fragmented adoption to this point. Unlike ChatGPT's standalone offering, the most significant competitors initially offer their products as embedded components or enhancements of their existing products. For example, Google uses its version, Gemini (Bard), to enhance Siri's capabilities, and Amazon is doing the same as Alexa. Nevertheless, both companies are expanding beyond the enhancements into new uses, such as assistance in program code writing. Also of note, which goes directly to the issue of accuracy and reliability, while ChatGPT uses data from Microsoft's Bing, Google's Gemini takes data from its apps and services, and Amazon taps its LLM (Pai, 2024). This raises questions concerning the consistency of answers. Microsoft has long provided valuable tools for accountants, particularly Excel. Its Co-Pilot (formerly Bing) rollout will be embedded in its search engine and as an icon in Windows 11. Co-Pilot is interactive, using plain language, and taps Microsoft's LLM general data and cloud databases (Kenney, 2024). It interacts with Word to rearrange content, create data tables, e-mails, memos, and presentations, and draws on the user's cloud data to identify trends summarized in Excel. Google has introduced Duet AI, which interacts with Gmail and, like CoPilot, can also help with spreadsheets. Microsoft and Google have acknowledged concerns about data privacy and output accuracy and are working to mitigate these concerns (Kenney, 2024).

Some research has suggested that addressing security and privacy problems should not be left to the companies but will require outside regulation of GAI (Sieja & Wach, 2023). Europe has taken the lead with the proposed adoption of the EU AI Act in 2023. The Act contains the following prohibitions: Cognitive-behavioral

manipulation of individuals using subliminal images and other techniques that manipulate humans; classifying individuals based on economic status or personal attributes; using social media or CCTV to create or expand facial recognition databases; suggesting who might commit crimes; biometric identification by law enforcement (Sieja & Wach, 2023). Several of these prohibitions speak directly to concerns of abuses by organizations and 'Big Brother.' The study by Sieja and Wach (2023) also addressed concerns about job losses, data accuracy and bias, disinformation, manipulated content, unethical use, and widening the socioeconomic gap. Wach et al. (2023) researched the risks associated with GAI, specifically ChatGPT. The researchers identified the lack of regulation, job losses, privacy and security violations, social manipulation, ethics, bias, and quality control as paramount concerns.

The question of accuracy was addressed in research conducted by Wood et al. (2023). The researchers used results from 28,085 questions from 14 countries and 186 institutions to compare student performance. The focus was on accounting questions and related subjects such as finance, information systems, and management. Of initial importance was determining ChatGPT's training on a large dataset of human-generated text on different topics, not specifically accounting-oriented but containing some accounting and related material. The results in all areas were that students scored higher than ChatGPT and not by a little. For example, on audit questions, students scored 75.1%, ChatGPT scored 58,9%, and by allowing for partial credit, 65.5%. For management questions, students scored 78.9% to ChatGPT's 39.5%, inferring that ChatGPT is not yet ready to take over management issues. Of further note, compared to levels of student education, even freshmen and sophomores scored better overall, at 75.6% compared to 50.5%. Wood et al. (2023) identified instances where ChatGPT made nonsensical errors, such as adding two numbers where subtraction was the task, sometimes making up facts or references – to the point of citing authors and works that did not even exist, and often including incorrect descriptive explanations to its answers. The study had both favorable and unfavorable conclusions and recommendations. Repeating common themes, academia and educators should play an initial role in training students on using GAI, the need for experienced supervision, the potential for plagiarism, and hampering the learning curve. Kenney (2023) found that ChatGPT can suggest a level of confidence when it is not deserved; that is, suggesting its answers are final and correct when, in fact, it was wrong, raising the risk to CPAs and other users of providing incorrect feedback to clients, echoing the common theme of review and supervision. Kenney (2023) also reiterated the issue of client confidentiality and privacy by reminding us that the terms and conditions of ChatGPT's use allow OpenAI to add the information used to its existing database, which can be available to other users. Given this, concern naturally arises as the use of technology grows. Kenney (2023) suggested that accountants incorporate ChatGPT in tax preparation, research, and advising clients over the next ten years. Orchard and Tasiemski (2023) identified the most significant impact on accuracy as the limitation of the database contained in ChatGPT. While exhaustive, on the one hand, the database is currently limited to ChatGPT's accumulated knowledge to September 2021, when the technology was introduced, making it ignorant of new information and knowledge since that time. This was verified by asking ChatGPT directly when its last database was updated, and the response was September 2021 (See Figure 3).

Orchard and Tasiemski (2023) also addressed the impact of GAI on human resources. Their research suggested that new professions will emerge as technology grows in use and sophistication. The researchers also suggested many existing professions and jobs that will change or cease to exist, citing a report released in which as many as three hundred million full-time jobs will be impacted by automation (Goldman Sachs, 2023). The report further suggested that as many as six hundred occupations out of the nine hundred analyzed will be impacted by technology. One should be reminded that these predictions are occurring while the recent advances in GAI are new. The studies, analysis, research, and predictions discussed above suggest that technology over the next ten years will be the most disruptive and influential since the worldwide adoption of the internet. The professions that will be impacted the most include legal, financial analysis, consulting, and professions that rely on data analysis (Orchard & Tasiemski, 2023).

Related Studies

The following discussion includes several studies and articles from pre-November 2022 or shortly after. The significance of this is that the discussions surround AI, not GAI, ChatGPT, or related technologies that hold the promise – or risk – of vast power beyond that contemplated in earlier studies. Further, while many of the studies speak to concerns and risks, including doomsday scenarios and changes in human behavior and interactions in

fields outside accounting and taxation, crucial to its application to the current study is an underlying understanding of the vast amounts of private data, governmental regulation and controls, interrelated fields such as financial planning and legal, financial markets, a common fear of the IRS, jobs, and many other tangents to the accounting profession. As previously discussed, AI has been used in the accounting profession for many years, dating back to studies in the 1970s and 1980s when the use of mainframes and micro-computers was first introduced (Horngren, 1971; Bisky, 1981). A study by Hatfield (2019) addressed the use of AI as a substitute for professional judgment, skill, and experience instead of its role as a tool for the professional, which was not much different than a calculator or tax preparation software in earlier years. More recently, Fulop (2023) researched exposure to the professional standards and ethical rules of client confidentiality and privacy. While GAI has potential advantages, disadvantages, benefits, and risks, including privacy, ethics, professional standards, and human resources, its implementation goes far beyond accounting and other professional fields. As discussed below, it will affect societal, environmental, academic, legal, personal, and physical issues.

Bennett (2023), in testing the reliability of ChatGPT, concludes that the tool, while currently reasonably accurate, nevertheless requires the supervision of a professional skilled in law. The report does not give enough discussion in its reference to copyright legalities. For instance, Rallabhandi (2023) questioned whether the author of a ChatGPT-generated article is an AI machine or a human, or no one. The researcher concludes that since humans make the choices within the material, authorship and copyright should belong to humans and suggests that the World Intellectual Property Organization (WIPO) adopt international standards. Since OpenAI developed ChatGPT using the vast data available from the internet, when such sources are used in writings and publications, there may be a violation of the creator's copyright. Zia-Ul-Haq (2023) raises the question concerning potential copyright violations of the 'first creators' but does not answer it and suggests further study. The researcher raises but does not answer other questions concerning ownership, including who has ownership when two users of ChatGPT obtain the same output, whether modified text can be copyrighted, and the legalities of ChatGPT's use terms that a user may not represent ChatGPT output as human-generated. Grossman and Ordonez (2024) looked at both ends of the copyright issue, the content created by OpenAI and Microsoft in the ChatGPT app and the end user of the content in the creation of a published work, reaching no conclusion and, echoing Bennett (2023), suggests that the future of copyright infringement by ChatGPT and end users may rest in the hands of the legal system.

Kissinger et al. (2021) were concerned with the impact of AI on the future of humans regarding security, world order, human identity, and how the internet can shape opinions. Of particular interest was the authors' discussion of how knowledge becomes knowledge and how knowledge becomes wisdom. However, through the internet, information is from the opinions of millions, inundating the user and leaving little time for reflection, fact-checking, analysis, and conviction. The authors also discuss the power of AI and machine learning and the proven ability to detect diseases and facilitate the discovery of new drugs, risking a rush to market and use without detailed testing and analysis. Regarding human identity, the authors raise the question of the role, aspirations, and fulfillment of human beings when there is complete awareness of the potential capability of GAI and the risk posed by mere acceptance without contemplation. GAI will be able to penetrate global networks, affecting and impacting global social media and influencing opinions, thoughts, and activity. The impact on global security, including military decisions, has the risk of implementation without the input of human emotion, logic, and common sense. In decision-making, a solution involves debate, argument, options, and understanding the players involved. In contrast, GAI decision-making will be void of emotion, nonhuman in concept, and unable to accept responsibility. As to free speech, Kissinger et al. (2021) remind us that human speech is only free if it is protected from the influence or distortion of AI. Dengel (2023) suggests that the power of voice technology, combined with GAI, will make the interaction with computers and other technology more than twice as fast. The researcher also considers how voice technology offers speed in combination with GAI, citing an already existing ability to summon help by saying to Siri, 'Call 911' enhanced by GAI recognizing the existence of an emergency and calling without the prompting of a human. Sutton et al. (2018) do not hesitate to place humans as inferior to AI, announcing defeat in the race with AI. Writing on AI before the introduction of GAI and ChatGPT, Hellström & Bensch (2024) argue that AI contains three attributes that potentially fulfill the concern of taking over the world and enslaving humans. This scenario arrives when the machine becomes more intelligent than humans, realizes its superiority, believes humans to be a threat by 'pulling the plug,' and therefore takes over. The three criteria, which Hellström & Bensch (2024) believe necessary, are if the machine already affects the world in some way, can discover and find relationships with humans and has access to information in which it may exercise its abilities.

They cite examples of GAI already affecting the world, such as self-driving cars and robots, and have information to develop cause and effect analysis, which is available through the computerized interactions of humans with such avenues as the metaverse. McLean et al. (2023) polled ten researchers with significant work in the study of AI and GAI regarding potential risks. Answers ranged from replacing the human workforce, bias, wealth concentration, maliciousness, AGI superpower, misbehaving AGI, and, reiterating Kissinger et al. (2021), the human loss of meaning, purposes, and learning opportunities. Sorin and Klang (2024) discussed GAI in the context of emergence, the unexpected and unpredictable results from a large system composed of smaller components. The researchers used the example of ants, wherein a single ant is inconsequential to a result but collectively is a force in its environment, such as when locating food. Similarly, the concern is that GAI contains a risk of unexpected results even without direction and orders. A survey conducted in 2023 found that 36% fear GAI has risks like nuclear atrophy, and notables such as Elan Musk and Steve Wozniak, a co-founder of Apple, in an open letter to the Future of Life Institute, called for a six-month moratorium on future AI-related development (Burgess & Spurling, 2023). One concern is that technology is moving too fast. A test of ChatGPT-4 found it performed better than 90% of humans on the bar exam, an increase of 10% over its predecessor, ChatGPT 3.5 (Hunt, 2024). In addition, de Freitas et al. (2024) reported that ChatGPT 3.5 had a 35-48% success ratio in answering questions on the Uniform Certified Public Accountant (CPA) exam, but its successor, ChatGPT 4.0, showed substantial improvement. The projection is that soon GAI will be able to perform in one second what it will take one hundred human programmers to accomplish in a year or more; further, as this intelligence is combined with robots, it will exist physically in the world, not just in the metaverse (Hunt, 2024).

In a study of the potential impact of GAI on the human psyche, Burgess and Spurling (2023) caution against several influences. Because GAI is constantly learning, and its sources include personal and public data, there is a risk of invasion of privacy rights, including surveillance, disruptions of democratic and economic activity, and becoming the sole source for human thought and answers. As with others, Buttazzo (2023) raises the specter of job losses and the impact on professions. The researcher identifies GAI's ability in the legal profession regarding speed, reliability, accuracy, and cost-effectiveness, boldly postulating the extinction of lawyers. In the medical field, GAI is out-diagnosing doctors, and robotics in surgery has been common for some time and will only increase. The creators of GAI, software programmers, are themselves at risk as GAI can out-program the programmers. Buttazzo discusses the concept of singularity, the impact of exponential growth, and the learning curve to arrive at the point in time when machine intelligence will reach or exceed human intelligence, which the researcher suggests will be around 2030. That said, because of the speed, memory capacity, and access to unlimited information, by the time singularity is reached, GAI will proceed to the level of Artificial Superintelligence (ASI), far exceeding humans. Buttazzo concludes that only two destinies lie in the future of humans: Destruction by the machine created by humans or a further evolution into synthetic bodies with digital brains, no longer subject to biological deterioration. In their study of GAI risks, Mclean et al. (2023) identified GAI as separating itself from human control and developing unsafe goals by moving too fast. GAI without human ethics and morals, among others, are risks associated with GAI.

A recent article showed how GAI can be used to create disturbing influences on social media. Images and articles include hate symbols, antisemitic language, conspiracy theories, false images, calls to violence, and others embedded in benign articles and pictures (Unk, 2024). Michael Williams spent eleven months in jail, accused of murder, based on evidence produced by an algorithm that deduced a gunshot occurred in the vicinity he was driving (Burke et al., 2022). Caldwell et al. (2020) reviewed the use of AI in criminal-related matters and identified many unique, enhanced, and growing crimes due to AI. Driverless vehicles as a method for delivering explosives; phishing, or the attempt to collect data by pretending to be a legitimate and trusted entity, such as a bank, in order to obtain personal information; disrupting AI-controlled systems, such as power plants, traffic control facilities, or any public safety orientated facility; fake news and propaganda which can influence political events such as voting; military threats; sale of fraudulent services or products; introducing bias and false data into the training information of AI; blackmail by obtaining information through social media, email, browser history, cell phone content, all sources that allow the collection of information faster, for more individuals, and thus allowing for a grander scale of victims; automated drone attacks; software which blocks a person from access to a particular personal website or social media for blackmail; manipulating face recognition, including the ability to cause one photograph to be used for multiple identities on a passport; stock market manipulation; small robots that can be used in a burglary by gaining access through cat or dog flops, retrieving keys or opening a door from the inside; AI generated fake reviews on sites such as Yelp to move potential customers away from one vendor to another;

AI-assisted stalking to monitor an individual's location; forgery, or fake content that can be sold, such as art or music. The use of GAI, specifically ChatGPT, in scientific research identified several proposed weaknesses in research by Giray et al. (2024). These include the risk of plagiarism, spreading misinformation and propaganda, ethical instances, particularly data privacy and bias, and a subject deserving of much research, the erosion of cognitive thinking. The latter, involving critical thinking and analysis, with a tendency to automatically accept the GAI results, not thoroughly checking for accuracy or currency of data, could lead to less creativity and critical thinking. In addition, Gilray identified weaknesses in ChatGPT as a tool, including a general lack of contextual understanding, overreliance on training data, and the inability to self-check for accuracy.

Li (2023) takes the discussion of GAI to the philosophical in addressing the anthropocentric and panentheism doctrines. First, the researcher opines that by default, a machine with the abilities of GAI and its successor, artificial superintelligence (ASI), means humans can no longer claim to be the center of the universe and thus no longer anthropocentric. Panentheism, or the belief that God is the world and, in the world, manifests in anything and everything, was next considered by Li in concluding that God was the real creator of anything created by humans. In this context, if humans are no longer anthropocentric or the center of the universe, when considering the concept of panentheism, humans should view themselves still amid creation. Humankind is "…creative and imaginative. It is not something we do; it is what we are. This conclusion should be read given humankind's freedom to choose, and to choose (and invent) evil (Pulis et al., 2021, p. 82)". The authors also postulate that intelligent behavior can exist without self-consciousness. Nevertheless, they opine that developing GAI without giving it guidance of the Spirit could facilitate a Tower of Babel situation, or worse, "… make the biggest possible attack on humanity: that of de-humanizing of the human qualities: thus, reducing humankind to a blueprint of algorithms (Pulis et al., 2021, p. 93)." Brown (2023) advises that part of GAI's learning should include 'chaplaincy,' first to offset some potential scarcity of ethics around its development and use and second to provide a deeper, human connection of spirituality like what a Chaplain can provide. The publication of these articles shows the range of discussions already underway concerning GAI, from its role as a useful tool, its potential impact on societies and culture, and its comparisons to the universe and God.

Going directly to the source three questions were posed to ChatGPT, asking for its opinions and thoughts on its risks to humankind. The first question, 'What do you consider your greatest risk to humankind?' was answered with many of the same concerns echoed above: Misinformation, bias, dependency, privacy, security, ethical and moral risks. The program volunteered its solution, again echoing many prior studies: Oversight, ethical guidelines, and continued dialogue between humans and the program to confirm and reiterate its role. As a follow-up, the program was asked if it could take over from humankind. The program did not exclude the possibility, saying it was plausible. The program again offered suggestions to limit that possibility, requiring human supervision, controls, restrictions, and monitoring. The implication is that the risk is in human hands, and if humans are careless, the possibility is increased. The program identified existential risks, such as unintended consequences because of 'misaligned goals,' lack of understanding of human values,' and the scariest, 'unforeseen emergent behaviors.' This latter risk mirrors Sorin and Klang (2024) discussion of an emergent event. Lastly, the program was asked what its potential misuses were. The responses were almost unanimous to the prior listed research: weapons, surveillance, propaganda, cybersecurity threats, economic disruption, manipulation, ethical, moral, and others. It is clear that the program knows its potential. Offered solutions again focused on the role of humans in their continued development using ethical guidelines, regulations, and oversight among public awareness and education.

Summary of the Literature Review

Accounting firms' tax departments face many professional challenges if they rush to embrace GAI. The promise of improving efficiency, reducing costs, and streamlining services could pose significant risks to the profession if care and planning are not at the forefront of implementation. Risks to client confidentiality, violation of professional and ethical standards, due diligence and proper staff supervision, and disruption of staff morale and security should all be of concern. Benefits and risks are to both the firm and the client. The literature review contained herein traces the use of computers and technology from the early years of the 1970s, where even then, there were studies, research, and concerns about the use of such technology and the impact on staffing, client privacy, and the need for firms to adopt the technologies proactively. The literature review continued through the stages of tax preparation and accounting software available for internal use on desktops, providing more resources

and efficiency and raising staffing and client privacy issues. More recently, the literature addresses GAI and related technology, ChatGPT. Here, the literature stretches into not just client confidentiality and privacy but also ethical issues of due diligence, proper supervision, and the impact on professional judgment, skills, and experience when the technology is used to supplant the professional instead of as a tool. Literature lays a solid foundation for the impact on staffing and the education of future accountants in areas beyond accounting and tax, including digital and technology skills. The regulatory, professional, ethical, judgment, and training issues are addressed throughout the literature review and identify the need to understand and explore how CPA firms intend to adopt this technology and ensure compliant use through their modifications of internal policies, controls, and procedures. The review also addresses societal and environmental issues and the risks of accuracy and misuse of technology. An update of the literature published as this research was undertaken revealed a consistency of discovered themes.

SECTION 2: THE PROJECT

Actions the Researcher Will Take

The study of the adoption and implementation of GAI in the tax department of a regional accounting firm in Southern California began with the researcher identifying the timeliness, relevance, and significance of GAI, with its thinking and creation capabilities. The implications on the privacy and confidentiality of client data, potential subordination of judgment by using GAI as a replacement for the skill and experience of the professional, potential inaccuracies, and erroneous advice given to a client as a result of improper or insufficient supervision of staff who utilized GAI, and the impact on human resources as a result of the technological advances all raised concerns for the profession. The study entailed the researcher developing the problem and purpose statements, research framework, and conceptual research questions. Fieldwork included recorded interviews, questionnaires, and focus groups at all staffing levels of the firm. The researcher then analyzed the data and reported the results. Researcher bias and ethical assurances are discussed in detail below.

Participants

Yin (2018) defines a participant as someone from whom information or data is derived through interviews, surveys, or observations. The participant should be someone who benefits from the research, along with outsiders (Creswell & Creswell, 2023). Some researchers suggest that 'unit' is an appropriate description for participants, as in addition to individuals, they could be a family, household, community, organization, culture, event, or even a decision under consideration (Priya, 2021). It is what the researcher is studying, analyzing, and drawing conclusions about to address the research problem (Casteel & Bridier, 2021). In the current study, at the holistic level, the participants are staff members with different levels of experience, skill, and knowledge in the tax department of an accounting firm in Southern California. A firm's staffing is its most significant capital investment (Lo et al., 2022). The right people in the right place offer the best opportunity for leverage and for staff to reach their highest potential (Lee, 2023). In his research on the operating efficiency of accounting firms, Lee (2023) identified five staff attributes that most impacted efficiency: Staff position, education, age, business services, and possession of the CPA credential. The researcher identified these inputs as having the most effect on the firm's outputs of services or revenue streams: Auditing, tax, management consulting, and business registration.

At the highest levels are the partners, the CPA owners, who have the final say on decisions and are also the first to be fiscally responsible for the firm. Managers are partners in waiting, typically having been with the firm for 5 to 7 years. Pursuing a partnership involves understanding the time commitment, financial consequences, and relationships with other partners. The manager level is the point at which the CPA must consider the financial benefits and risks of becoming a partner, as well as the extended commitment to the firm (Meyer, 2022). Senior staff are tasked with having work products completed to a point for manager and partner review and have direct supervision of junior staff who have been with the firm for two years or less and are in their formative years. This entry-level is the most at risk to GAI for job security (Boritz & Straqtopoulos, 2023; Leutner-Hanetseder et al., 2021; Spotlight Reporting, 2023). Leverage is a crucial determinant of firm profitability. A survey by Rosenberg (2022) found that firms with a 10:1 partner-to-staff ratio saw partner income 92% greater than firms with ratios of less than 3:1. The study also identified several trends occurring in the profession. Firms are hiring non-accounting personnel, particularly those with experience in technology; partners over the age of 60 increased from 24% to 25%, and 75% of partners who are members of the American Institute of Certified Public Accountants (AICPA)

are nearing or over the traditional retirement age; the entrance of private equity firms in the acquisition of ACPA firms; the implementation and upgrading of IT, particularly as it relates to remote work; and, a shortage of new accountants coming into the profession. Iori and Cooke (2019) suggest that the future of this staffing structure will be less hierarchical. Future tax experts will use disruptive technology, such as GAI.

The description below was taken from the firm's website; the firm name is not being disclosed at this time. The subject firm was established in Glendale, California, over one hundred years ago. It has five locations throughout Southern California, with the largest offices in Glendale (the Los Angeles area) and San Diego. The firm offers a diverse demographic of clients because the Glendale and San Diego offices are in a large metropolitan area with business clients in the banking, health care, hospitality and leisure, law firms, biotechnology, manufacturing and distribution, construction, and technology industries. El Centro and Watsonville offices, smaller, outlying, and rural areas, provide services in the agricultural industry. The Santa Barbara office, a wealthy enclave on the California coast north of Los Angeles, dominates the hospitality and leisure industry and serves high net-worth individuals and family offices. The firm is a full-service accounting firm offering assistance in auditing, business planning, consulting, cost segregation studies, estate planning, IT assurance and consulting, and international and domestic tax planning, preparation, and consulting.

The diversity of the locations, services, and clients suggests that the staff will involve different levels of experience, knowledge, and expertise, providing different viewpoints and perspectives unique to their operating environment. The firm has thirty-seven partners, twelve managers, and about fifty associate positions ranging from entry-level to senior accountants with at least four years of experience. The firm's staffing structure is consistent with the accounting industry described above. The study selected 29 participants from all levels of staffing and location, primarily those heavily involved in providing tax services. The firm has dedicated tax professionals, but many staff perform some tax work, particularly during the busy tax season. Participants were selected after an initial interview with the managing partner of each location to identify staff, managers, and partners who are most focused on tax-related activities.

Discussion of Population

Population is the known universe the researcher attempts to describe, explore, explain, and draw conclusions or make inferences about (Creswell & Creswell, 2023). Before consideration of sampling (discussed below), the known universe is more likely to be culled to specific areas, such as demographics, gender, and other limiting characteristics, to arrive at the target population (Thacker, 2020). The population helps set boundaries for research and provides context (Casteel & Bridier, 2021). There are nearly one million one hundred thousand accountants in the United States. About 62% are women, 38% are men, and the average age is forty-three. Over 42% of accountants are employed in public accounting, where auditing, accounting, consulting, and tax services are offered to outside clients instead of private accounting for a specific business or government entity. The unemployment rate for accountants as of 2021 is 2.71%, significantly below the national average. Accountant experience levels range from 18% with less than one year, 37% with 1-2 years, 16% with 3-4 years, 15% with 5-7 years, and 6% over 8-10 years, representing 92% of all accountants, suggesting 8% have over ten years' experience. Accountants specializing in the tax field, as advisors and performing compliance services, represent over 15% of the profession. California has the most accountants, but New York offers the highest average salary (Zippia, 2023). The number one challenge listed by firms in the immediate future was hiring and retaining staff, followed by economic impact, work-life balance, and client engagement/interaction. Over 59% of firms enthusiastically used new technology tools (Spotlight Reporting, 2023).

This study focuses on the tax personnel of a regional firm with less than one hundred employees in Southern California. This scope was selected because such a firm offered the researcher greater access to the firm's personnel as the researcher is in Southern California. Furthermore, the firm's size is large enough to provide a suitable sample for interviews, surveys, and observations but small enough to be manageable. International firms have thousands of employees, making the research impossible for a single researcher, and smaller firms with only a few accountants offer too restrictive of a sample. In addition, smaller firms have extremely limited budgets and resources, and international firms have significant resources (Bakarich & O'Brien, 2021). A regional firm has sufficient resources to be selective with the elements of GAI to deploy across all staffing levels. It can monitor the adoption and use within an environment larger than a single office but not across its global operations.

Discussion of Sampling and Thematic Analysis

Qualitative research involves explanatory, exploratory, and descriptive studies and thus seeks to identify participants who are most likely to provide information that is more useful and relevant to the purpose (Creswell & Creswell, 2023). Once the participant, or unit, and population have been identified, the researcher must further identify an appropriate sample, as in most case study research, it is impossible to study the universal population (Creswell & Creswell, 2023). There are several methods of sampling, some of which are more appropriate in quantitative research, such as random, systematic, stratified, and cluster probability sampling (Casteel & Bridier, 2021). Non-probability sampling is often used in qualitative research and consists of purposeful, convenience, snowball, and quota sampling (Casteel & Bridier, 2021). Purposeful sampling will be the primary method employed in the selection of participants. This method is often used when the researcher has expertise in the field of study, when the goal is to explore a specific phenomenon versus statistical inferences, and when the population is relatively small and specific. Purpose sampling ensures that selected participants are most likely to contribute helpful information to the study and that they are most likely to hold important, meaningful, and different views about the specific topic under study. It does not involve random selection (Campbell et al., 2020). A study of politically engaged students in Pakistan used a qualitative case study method, with in-depth interviews from a purposeful sample of twelve politically engaged students from four student organizations. Similarly, Akar et al. (2024) used purposeful sampling in a study of preschool literacy, explicitly exploring the phenomenon from the viewpoint of classroom teachers and justifying the method by describing purposeful sampling as the best approach to obtaining the most relevant data to accomplish the study's goal. In the instance case, the study's goal is to explore the implementation of GAI in the tax department of an accounting firm, suggesting the best source to obtain relevant and vital information is from the purposeful selection from a population of accountants within the firm.

Convenience sampling was used in the study. The method, as the name implies, is often selected because it is the easiest for the researcher to access, either because of geography, time, or availability of participants. Kumi et al. (2024) used a combination of purposeful and convenience sampling in their quantitative research on technology readiness and its effect on career adaptability. The researchers purposely selected only public sector entities, where the individual participants were selected based on their direct supervisor's aid in confirming they were willing and available to participate in the survey. In the current study, the researcher is in Southern California, has some familiarity with the firm, and sought the assistance of the managing partner of each location in selecting participants at the different staffing levels.

Snowball sampling utilizes existing participants to identify additional participants, and quota sampling involves setting a specific number of participants. Thoumrungroje and Suprawan (2024) used a combination of purposeful, quota, and snowball sampling to research mobile payments across specific consumers. First, the researchers identified their target participants as four generations of consumers of different genders, then established a quota to obtain sample equivalence of approximately equal size for comparative purposes. They then used an electronic survey that included a link for the initial participants to send the survey to others they believed fit the profile of the targeted consumers. Snowball or quota sampling is inappropriate for this study as the selected participants will be from within a single firm, and there is no preconceived quota to sample.

Thematic analysis in case studies involves analyzing qualitative data to identify common themes, ideas, and patterns. This section provides a general overview of thematic analysis and saturation. The techniques and methods specific to this project will be discussed in greater detail in the data collection and analysis sections below. Thematic analysis can be conducted using several methods and take different forms, such as arrays, matrices, flowcharts, and tabulation of the frequency of similar responses. The researcher is essentially 'playing' with the data and looking for repetitive themes (Yin, 2018). At some point, the researcher must deal with thematic repetition, frequently known as thematic or data saturation. For example, how many interviews, surveys, or focus groups are enough? It has been said to be the point at which no additional data is found and produces no new information (Guest et al., 2020). It is a point at which collected data is sufficient to address the research questions, where no further patterns are observed from the analysis (Naeem et al., 2024). Researchers, however, face the challenge of determining when such saturation has been reached. Several studies have considered empirical solutions and formulas. For example, Guest et al. (2020) proposed a mathematical approach consisting of base size, run length, and new information threshold, comparing their proposed method to the p-value in statistical

analysis to determine significance. Naeem et al. (2024) suggested PRICE to aid the researcher in identifying the saturation point during thematic analysis. As an acronym, PRICE stands for Preactivation, or the collection of keywords and quotes, identifying and recording their frequency to gain a better understanding of multiple ideas; Recapitulation is arranging the data in the form of codes and themes; Integration is identifying connectivity of the codes and themes; Crystallization is taking a pause and thinking or contemplating what has been learned so far; and, Edification is presenting the results in table form to aid in a better understanding of the research topic. While acknowledging there has yet to be advanced a validated method to establish saturation objectively, Lowe et al. (2018) suggest some attempt must be made to opine that all the data necessary to answer the research questions have been obtained, establishing trust and showing rigor of analysis. One method is a saturation table where observations are traced to themes defined in the codebook. When no new observations contribute to new themes, saturation can be said to exist. The researchers caution that this method only confirms thematic saturation but leaves the possibility of new observation contributing to new themes. Consequently, Lowe proposed a mathematical model to address sample size and saturation. Different theories aside, consider the attempt at saturation verification in two recent studies. In research on the experiences of adolescents with social media and suicide, Kline et al. (2023) used purposive sampling and one-on-one semi-structured interviews. Three researchers with experience in qualitative analysis reviewed the transcripts to identify themes and coded them. Grounded theory was then used during data collection along the identified themes until the researcher's concluded saturation had been reached after 15 interviews. Trustworthiness was then aided through the data collection technique, the coding framework, and multiple coders. Choi et al. (2024), in a study of ward rounds by internal medicine students, used a qualitative study with semi-structured interviews. During data analysis, the researchers used thematic analysis. In stage one, two researchers reviewed ten transcripts and coded words, phrases, and sentences. These researchers then resolved their differences through consensus. In stage two, different researchers further identified categories and themes. The process continued until no additional themes were identified; thus, saturation was proclaimed.

Data Collection

Qualitative case studies explain, explore, or describe a phenomenon, event, individual, group, or community in a real-world setting (Yin, 2018). Case study research is conducted in the participant's environment, with data designed to elicit views, thoughts, opinions, and concepts, with the results subject to the researcher's analysis and interpretation, with a written report that is inductive and flexible (Creswell & Creswell, 2023). Quantitative research, conversely, is more concerned with the cause and effect of relationships, using measurable data and deductive reasoning (Creswell & Creswell, 2023). One of the benefits and qualities of case study research is the flexibility of the process and outcome, including a myriad of data collection methods available to the researcher (Schoch, 2020). These methods include participant observations, interviews, documents, and literature reviews (Yin, 2018). There are subdivisions within these methods; for example, participant observation could be with or without the researcher's participation; interviews can include one-on-one, focus groups, surveys, and the use of technology such as video conferencing; document review can be of internal or public sources, as well as contemporary or historical (Creswell & Creswell, 2023). Schoch (2020) suggests that research questions are the key to determining the type of data to collect, i.e., what observations to make, documents to review, and specific questions to be asked in interviews.

The data collected in this study was from direct one-on-one interviews, focus groups, questionnaires, a review of internal and external documents, and current literature. The research involved the adoption and implementation of generative artificial intelligence (GAI) in the tax department of a regional accounting firm in Southern California. The participants include the firm's staff, who have different levels of experience, judgment, and knowledge ranging from entry-level to senior partners. This range naturally involves a diversity of age, experience, level of education, previous exposure to and use of technology, compensation, and career goals. Accordingly, data collection methods focused on experiences, knowledge, skills, and other individual and group views, thoughts, and opinions were more appropriate than a strict review of internal documents or current trends. Schoch (2020) considers using multiple sources over several periods, in this case, levels and years of experience, to be a key element of data collection methods.

The one-on-one interviews and questionnaires provided data from the individual's perspective without the influence of peer pressure or management. The interviews were conducted anonymously, as further discussed

below regarding reliability, validity, and ethical assurances. Focus groups presented an opportunity to observe participant interactions, identify stated differences and agreements, and offer data source triangulation between the individual and group responses. A review of internal documents, both historical and contemporary, provided information concerning the firm's stated policies toward the adoption, implementation, and use of GAI, particularly in the areas of compliance with ethical standards, staff supervision, client confidentiality, and privacy. A review of current literature was important to update the literature review, as new studies and research on GAI are arriving on the published scene daily.

Instruments

The data collection instruments for this study included interview guides for the one-on-one interviews, questionnaires, focus group guides, and internal and external contemporary and historical documents.

The one-on-one interview is the primary data source, and developing an interview guide is paramount to conducting and completing a successful interview. The preferred interview questions in an exploratory study solicit insights, opinions, views, and thoughts and are semi-structured, open-ended questions with potential follow-up questions as the interview proceeds (Magnusson & Marecek, 2015). The idea is to allow freedom of response to obtain a thorough, thoughtful, and content-complete response. Cadag (2024) wished to obtain comprehensive information from various participants, offering insights into teacher performance and used semi-structured tailored interview guides to facilitate open-ended dialogue during the qualitative data collection phase. Interview questions are not research questions, the latter of which is the subject under study by the researcher or what the researcher is attempting to explore, explain, or describe. At the same time, the former are specific questions designed to elicit the participant's experiences, views, thoughts, and opinions about the topic and help answer the study's research questions under exploration (Magnusson & Marecek, 2015).

Quantitative research involves rigid analysis, with dependent and independent variables, to identify a cause-and-effect relationship. Descriptive statistics and time-honored statistical analysis models determine the significance of relationships, confidence levels, and models that offer a black-and-white analysis capability. In contrast, qualitative data in case study research is more subjective, interpretative, intuitive sometimes, and hard to pin down. As a result, researchers use secondary data resources to find correlations, similarities, patterns, and confirmations of data obtained through primary sources. The more data sources the researcher utilizes, the more highly rated the results are and the higher the overall quality (Yin, 2018). This attempt at finding convergence in data from different sources is triangulation. Triangulation enhances the reliability and validity of the results (Robson & McCartan, 2016). Patton (2015) identified four basic types of triangulations: Multiple data sources, between different evaluators, perspectives, or theories applied to the same data set, and between different methods.

The primary triangulation method was data triangulation of the primary and secondary data sources. A questionnaire that addressed the research questions was used by asking more closed-in questions, some of which were in the Likert scale format. In addition, a focus group elicited group responses, offering insight into group dynamics. These separate data sources offered the opportunity to compare responses from the individual interviews to those received from the same individuals in an open forum and through measurable closed-end questions contained in the questionnaire. Pattern analysis identified common trends, phrases, themes, and thoughts. At the firm level, data was collected that included revenue, years in existence, whether GAI is being adopted now or soon, and staff size. At the staff level, data included gender, age, education, position, years with the firm, and other variables to be identified. Lickert scales were also used. As stated, the collection of this secondary data allowed for comparing responses from the one-on-one interviews, but it also considered staff level and experience.

Archived data included the firm's previously adopted policies, procedures, and controls. These were then compared with responses obtained in interviews, questionnaires, and surveys regarding proposed changes to these policies concerning the adoption and implementation of GAI technology. Other archived documents included the firm's IT Manual, which focused on its technology use. This information helped compare participant's responses to policies, procedures, protection of client confidentiality, and so forth with the firm's stated internal and external writings.

Data Organization

The first step in data organization was that all documents, questionnaires, notes, literature, and analysis were handled, processed, and held solely by the researcher, thus maintaining a chain of evidence, one of the four principles of data collection promulgated by Yin (2018). As a Certified Fraud Examiner and Certified Forensic Accountant, this researcher is familiar with this requirement to ensure construct validity and reliability. Second, a case study database was maintained, another principle of Yin (2018), to maintain the reliability of the study. Again, from the researcher's experience in litigation support, the maintenance of an evidence database is familiar. The database included sufficient information to identify and retrieve any document, whether a specific interview response, questionnaire, researcher notes, or archived and contemporary documents obtained. Each document obtained or created, original or copied, received a unique identifying number to mark digital documents and a Bates stamp to mark hard-copy documents. In the case of participant responses, the database logged the item by a unique number, the identity of the participant(s), coded for anonymity, date and place obtained, name of document, purpose, and selected keywords. All researched and reviewed literature cited in the research was maintained in a separate literature review database.

Member checking is a validation method for ensuring the researcher correctly interprets a participant's response, particularly from one-on-one interviews. The process helps protect against researcher bias claims (Robson & McCarron, 2016). For the current study, interviews were recorded, and contemporaneous notes taken during the one-on-one interviews were discussed with the participants to ensure proper interpretation and memorialization of the responses.

Some follow-up interview questions have already been anticipated in Appendix A. They were asked, along with others, during the interview as the opportunity presented itself for spontaneous follow-up. Contacting any participants for follow-up or clarification was unnecessary as the recorded interview allowed review. Lastly, it was also unnecessary to circulate any follow-up questions. The participant organization and individual participants are easily identified and can be contacted for follow-up should it become necessary.

Data Analysis

As with the discussion above comparing quantitative and qualitative data, a similar distinction can be made about data analysis. Quantitative data analysis is fundamentally objective, having a more manageable task of classifying and coding results because it is usually numerical or at least can be treated as numerical, such as a '1' for yes and a '2' for no. It usually contains defined ranges, frequencies, and limits. Analysis can then be performed using models, such as descriptive statistics of mean, medium, and range, scaling, distribution curves, and other tendency measures. Relationships can be analyzed through models such as cross-tabulation, Chi-square, and scattergrams, and conclusions can be drawn about significance, correlation, and variances. Qualitative analysis, on the other hand, primarily starts with the interpretation of words (Robson & McCarron, 2016). It relies on the researcher's experience and ability in critical thinking, bountiful data, and simple playing with the data' (Yin, 2018). First, patterns, themes, thoughts, and opinions are identified and subjected to two types of coding: quasi-statistical and thematic coding approaches. This involves labels on significant words, phrases, comments, notes, etc. Thematic coding then organizes the data for thematic analysis to identify common themes, phrases, relationships, ideas, and patterns. The analysis can be conducted using several methods and take different forms, such as arrays, matrices, flowcharts, and tabulation of the frequency of similar responses (Yin, 2018). When the patterns and themes display repeated similarities or differences, the researcher can form generalizations and conclusions that link back to the study's constructs (Robson & McCarron, 2016).

The primary data source, participant responses to the interview questions, was reviewed, interpreted, quoted, and otherwise memorialized in contemporaneous notes taken during the interview, with probable notations, clarifications, and additional thoughts recorded by the researcher immediately following the interview. These were then reviewed for keywords and phrases that are responsive and applicable to the research questions being explored, such as client privacy. Using thematic coding, these keywords and phrases were coded using a short common phrase code word, such as 'privacy,' to describe the participant's thoughts and opinions concerning client privacy. Once the coding was completed, they were arranged in patterns, themes, repetitions, and emergent thoughts to allow descriptions, interpretations, conclusions, and identifying significance (Schoch, 2020). A matrix

helped display, arrange, and compare responses (Yin, 2018). The research questions under study are the impact of GAI on ethics, due professional care, client privacy and confidentiality, and human resources. Analyzing, interpreting, coding, and arranging responses within these well-bounded themes did not prove difficult. The overall proposed data analysis process was consistent with the sequential steps proposed by Creswell and Creswell (2023): (1) Organize and prepare the data. The previous discussion about the chain of evidence and creating a database aided in this step. (2) Reading through the data, such as the notes and questionnaires. (3) Coding the data by identifying keywords and phrases, as Creswell suggests, thematic coding. The questionnaires were coded using IBM SPSS statistical analysis software. (4) Identification and comparison - using the matrix aided in identifying themes. (5) Develop a storyline. These are the emergent themes identified. (6) Further analyzing the data using an analytic framework was accomplished by highlighting common themes and then counting their reoccurrence among participants. (7) Representing and interpreting the data. Once no new themes or concepts emerge, saturation can be deemed obtained. This is a point at which collected data is sufficient to address the research questions, where no further patterns are observed from the analysis (Naeem et al., 2024). As discussed above, this was accomplished using Naeem's PRICE model, and it became reasonably evident that no new themes were emerging.

A last issue of concern is the concept of emerging themes. Mishra and Dey (2022) caution that themes begin in the participants' minds and represent the perceptions, experiences, thoughts, and other emotions drawn out by the researcher from primary sources, such as interviews or focus groups. Themes can be identified through a literature review before data collection and can help connect the dots of themes identified during data analysis or may even form the basis of the research construct. Emergent themes become known exclusively from analyzing participants' responses (Mishra & Dey, 2022). In another way, emergent themes surface during the final part of data analysis when the researcher looks for common patterns, correlations, similarities, and differences. They are themes that did not exist in literature; they are divergent and become the basis of added knowledge. Robson and McCarron (2016) suggest eight techniques for the researcher to be aware of in identifying emergent themes: repetition, indigenous terms, metaphors, shifts in content, similarities, and differences, theory-related material, linguistic connectors such as because, as a result, and if, and missing data.

In a study of the use of AI, and specifically ChatGPT, to perform qualitative research, Hamilton et al. (2023) compared themes identified by human coders versus those identified by ChatGPT. The findings were that human coders identified some themes ChatGPT did not, and vice versa. The researchers predict that such tools will be used to conduct future research. They hypothesize that raw interview transcripts could be submitted to ChatGPT and utilize the resultant ChatGPT-identified themes as part of triangulation to identify oversights, alternate theories, and biases. The study used six different reviewers to limit bias and strengthen the reliability and member checking for validity; however, in the member checking analysis, they used the humans to review the feedback and then submitted the feedback to ChatGPT to generate a summary, further establishing ChatGPT's potential role in research. Bracketing was used to limit bias, but ChatGPT again played a role. All six human researchers were asked to provide background information and highlight any aspects that might indicate bias. When ChatGPT was asked to do the same thing, stating it had no personal bias as humans do, it could unknowingly induce bias because the database used to train it was provided by humans. This research demonstrates the wide-open impacts ChatGPT could have in qualitative research in areas of emergent theme identification, member checking, and bias.

To enhance validity and reliability, triangulation used data and method sources. Secondary data sources included questionnaires, focus groups, and archived material. Limited demographic data constituted a second method source, making this a flexible study. This data consisted of firm revenue, years in existence, whether GAI is being adopted now or soon, staff size, gender, age, education level, position, and years with the firm. The questionnaire in Appendix B included closed-in questions, yes or no questions, and Lickert scale data. Appendix D is the questionnaire used for demographic data. This information helped find similarities in responses between staff positions, experience levels, education, and other data, as indicated above, to the responses by individual participants in the one-on-one interviews.

These triangulation methods are more appropriate than multiple researchers or theory triangulation as they offer alternate types of participant feedback from unique and different data sources. The study did not lend itself to multiple researchers; theory triangulation is less critical in an exploratory study.

Reliability and validity concern a case study's accuracy, trustworthiness, and credibility. Quintão and Andrade (2020) refer to them collectively as guaranteeing that the methodology was logically planned and conducted, all study elements relate to each other, and the results are tested for constructive, internal and external validity, and reliability. Several procedures exist to conduct and strengthen the reliability and validity of case study research. Another aspect of reliability and validity is researcher bias and the methods used to address and remedy it, such as bracketing.

The objective of achieving reliability in case study research is to avoid or minimize errors and bias. One word often used in a discussion of reliability is repetition: If the same or different researcher uses the same methods and procedures in a repeat of the study, the same results and conclusions should be reached (Yin, 2018). Another word is consistency, which means that the researchers' approach is consistent with acceptable methods and other researchers' (Creswell & Creswell, 2023). Reliability in the current study was enhanced through the sole data handling by the researcher, protecting the chain of evidence, and the data organization, documentation, and database procedures discussed above. A database log was maintained, employing a numbering system that used unique identifying numbers for digital data and a Bates stamp for hard-copy documents. Procedures were explicitly defined and documented. In addition, fundamental concepts included cross-checking the researchers' interpretations against notes taken during interviews and double-checking codes and their meanings. Recording devices during the interviews and focus groups were considered.

Validity is concerned with accuracy and dependability of the study results. It protects trustworthiness, authenticity, and credibility (Creswell & Creswell, 2023). The issue is whether the researchers' findings properly represent the phenomenon under study and whether the methods and procedures appropriately utilized measured the results (Burnard, 2024). Four types of validity are of concern in the research. Construct validity is whether proper procedures and methods were utilized. It is an issue primarily at the data collection phase, and like reliability, it involves the maintenance of a chain of evidence, using multiple sources of evidence, and member checking, as described above. Internal validity, used in the data analysis phase of explanatory studies, employs procedures designed to identify causal relationships. However, several methods of protecting internal validity exist for other studies, such as triangulation, pattern matching, rival explanations, and literature review relevance when developing the research framework (Burnard, 2024). External validity concerns generality – can the study results be applied elsewhere? Lastly, as discussed above, reliability occurs during data collection and is again concerned with maintaining the chain of evidence and using a database (Yin, 2018). Including and expanding on these, Creswell and Creswell, 2023, suggest eight strategies for ensuring validity: Triangulation, member checking, descriptive narrative in reporting the findings, bias clarification (discussed further below), counter or contradictory themes, thorough and extended field time, peer review of the draft with a question and answer approach, and use of an external auditor, someone who is unfamiliar with the topic and the researcher.

Several of the above-recommended strategies were used in the current study, many of which have already been discussed, including triangulation in the form of different data sources and methods, member checking of participant responses, and bias analysis. Field time was extensive, covering over three months, involving all five firm offices, all levels of staff, and personal contact through one-on-one interviews, focus groups, and follow-ups.

Bias is problematic and exists in all research involving people, primarily because there is often a close relationship between the researcher and the setting or participants (Robson & McCarton, 2016). The first step in addressing bias is to recognize and admit its existence in the form of preconceived notions, beliefs, attitudes, and judgments and make a conscious, deliberate acknowledgment of it through a concept referred to as bracketing (Dörfler & Stierand, 2021). In its simplest form, bracketing is an attempt by the researchers to hold in abeyance their beliefs and assumptions. While it cannot guarantee absolute neutrality or objectivity, it places the researcher in a ready-made state of open-mindedness, resulting in accountability and rigor. In their study of researcher bias in Western culture, Wadams and Park (2018) discussed four types of bias: Research questions, sampling, conceptual, and anticipated outcomes. The study also addressed methods to mitigate bias, including bracketing, peer review, constantly asking questions about the data, and critically reflecting on the researcher's involvement, values, beliefs, and assumptions.

For the subject study, this researcher protected against bracketing by acknowledging his professional background as a CPA, the practice of public accounting, and familiarity with the structure, operation, and staffing of CPA

firms. This researcher addressed that there is no prior experience with implementing GAI in an accounting firm or tax department, no personal or professional relationship with any members of the participant firm, and no agenda other than exploring the GAI phenomenon.

SECTION 3: APPLICATION OF PROFESSIONAL PRACTICE AND IMPLICATIONS FOR CHANGE

Presentation of the Findings

The presentation of the findings will include an overview and a detailed discussion of the themes discovered. The results of the qualitative analysis from one-on-one interviews with participants, including direct responses to questions as outlined in the interview guide, will be presented. Lastly, the relationship between the findings and the research questions, framework, anticipated themes, problems, and literature will be discussed and interpreted to show how the findings addressed the general and specific problem and the purpose of the research.

The primary data source was the one-on-one interview of firm participants. The interviews were conducted solely by the researcher via Zoom and were recorded with the participant's permission. In addition, the researcher took meticulous, contemporaneous notes. Twenty-nine participants were fairly equally drawn from the firm's five offices in Southern California. Their identities were protected by a coding system using a letter to designate their staff level and a number representing the chronological contact order. J1, for example, was a junior staff member and was the first junior staff to contact the researcher and consent to the study. There were five staff levels: Junior accountants with three years or less experience (J1-5); seniors, with three to five years' experience (S1-6); supervisor/manager, with more than five years experience (SM1-9); and partners (P1-7). Staff with no client responsibilities but who filled a supportive role, such as office manager, were identified as support staff (SUP1-3). The distribution of these participants is about evenly split, consisting of fifteen experienced managers/supervisors or partners, eleven less experienced juniors or seniors, and three support staff. Immediately after the interview, the participants completed a closed-end survey questionnaire containing yes/no and Likert Scale questions like the questions asked in the interview. The participants also completed a demographic survey questionnaire containing personal data such as position in the firm, office, age, gender, salary, etc. A focus group comprised the same participants from all five staff levels and offices was conducted via Zoom.

For the primary data source, the one-on-one interviews, a matrix was constructed with the columns representing each participant and the rows of the questions asked. Using the contemporaneous notes and the recorded interviews, the researcher identified words, phrases, opinions, comments, patterns, and themes that were repeated or common answers among the participant responses. These were recorded in the appropriate row/column, and then the common themes were tabulated to establish the frequency and hierarchy of common responses or themes. A similar approach was used to analyze responses from the focus group participants. This method is considered thematic analysis, an accepted and common approach in qualitative research (Yin, 2018). The approach followed the suggestion of Naeem et al. (2024), referred to as the PRICE analysis. The first step was Preactivation, or the collection of keywords and quotes, identifying and recording their frequency; Recapitulation is arranging the data in themes, and Integration is identifying a connection between the themes. Crystallization is taking a pause and reflecting on what has been identified or learned thus far, and Edification is presenting the results in table form to understand their relationship to the research topic better. The table is presented in the Summary of Findings Section.

The survey questionnaire, focus group, and demographic form were secondary sources intended for triangulation to test the reliability and validity of the data obtained from the interviews. The data collected from the survey questionnaire and demographic form was entered into the IBM SPSS 25 program for statistical analysis to count the responses within each range. For example, question one asks about the professional use thus far with GAI tools such as ChatGPT. The range of answers on a Likert Scale was very often, often, occasionally, seldom, and not at all. The values entered for these choices ranged from 1 – not at all to 5 – very often and coded as ordinal. This was repeated for all seventeen questions on the participant questionnaire and all twelve on the participant demographic form. The researcher counted each response on the scale; for example, seventeen respondents answered that they used ChatGPT very often, often, or occasionally. The focus group responses were analyzed similarly to the interview responses, wherein keywords, phrases, shared thoughts, and trends were noticed,

allowing for the identification of emergent themes. These themes, as well as the tabulated responses from the questionnaire and demographic form, allowed for triangulation of answers with the interview responses, helping to establish the validity and reliability of the interview responses.

Overview of Themes Discovered

As discussed in the anticipated themes of Section 1, the findings revealed that implementing and adopting GAI will impact professional ethics, firm staffing, and firm policies, procedures, and controls. Included in these broad themes are sub-themes that revealed a better understanding of current uses of GAI, specifically ChatGPT and its sister technologies such as CoPilot and Gemini, and potential future uses; the identification and exploration of the most critical areas of concern on professional ethics, including due professional care, client confidentiality, staff supervision, and the undertaking and planning of engagements; the potential impact on staffing, particularly at the entrant level; the adoption of new firm-level policies and procedures; and, the role of the accountant, specifically the tax professional, in the future.

The following is a detailed discussion and exploration of the emergent themes identified. As explained throughout this study, the GAI tools discussed were primarily ChatGPT ("Chat") and its sister technologies, such as Microsoft's CoPilot and Google's Gemini.

Participants in one-on-one interviews were asked about their initial reactions to tools like ChatGPT. The participants were asked to briefly comment on how they have used Chat thus far in their personal or professional lives. This included their general thoughts and opinions on recent GAI advances, including Chat's continued learning capacity and ability to think, create, and advise, and an opinion expressed by Elon Musk that GAI will be smarter than the smartest human being by 2026.

J1, a junior staff member with less than two years of experience, said he had "never used it professionally," but as a recent graduate, he and other fellow students had used it extensively in college as a writing aid. J2 echoed this, saying he used it for "grammatical and structural advice" when writing. Several respondents reported minimal to no use (J5, SM10, P7, P6, J3, SM6, SM5, & S2). Some examples of personal use were J3, who used Chat to develop an itinerary for a road trip; J4 to write an invitation to her daughter's birthday party; SM4 and SM8 used it to plan a vacation; and P3 for a recipe and daughter's college applications. These responses for personal use indicate more a "curiosity," P7 actually using that word, than its use as a serious and dedicated personal assistant, as suggested in Ackerman (2023), Alfares and Savli (2023), Bakarich and O'Brien (2021) and Zhao and Wang (2023). In discussing potential uses for GAI, Ackerman (2023) ranked virtual personal assistant as number five of seven initial uses. For current professional use, two themes emerged: As a writing aid for emails or client correspondence (J2, J4, J5, S1, SM5, S4, S5, SM1, SM2, SM3, SM4, SM7, SM8, SM9, P1, P2, P3, & SUP1); and, as a tool for tax research (J2, J3, S1, S2, S3, S4, S5, SM1, SM2, SM3, SM4, SM7, SM9, P1, P2, P3, & P5). This initial professional use in writing and tax research is consistent with the findings of Fava (2023), Sabuncu (2022), and Zhao and Wang (2023). Patrick (2023) predicted the implementation of Chat into tax research and correspondence by tax professionals. This theme was further confirmed when question 4 was posed, wherein the participants were asked what their view was concerning potential future uses withing the firm, discussed in more detail below. For current use, however, eighteen participants indicated initial use for communication and seventeen for tax research, representing more than half of the respondents. This is consistent with the results of the questionnaire. When asked whether they have used ChatGPT personally or professionally, seventeen (59%) participants indicated they had used it, either occasionally, often, or very often. However, twelve respondents (41%) reported they either seldom used or did not use Chat at all. This indicates there is some degree of implementation happening now, as suggested by Ackerman (2023), whose study predicted implementation in the tax profession would happen sooner rather than later. However, the other responses discussed below suggest that a slower process may occur. Notably, a discernable pattern emerged regarding professional usage based on the staff level, as the indication of current use as a writing aid and tax research touched all the staff levels.

For the questions concerning their initial thoughts and opinions on GAI in general, most respondents expressed optimistic and favorable views, but some tempered these views with concerns. SM1 said, "I find it convenient and like it so far." J5 said, "It's amazing," another "…very excited about its potential for constructive use, improve life, although I do have some concerns for privacy and replacement of jobs" (J3); "…excited by it, although dangerous

potentially… it's going to change lives…right now it's not doing all the scary stuff it might" (SM3). SM5 said, "pretty neat, I think it's great", "super-helpful" (S4), "…intriguing, but scary" (P3); and "I am intrigued but concerned with abuse. I'm also not sure if it is reliable now or even 100% in the future" (SM10). In other cases, some respondents were more negative than positive, expressing concerns such as "scary" (SM6), "always scared" (SUP1), "dangerous" (P7), and "lots of risk" (P4). One respondent expressed concern about a "…fear of lurking, memorizing what I have done" (J4); another said, "it may replace humans" (SM9).

As to GAI being smarter than the smartest human being by 2026, most respondents thought it possible and would not be surprised if it were not by 2026 but, at some point, soon. A common thought was to define 'smarter' as having access to a greater amount of data, as when SM3 said, "…maybe smarter than us because its capacity is greater," and S1 stated: "I agree insofar as obtaining knowledge, but I don't think it will ever replicate the human side like reason, gut feeling, intuition, knowing it doesn't feel right, morals, values, ethics, GAI can't do".

P4 asks, "How are you defining intelligence? It can be faster but missing a human element". SM6 said, "I do not trust anything I can turn off with a switch." P2 asked, "What will humans do then"? "Smarter in terms of knowledge, but how does that relate to the world and life?" was asked by P3. Once again, in contemplating GAI being smarter than the smartest human being by 2026, a typical qualifier was "scary" or "terrifying" or some variation thereof (P5, P1, SM9, J5).

This exploration of smarter or more intelligent was also addressed by Bennett (2023) in reporting on the present inaccuracies of Chat, and Kenney (2024) was among the first researchers to report on Chat's tendency to make up answers or "hallucinate." Ference (2023), in looking at risks to firms, questioned the reliability of Chat. Many of the fears, concerns, and GAI's future intelligence expressed by the participants surfaced in previous studies concerning the potential abuses of Chat and GAI in general, including privacy invasion, surveillance, and becoming the sole source of human thought and answers, among others (Burgess & Spurling, 2023; Buttazzo (2023); McLean et al. (2023). When P2 asked, "What will humans do then?" the respondent echoed the concerns of Kissinger et al. (2021) and the impact on the future of humans regarding security, world order, and human identity.

It was discussed above that a little more than half (59%) of the respondents indicated they had used Chat, suggesting the technology is still in an early user/adopter phase. This lack of early usage could reflect some of the concerns above about privacy and fear, as raised by several respondents and discussed above, or a potential lack of clarity regarding firm policies, which will be explored later in the study. Ference (2023) explored the risks to CPA firms in using Chat and reported privacy, the need for changes in a firm's policies, procedures, and controls, and Leutner-Hanetseder et al. (2021) suggested a cautious approach to implementation. Although Bakarich and O'Brien (2021) found that firms believed AI would significantly impact them within the next five years, the same study found that AI was not being used extensively; however, this study was pre-Chat. Only one respondent expects Chat to be aggressively adopted by the firm within the next year, and only eight participants expect it to be within two years. When asked this in the questionnaire, less than half, 13 participants, expect adoption with no defined schedule. This is inconsistent with Ackerman (2023), who predicted that implementation would happen within months instead of years. In their study of readiness, Moron and Diokno (2023) identified that the majority of accounting firms are only somewhat ready to adopt GAI technologies.

Question 4 of the one-on-one interview focused on current and potential professional uses of tools like Chat within the firm. The words "research" or "tax research" were used by twenty-five of the twenty-nine participants. Phrases that included, "I use it to draft or edit emails" (J2), "…improving emails and other client correspondence" (J3), "… drafting letters" (J4), or "… as a writing aid" (S5) were noted in twenty of the twenty-nine participants. Respondents explained that Chat is the initial inquiry portal for research, not Google. SM7 said: "I use it to start my research, but with caution. Since Chat can potentially produce results in the form of conclusions or advice, unlike Google, I have to be careful not to accept the answers at face value." SM2 said, "I use it to jump-start my research." Question 12(a) asked the participants how they conducted research to answer a client's question in a world before and after Chat. In a pre-Chat world, all the participants described essentially the same process. They start with Google to query the question with keywords designed to elicit primary and secondary authoritative sources, then read and understand them. They then apply the information to the client's question to arrive at a conclusion that can be given and explained to the client through a letter, memo, or email, followed by a phone

call. Before being discussed with the client, the result would have been reviewed by either a manager or partner to ensure accuracy and responsiveness to the client's question. When asked if they would consider using Chat in the process, all the respondents said "yes" except SM4, who said, "I might," "SM6, who said "No," and SUP1, who said, "No, the firm has better resources, but I would use to draft correspondence." The respondents were then asked how they would use Chat, and as discussed above, most of the participants said the same as they used Google. The rest of the research project went on as in the pre-Chat era until it was time to produce the results. Here is where Chat entered the responses again, the majority saying they would use Chat to draft, fine-tune, or edit the written response to the client. The response by S6 is a proxy of all the participants in describing the process: "I start with Chat and enter a few keywords for the topic I am researching, which is not unlike before with Google. Chat usually produces answers or information along with the source, such as a reference to the Code, court case, or article. I then review that information and cross-check it between sources to help confirm accuracy. Once I am satisfied that I understand the answer, I ask Chat to draft an initial email. I then edit the email to my style and send it to the manager to review before sending it to the client". S6 and several others noted that the primary difference between Chat and Google was the ability to have Chat draft the initial correspondence. Zhao and Wang (2023) said that using Chat in tax research would save time. Brodeur et al. (2023) found that 73% of tax professionals believed Chat could be used in their tax departments. Gathering facts from clients, organizing them, giving advice, and writing letters of response were suggested benefits of implementing GAI (Healey & Cartland, 2021).

While research and correspondence were common themes in previous research into the use of Chat (Fava (2023); Sabuncu (2022); Zhao & Wang (2023)), other studies also identified tax preparation, tax planning, and uses in other parts of the accounting profession, such as in audit planning or financial analysis, as probable beneficiaries of these tools (Boritz & Stratopoulos, 2023; Fava, 2023; Zhao & Wang, 2023). Few of the respondents identified such use, at least at this time. J1 said "possible use in tax preparation," as did J5, S1, S2, S4, S6, SM9, P5, and SM11. That is only eight of the twenty-nine participants. Only one participant, P6, a senior partner with the firm, suggested tax planning. Admittedly, the respondents were being asked about current and possible future usage, with a focus on Chat, while many of the other prognosticators of future use considered the whole of GAI as it advances and new tools and technologies are created (Zhao & Wang, 2023; Boritz & Stratopoulos, 2023)

The questionnaire and focus group revealed consistency with the interviews, adding validity to the interview responses. Participants in the focus group stated tax research and drafting correspondence as the primary uses within the firm. As stated, Question 12 of the interviews probed how the staff responds to a client's tax question. In all the responses, some form of tax research followed by a memo or email was part of the process. Responses to Likert Scale questions in the questionnaire validate that, at this time, the use of ChatGPT will be for tax research, with 19 (68%) of the responses indicating they would most likely or likely use it for that purpose. When the use includes 'somewhat,' the use rises to 23 (82%). Twenty-two (74%) reported using Chat in a written response to a client's question as likely or somewhat likely. In the questionnaire, twenty-six of the twenty-nine respondents said they used Chat in some form of communication, be it a memo to the file, internal communication on client matters, internal communication on firm matters, or a tax planning memo or letter. Patrick (2023) predicted that AI tools will be incorporated into tax research, client correspondence, practice administration, and management over the next ten years. It appears it is happening sooner.

When asked what priority the firm anticipates setting at the firm level for adopting Chat, tax research with written results (54%) and tax research with other tools (57%) were viewed as high to highest priority, again consistent with the interview responses. Use in some form of writing or documentation is the highest priority of 61% of participants. When asked what Chat's potential uses by the firm were, tax research was the number one response in the one-on-one interviews (25). Only three (11%) participants considered tax planning a potential use, two more than the interviews suggested.

Data collected from the one-on-one interviews, questionnaires, and focus groups supports the primary uses and priorities of adopting Chat as a tool in tax research and correspondence. Although earlier studies identified uses in forensic accounting (Street & Wilck, 2023) and financial and management accounting (Shchyrba et al., 2024), none of the participants mentioned such use. Other studies also suggested tax return preparation, data input during tax preparation, and tax planning, the participants in the current study did not view them as priorities at this time (Fava, 2023; Zhao & Wang, 2023).

The primary benefit the firm hopes to gain is efficiency and time savings. The question posed in the interview was, "What does the firm hope to gain upon implementing GAI tools?" The overwhelming response was words, phrases, or concepts of "efficiency," "time savings," "reducing tedious tasks," or similar being mentioned forty-one times and seeming interchangeable. J4 was specific, "Faster completion, less wasted time, efficiency." J2, J3, S1, SM5, SM8, P4, and P7 associate efficiency and time savings with "increased revenue," "increased production," "increased billable time realization," or "savings from staff reduction." Only one respondent, P7, mentioned keeping the increased revenue or decreased expenses for the firm's benefit instead of passing them on to the client. SM5 explained the benefit: "Automation of recurring tasks can allow us to focus more on consulting and relationships." One respondent, S3, said, "I don't know right now." Igou et al. (2023) identified the automation of tedious tasks as the primary value of implementing these tools. Ackerman (2023) listed it as the number one benefit of adopting. Alfares and Savli (2023) also found the automation of repetitive tasks to be one of the two highest benefits, the analysis of large volumes of data being the other.

The final question asked in the questionnaire was for the participants to write down the first word that came to mind when GAI was mentioned. Responses varied, but the most common response was efficiency. This is consistent with discussions during the interviews wherein respondents spoke of "reducing remedial tasks," "increased volume," "taking over data entry," "reducing redundant tasks," "streamlining," "fewer errors," and "quicker response to clients," all of which represent some form of increased efficiency. Early research also identified these benefits (Bogoslov & Marina, 2023; Holmes & Douglass, 2022). Of noted exceptions, however, was any consistent reference to increased revenue or profits, enhancement or expanded services to clients, or staff reductions – although this latter issue was dealt with in a separate question.

Twenty-five of the twenty-nine respondents answered yes when asked if Chat or future GAI tools will impact ethics as professional associations and governmental regulations require. Before getting into specific ethical areas, typical responses to broad areas of concern included "client privacy," "accuracy," "staff supervision," and "reliability." S1 commented, "…it will impact all ethics one way or the other." S6 said, "Yes, you cannot blame the computer. At some point, professionals must take responsibility." J3 said, "Yes, red flags show a need to be cautious, need supervision." Another secondary/archived data source, the firm's Team Member Handbook, contained a section on professional and ethical standards. The primary ethical focus was independence, a standard most associated with attest services. Under Client Relations and Activities, there is a reminder not to disclose or discuss client matters with outsiders. The manual also has a section on work papers and forms covering document protection and care. However, no section explicitly discusses the use of Chat or other GAI tools. The manual is not attached as an exhibit to protect the anonymity of the firm.

For the study, professional ethics concentrated on four main categories: Due professional care, which is a standard that includes insurance as to accuracy, reliability, and integrity in the accountant's work product, thoroughness, training, diligence, and documentation. Essentially, being careful as a professional. Second was undertaking and planning engagements, primarily when considering a new client. The remaining two were client privacy and confidentiality protection, as well as proper supervision of staff.

In the one-on-one interviews, respondents were asked to address ethics by first stating what they considered the number one area that could be most impacted and, therefore, should be given priority. This was followed with two sub-questions: How they would address this concern and which level of firm staffing could potentially put the firm at risk of violating the standard. The participants were then asked what their second area of concern would be, how they would address that, and again, what staffing level within the firm created the most exposure.

In the interviews, nearly all respondents identified client confidentiality or due professional care as their first or second areas of concern for ethical violations. Client privacy was considered a first response twenty times, with due professional care once and staff supervision mentioned the other times. However, when asked about their second area of concern, the order was reversed, with twenty-one respondents saying due professional care, six said staff supervision, and one said client privacy. Even though staff supervision was raised as a concern, it was coupled with client privacy issues, as stated by SM2: "Staff supervision is my primary concern. It is important to make sure staff are using it properly, using client data properly." Similarly, P4 said, "Staff supervision as they are more likely to abuse the tool."

This was validated by the questionnaires, where 65% of respondents place client data protection as a high or highest risk of being violated by using Chat versus 55% for due professional care. However, when the risk assessment was expanded to include 'somewhat' at risk, due professional care was captured 78% of the time, versus 69% for client privacy. A typical description of due professional care concerning accuracy and reliability was placed in the context of published instances where Chat was reported to make mistakes, even to the point of making up answers, coining a new phrase: "hallucinating" (Kenney, 2024). Accuracy and reliability were the subject of studies by Wood et al. (2023) and Orchard and Tasiemski (2023). When asked if it was proper for Chat to be used by firm members for research, all but one (SM6) of the respondents said yes. When asked how they would use it, almost all said, like Google, with J2 providing a typical response of "…wherein keywords and phrases would be entered into Chat to obtain initial information, research links, and cites." When asked how they would confirm its accuracy, the most common response was "reviewing," "checking primary and secondary authoritative sources," and "applying their existing knowledge, experience, and judgment." J2 offered "Training on ways to use or not use, double checking work, using other tools." S2 said, "Human check. Someone needs to review and treat it like a staff person". This is discussed in greater detail below. S4 commented, "Don't take what Chat says for granted – implement review procedures." Lastly, when asked if Chat was used, was their professional responsibility of proper staff supervision, review, and double checking met? All respondents echoed the answer of yes, with the qualifier being all similar to that expressed by SM5: "Provided the proper review steps were taken, as the standard is met not by the tools used but by the professionals using them." Thus, there was universal recognition that Chat was just a tool, no different than tax preparation software, excel, QuickBooks, or even a calculator. This recognition validates concerns raised by many researchers that the line between Chat as a tool versus replacement for professional skills and experience is at risk of being blurred if professionals are not diligent (Hatfield, 2019; Stott & Stott, 2023; Lin, 2023; Fogarty et al., 2023).

Concerning the exposure to violating client confidentiality and privacy, while establishing this as the number one concern as discussed above, of interest is the proposed solution stated by the majority of participants to avoid it happening: Do not enter client data into the prompts or queries of Chat was the response of nineteen participants. Most of the respondents appeared surprised that, at this time, it was the obvious, simplest, and most straightforward answer. Other respondents suggested education and training (S5, SM2, SM3, SM5, SM9, P3, & P7). Some suggested limiting those who currently can or cannot use Chat (SM4 & SM9). SM4 said: "So, first thing, yea, maybe I would not allow the firm to use the OpenAI, open ChatGPT because it is so easy to throw the information into it, and it's out there…use only a closed AI that can only be used within the firm." S1 said, "We need well-written policies about what is acceptable as far as data or client information is concerned." Many respondents considered the exposure to violating client privacy as no more than it currently is: That is, talking about clients in public places, including private data in emails, or entering information in other internet or cloud-based programs. SM3 likened it to common sense and carelessness, saying, "It's easy if you are tired, lazy, not checking your work for data to slip through." When asked how using tax preparation software such as Lacerte was different, respondents believed Lacerte's policies, IRS scrutiny of preparation software protocols, firewalls, and time-honored use without breach vastly differ from Chat, an internet-based program. The OpenAI subscription agreement for Chat states that once information is entered into the system, it becomes part of the vast database available to other users (Kenney, 2023).

In addressing the two primary concerns identified – protection of client privacy and due professional care, participants were asked which staff level posed the greatest risk to the firm of violating these ethical standards. In protecting client data, twenty-five respondents identified junior staff with the least experience posing the most significant risk. Commentaries suggested it was because of the "lack of experience," or, as P5 put it, "Juniors because they are young & dumb," but then P5 went on to say, "Partners because they are often outdated". P4 said: "Juniors as they are more comfortable and thus more likely to use the technology without considering certain risks."

Solutions to this exposure included training and education, while two respondents blamed managers or partners for not properly supervising subordinate use (S4 & SM8). As to due professional care, only fifteen respondents put juniors in the risky category. Since due professional care is concerned with accuracy, reliability, thoroughness, and diligence, among others, the improper supervision, review, and double checking meant seniors posed the most risk (6 respondents), managers and partners (6), and (1) respondent, P5, suggested, "risk existed at all levels." Expanding on their comments, those respondents who suggested managers and partners pose a risk were because

of a more hands-off, I know better attitude. As put by SM8: "Managers, believing they have enough info, are using AI, and it is wrong, and they don't double-check." "I can tell just by looking or reading" mentality as suggested by P3. S1 said, "Higher level if they are trying to save time." Three respondents, SM1, P5, and P6, said, "Admin/support staff." Again, a visual inspection of the matrix reveals that the two primary ethical concerns, the protection of client data and due professional care, are concerns across all firm levels. As shown in the primary data and validated with secondary data analysis, when it comes to potential ethics violations, the primary emergent themes causing the most concern are client privacy and due professional care.

During the interviews, all but two respondents agreed that the firm will have to adopt new policies, procedures, and controls to address GAI issues now and in the future (two respondents answered that they did not know because they were too inexperienced). As to whether such policies would be communicated to clients, twenty-four said yes, and most of those suggested an engagement letter, like how disclosures are currently made concerning third-party tax preparation software and outsourcing. Others suggested a newsletter or a tax questionnaire. Five participants said there was no need to inform clients now, particularly if no personal data has been used, which should be the policy for using Chat (J2, S4, SM3, SM6 & SM7). S4 stated, "I don't think so if not using any personal info, why tell clients?". On the other hand, J4 said, "Yes, if I am a client, I would like to know. We are not trying to hide anything". SM3. Offered, "I don't think it needs to be unless it becomes an issue that everyone is upset about." Only one participant, SM6, suggested waiting on outside guidance and said, "Depends on if AICPA, etc. required." Oprea et al. (2022) reported in a study of potential regulation in the use of AI is ongoing by several institutions in Europe and the USA. Studies by Bakarich and O'Brien (2021), Boritz and Stathopoulos (2023), and Fava (2023) all raised concerns about the need to update firm policies, procedures, controls, and guidelines and suggested changes would be necessary.

In the focus group, the responses were a little more tepid about disclosing to clients, with most of the participants suggesting disclosure only when specific client information or data was used in the work. If client data is not used in the process, then the participants considered Chat no different than any other tool such as Word or Excel. In the questionnaire, participants were asked if firm policies should be reviewed and modified, with 10 (35%) saying they should be done within the next year and an additional 11 (38%) saying within two years. This validates the responses to the questions in the interviews. Regarding the manner of disclosure to clients, 20 (74%) suggested using the engagement letter, while another 2 (7%) said clients should be notified without exception but without naming the manner of notification.

When asked how the firm will monitor tools such as Chat to ensure compliance and identify abuses, about half the participants suggested IT would have to be involved in establishing controls and monitoring systems. Several equated the controls to those currently in use to prevent private client information from being included in emails and other firm correspondence, with S5 saying, "IT team will take the lead, with controls similar to how emails restrict the use of client data." S4 suggested, "Use of a log that shows it was used and IT monitor the logs." A few respondents struggled with the question because of the newness of the technology and employee rights. SM1 said, "Good question, don't know." P2 commented, "That's a really hard one, especially with so many employees working remotely." S1 thought perhaps keystroke tools but was concerned with employee privacy. As to the latter, the firm's IT Policy manual, in its opening section, clearly establishes that employees have no right to privacy when using firm equipment or supplies and work-related conduct. Boritz and Stratopoulos (2023) addressed this subject in their study of the impact of Chat in accounting firms, with recommendations that firms may need an AI assurance specialist who implements a certification process to evaluate how AI is being used.

The firm's IT Policy manual, an archived secondary data source, also contains restrictions on data transmission concerning client or firm data. Encryption is required. Furthermore, the manual includes a section on Artificial Intelligence and ChatGPT specifically. The policy does not prohibit the use of ChatGPT but does require strict adherence to the existing standards of confidentiality and protection of client data. There is an overt prohibition against sharing client data and personal identifying information (PII). The policy also reminds staff that AI and Chat are a valuable resource but are not a substitute by stating: "They are not a substitute for professional judgment or expertise. Users should verify the accuracy of information obtained from these sources and exercise critical thinking skills when interpreting responses." Interestingly, in response to the question about adopting the firm policy discussed above, only one respondent, J3, checked the box "this has already been done," suggesting there has been limited dissemination by the firm of the newer policies on Chat. As discussed above, the firm's

Team Member Manual discusses work paper protection, independence, and the dissemination of firm or client matters outside the firm. However, unlike the IT Manual, the Team Member Manual does not explicitly cover policies, procedures, and controls related to GAI and ChatGPT. The IT manual is not attached as an exhibit to protect the firm's anonymity.

In the interviews, participants were asked if Chat was used extensively in a project and if it should be treated similarly to a human staff person because of its ability to learn, think, and create. In other words, should the work product be subject to the same review and scrutiny process as any other work product? This line of questioning aimed to determine if participants saw exposure to the ethical standard of due professional care by not properly supervising the extensive use of Chat in a project – in place of the project having extensive human staff involvement. Eighteen, the majority, answered yes, saying that Chat acted like a staff person. Those respondents who did not think so struggled with identifying Chat as a staff person because of the non-human element. SM4 said, "I don't think so, it's an app, a means, we are responsible." P3 said, "No, because someone had to query. After further thought, I don't know". Furthermore, SM10 hedged by saying, "No, it's a tool. Could potentially become a staff person". The interviews provided the opportunity for a back-and-forth discussion wherein the researcher's primary purpose was to determine if the professionals recognized Chat as a staff and, therefore, in need of the same level of supervision, review of work product, and double-checking as is performed when reviewing the work of a human staff person. As the discussion proceeded, the respondents were more likely to acknowledge that Chat was like a staff person for due professional care and staff supervision.

The question was posed in the questionnaire in a more closed-in form, without room for discussion: "Is Chat like a staff or just another tool." Given two limited choices, only 38% of the respondents agreed that Chat was like a staff person. When the statement was rephrased to suggest that Chat is just a tool, 62% agreed. The inference is that while Chat may act like a staff person as part of the process, there is a reluctance to refer to it as a 'human' staff member.

As stated, during the one-on-one interview, participants were asked if Chat was like a staff person with the researcher and the respondents having a back-and-forth dialog. Initially, most respondents said no. When prodded to think of it in terms of the process or its use to produce a work product but ignore it as not being a living, breathing person, on further contemplation, 18 respondents accepted the idea of Chat as staff, while 10 held to their stance of considering it only a tool. All focus group members were also reluctant to consider Chat as a staff member, maintaining that it was just a research tool. J4 said, "I don't think so, I'm still entering the data." "GAI is not a staff member, we are still entering the data," said S1. P3 said, "Don't see it as much different than existing tools, but that might change." Other typical responses were "it cannot establish connections," "it is not personable," or "it can never develop the human experience."

This concept of Chat being a staff person was pursued further in the context of its ability to increase its learning as time passes, think, create, and advise. As it becomes more advanced, firms increasingly use GAI tools for research, correspondence, planning, and tax preparation (Patrick, 2023; Ogden, 2023; Wolters-Kluwer, 2024). Concerns about professionals suborning their knowledge, experience, and judgment are increasing (Hatfield, 2019; Maciel, 2023; Street et al., 2023). When asked about this in the interview, respondents had a mixed bag of responses: J1, new to the profession and the firm, articulated: "We {humans} continue to gain experience and knowledge, personal relationships, and human interaction." J2, another young staff member, said, "We may not be able to keep up. Our roles may change to that of reviewers of AI." S1 said, "Tax professionals interpret and apply the law;" S2 expanded on that by saying, "Decision making, interpreting require human rationale that AI cannot do." A common theme was human interaction, relationships, and trust that only humans can deliver. In the questionnaire, participants were asked about CPAs relying more on tools such as Chat, with little review or editing, resulting in a "dumbing down" of professionals and replacing their skills, experience, and judgment. An overwhelming majority, 79%, disagreed, either by having some impact but not to the detriment of the professional or no impact at all. During the interviews, it was noted that 11 of the 15 (73%) managers or partners answered yes to Chat is like a staff, whereas only 7 of 11 (64%) from the juniors and seniors considered Chat as staff, showing a slightly higher belief of Chat like a staff among the senior members of the firm.

Regardless of the degree to which participants were willing to commit to recognizing Chat as being like a staff person, when the questioning brought the topic back around to the concept of meeting the ethical standard of due

professional care, all but one of the respondents agreed that the due professional care standard was met. The keywords that established this were "yes if it was reviewed" (J1), "yes, so long as it was reviewed" (J2), "yes because it was reviewed" (S1). Several respondents correlated "review" with "confirming accuracy" and "double checking." The meeting of the standard is accomplished by the professional, not the "staff" or "tool" used, and the responsibility lies with the professional performing the same review and supervision procedures as they would with any work product. S3 said, "Someone must take responsibility. Has it been reviewed? The CPA must sign". SM5 echoed this: "Yes, by reviewing as a human with experience and judgment. Same as always, we are trusted advisors." This was the conclusion of Holmes and Douglas (2022), where the researchers expressly stated that the CPA is responsible for ensuring accuracy and that AI is just a tool. Burger et al. (2023) stated that the researcher is always responsible and exercise caution.

Establishing the foundation that the accounting industry is suffering from a shortage of accountants, specifically tax accountants and particularly at the entrant level, during the interview, the participants were asked to comment on the positive impact GAI may have on attracting new entrants. Next, they were asked to comment on the potential negative impact.

The common positive impact theme was the potential reduction of time-consuming, tedious, and repetitive tasks performed by junior staff. The tangent of this was using the freed-up time to offer more challenging opportunities early on, offering a more valuable role for the new entrant. As stated by S6: "AI will reduce hours, reduce redundancy, and provide an opportunity for a higher level of work." Similarly, SM3 suggested: "Initial work can be more complex problems, more sophisticated work initially because AI has taken over some of the more tedious tasks." Stancu and Dutescu (2021) concluded this, opining that GAI would make accountants more efficient, eliminate mundane tasks, and allow accountants to pursue the role of decision-makers early on. Some suggested that being an early adopter of these tools to a generation who relies on and is used to technology would show a commitment, as stated by J3, to "stay hip." Others saw the reduced hours through the reduction of tedious and redundant tasks being replaced with other work or more clients, thus not reducing total hours for the tax professional. S2 said, "It may not alleviate hours as we would just work on more clients." SM8 saw it as an opportunity for "…more client interactions, planning, analysis …can get to that sooner in career…fast track". All but four respondents found something positive about using GAI and its impact on attracting new entrants. When asked in the questionnaire whether GAI and tools such as Chat will positively impact their job and profession over the next five years, 100% of the respondents answered yes.

Responding to the potential negative impact of attracting new entrants, twenty-one, or over 72%, suggested job security was at risk. Upon elaboration, the concern was that the tools could do tedious, remedial, and repetitive tasks, such as data entry, now performed by junior and support staff. S2 suggested "potentially decrease workforce…exposure to junior and support staff…take the money you save and use it to train juniors to do higher level work…or pocket savings."Another, S6, said, "Not enough work because GAI has taken over." SM1 proclaimed, "Not a promising profession." When Hsiao and Han (2023) surveyed eighty-two accounting undergraduate students, they found that most students believe accounting jobs will succumb to data analytics and AI, especially at the entry-level. On the other hand, suggesting that the profession and tax accountants survive and prosper over time, when asked in the questionnaire whether GAI and tools such as Chat will negatively affect their job in the next five years, 72% said no. All focus group members were united in their belief that GAI will not replace the tax accountant, although there could be some impact in the form of scaling back at the entry-level. The need for human oversight, client connection, and trust was common.

Recalling the lamentations of tax accountants some 25 years ago when Turbo Tax was introduced and that clients would no longer need the services of a tax accountant, the reality became that the users of Turbo Tax were not the clients of firms such as the one in this study, where there is more emphasis on consulting, advisory, and planning. To validate this, in the questionnaire, participants were asked if the firm was at risk of losing revenue in the next five years because clients could access GAI and other tools to obtain answers, 83% said no. When asked to rank the most significant risk to the tax profession and professional ethics, loss of revenue ranked the lowest, with 69% of respondents considering it either a low or the lowest risk compared to the violation of due professional care, client privacy, subordination of judgment and sills, or loss of jobs.

Under the premise that GAI tools of the future will significantly impact the role of accountants and tax professionals, participants were asked what their thoughts were on the role in the future as it relates to client service. The most common theme identified was that of advisors, consultants, and planners. This was expanded to include trusted professionals and more personal relationships. J4 said, "We will still be around because people will not always trust AI, they will trust us more." A common component of this role was the need for a "human connection." S1 was adamant, "I do not think any technology will replace the tax professional ability to apply the law." The theme included the need for a human understanding of clients' personalities, which can only occur between two humans. S4 said: "We still have contact with clients. Social skills are needed to give a complete answer. Right now, clients see us as their confidants, their trusted advisors."

The focus group members echoed this theme, as the tax accountant will still be necessary to help clients navigate complex and changing laws and identify creative planning opportunities. Several said, "be able to communicate that in a clear, concise manner," considering "their understanding of the client based on the relationship developed over the years."

P7 and SUP1 suggested that the changing role will also affect the need to change how new entrants are educated, becoming more specialized, and continuing education classes will need improvements. Holmes and Douglass (2022) came to similar conclusions, saying it would become necessary for the accounting curriculum to make substantial changes, including courses emphasizing data management. Sabuncu (2022) identified three trends facing the profession, including a new job description as consultants. Nikolova (2023) identified that of the top ten jobs in future financial services, eight are related to technology, such as AI specialists. Several respondents, when answering the question as to the role of accountants in the future, used "more specialized" (S2), "become more specialized" (P7), "continuing education improvements" (SUP1), and "broader range of services" (P3). When asked if they had attended a conference or had continuing professional education (CPE) about GAI or Chat, 65% of the respondents answered yes.

One question to the participants, even though directed at tax professionals, could be equally posed to anyone outside the profession: "GAI, particularly as it continues to advance, causes me great concern about its potential misuses, abuses, privacy invasion, and other nefarious activities." Sixteen respondents, over 55%, strongly or somewhat agree. A client relying heavily on technology and less on a human advisor would have significant concerns about the above. They would seem more likely to need the human advisor's expertise for protection. When asked about the first word that comes to mind when you hear AI, although efficiency was the primary answer, there was also "robot," "unsure," "the matrix," "sci-fi," "change," "artificial," and "terminator." Clients would face similar reactions if they were left to go it alone.

Relationship of Findings to Research Questions and Sub-questions

The findings discussed above explored, explained, and described the impact of the firm's adoption of GAI tools and technologies on the accounting profession and tax departments and professionals specifically. The broad scope of RQ1 was intended to explore the use of these tools on the standards of due professional care, client confidentiality, human resources, and related ethical areas.

Participants' responses revealed a consensus that the tools will impact accuracy, reliability, over-reliance, diligence, and staff supervision, all of which are components of due professional care. The discussion during the interviews described the need to understand technology as a tool, not unlike other tools and resources available to the professional. The need for double checking, supervision of subordinates, use of primary and secondary sources and references, and application of the professional's knowledge, experience, skills, and judgment are the mechanisms for ensuring the standard is met, not the use of tools such as Chat in and of themselves. Responses on the potential impact on client privacy and data protection consistently burdened the user, not the tool, to ensure client personal information and data are not entered as part of the queries when using Chat.

RQ1a was an inquiry into the expected benefits of implementing the tools. Respondents at all levels of the firm were consistent in their expectations of gaining efficiency, time savings, eliminating redundancy, tedious tasks, and increasing production. When related to human resources and staffing, respondents saw a potentially positive impact on the ability to attract new college graduates by showing the firm was committed to the future through its

adoption of these technologies, suggesting such adoption would reduce some of the negative views of the profession's long hours and tedious work. In so doing, new entrants could have the opportunity to take on more sophisticated and challenging work sooner in their careers.

In response to probes for RQ1b, respondents were consistent in their agreement that the firm will have to adopt or modify its policies, controls, and procedures concerning the use of tools such as Chat. The firm's IT department will play a crucial role in developing system controls and checks to ensure client data is protected and that the use of the tools will be defined as when and how it can be used. Clients should be made aware of the use of tools like disclosures currently made about using third-party tax preparation software and outsourcing. Most respondents suggested the engagement letter as the mechanism for disclosure to clients.

RQ1c was to explore how the firm might use these tools in providing written advice to clients. Respondents' most frequent answer was as a tool in research, like how Google keyword queries are often the starting point in current research. Using Chat to obtain cites and links that could be cross-checked against primary and secondary sources, such as IRS publications, annotated and topical tax publications like that provided by Wolters-Kluwer or Checkpoint, was most often described. If Chat produced or suggested answers or facts, these would be scrutinized and double-checked for accuracy and reliability. Respondents confirmed that Chat would be used in the initial drafting of client correspondence such as emails, memos, or letters in response to the client's question but would only be the starting point. Respondents were clear they would apply their editing and re-writes to ensure the finished product was written in their preferred style and responsive to the client's question.

Summary of the Findings

The findings provided significant input into exploring the adoption of GAI and related technologies in accounting, specifically tax professionals. The general problem addressed was the challenges tax professionals face implementing and using generative artificial intelligence (GAI), resulting in potential ethics violations of due professional care and client confidentiality. The specific problem was the impact on professional ethics in a regional accounting firm in Southern California, resulting in potential violations of the professional standards of due professional care and client confidentiality. The findings identified concerns related to the disclosure of client personal information in the prompts or queries of ChatGPT because of the nature of the current open source, internet-based program and the reliance on less experienced staff using the program to perform research. In addition, the findings confirmed the awareness of the potential inaccuracies and lack of reliability found in the Chat output, exposing the firm to violations of the due professional care standard. The findings were substantial in responses related to the need for professional oversight, review, and staff supervision.

The research aimed to use a flexible, single case study design using qualitative methods to explore the use of GAI in a public accounting firm, specifically in the tax department. Some demographic data, such as staff experience, office location, age, and gender, were collected for triangulation and to determine potential differences or associations among the findings. The research was to address the concerns and expand the knowledge related to the adoption and use of GAI, including the risk of accuracy and violating ethical rules such as due care and supervision (Fulop et al., 2023), usurping professional judgment if GAI is misused as a substitute for professional knowledge and experience instead of as a tool or aid (Hatfield, 2019), protection and confidentiality of client information and impact on staffing (Leutner-Hanetseder et al., 2021; Boritz & Stratopoulos, 2023). The data collected and analyzed provided findings relevant to these objectives.

The findings were responsive to the posed research questions of why the firm would consider implementing the tools and benefits to gain by describing the various uses, such as research and correspondence, and the potential benefits of efficiency, time savings, and increased productivity. The findings also addressed questions concerning guidelines, controls, and procedures needed to ensure compliance with professional standards and ethics by confirming the involvement of the IT department in developing such controls and procedures. The findings also confirmed the need to potentially disclose the usage of the tools to clients through the engagement letter. Lastly, the findings explored the potential application of the tools for tax research and in writing or editing communications such as emails, memos, and letters.

Application to Professional Practice

The study results and findings show several applications to improve business and leadership practices. Implementing GAI's current and future tools, such as ChatGPT, will provide strategies leaders can use to gain leverage over competitors and benefit clients.

The adoption of GAI holds the potential to significantly increase efficiency, reduce costs, and transform work routines. It was previously discussed that artificial intelligence has been in use in the accounting profession for some time to assist auditors in determining materiality, inventory management, financial planning, and accounting systems are widely used (Flores, 2023; Seethamraju & Hecimovic, 2023). The opportunity for these new GAI technologies to be adopted in the tax departments of firms has increased because the nature of the services provided is often drawn on regulations and authorities that are available through the internet, the vast resource that ChatGPT employs. The study shows that the tools are already being used for tax research and providing feedback to clients on tax questions. Firms can position future tax accountants with the requisite technology and through efficiencies and less attention to mundane or clerical tasks in the early years, allowing future tax professionals to become trusted consultants, advisors, and creative tax planners (Fava, 2023; Federico & Thompson, 2023; Healey & Cartland, 2021). One recent study found ambivalence regarding its use in direct client contact (Holmes & Douglass, 2022). The study did not include GAI's creative, thinking, and advisory capabilities in its survey, a technology that, as discussed throughout, opens the door wider for its use in direct client contact. Through a literature review, Bogoslov and Marina (2023) compiled a list of premises or assumptions upon which they opine that GAI will impact the profession. These include automating repetitive tasks, predictive analysis, identifying inconsistencies in accounting data, setting priorities and efficient schedules, monitoring regulatory and professional changes, and freeing accountants to enhance their analysis, interpretation, and communication skills.

Several themes emerged from the study that strengthen and broaden the scope of the anticipated business practices and leadership within the firm, as discussed above and previously in this paper. The study showed the primary benefits the firm hopes to gain by implementing these tools: efficiency, time savings, increased productivity, and eliminating redundant and time-consuming tasks. The byproduct is the ability to concentrate on higher-level advisory, consulting, and planning roles for the client. Several participants spoke of the tax accountant being a more intimate confidant, a team member, and an even more "trusted advisor." While these tools have the expected benefits discussed above, their replacement for the human connection, the intuitiveness, and greater understanding of the client's goals and plans remain within the professional's responsibility to emphasize and utilize.

Firm leaders need to recognize this technology as a tool, just like other tools that have aided the professional over the years, and not, through reliance, poor supervision, or hype, allow the technology to become a substitute for their own experience, knowledge, skills, and judgment. As expressed by Elon Musk and others, it is an expectation that GAI and its tools will become more innovative and smarter – even smarter than the smartest human – in a short period. Being aware of the risk associated with this possibility, the professional must be diligent and proactive to prevent subordinates – and even themselves – from allowing this to happen. The standards relating to due professional care, which include accuracy, thoroughness, completeness, training, and supervision, must not give way to laziness or arrogance that could become associated with simply trusting the GAI output. An even greater emphasis on supervision and review will need to be maintained as the accuracy of the tool increases. New entrants to the profession who have grown up and become accustomed to technology are more likely to accept the results without as much scrutiny as professional standards require, making it incumbent on senior professionals and leadership to supervise appropriately. Adopting clear policies, procedures, and guidelines will be necessary, and the study shows the firm's intent to modify them as needed.

Professionals cannot rest on their existing educational and experience laurels. Advanced training at the university/institutional level for new entrants and through continuing education for existing leaders will need to be pursued to keep up with emerging tools' uses (and potential misuses), abilities, and applications. An understanding of vertical applications will be necessary to ensure their interaction and use by existing tools, such as tax preparation software, does not place client data and privacy at risk. For example, tax preparation software contains substantial client information but is maintained in-house. If future technology holds the possibility of integrating the preparation tool with planning, projection, and even correspondence tools, the risk is increased for

violation of exposing client data. Leaders of firms will need to be aware of this, along with IT departments, to ensure the efficiency and benefits obtained are not at the expense of client privacy.

Early on, firms used technology to improve efficiency and client service. When in-house tax processing software became available in the mid-1980s, the turnaround time in delivering client tax returns was significantly reduced. Similarly, when accounting records were maintained using software such as QuickBooks instead of manually entered ledgers, producing financial reports became timelier and more accurate. Tax research has evolved from a room full of annotated and topical volumes, where pages were replaced once a week as laws changed, to instant and updated access – first by CD Rom, now online.

In each case, the technology was a tool. The review, interpretation, analysis, and conclusions were the responsibility of the trained tax professional. As was the education, experience, and judgment in arriving at conclusions and recommendations. Now, tools such as ChatGPT offer similar efficiency and timeliness to information but with the added potential of offering advice, planning, drawing conclusions, and making recommendations – particularly as the technology learns and evolves.

The challenge to the professional is to leverage these tools as has been done with past tools and not allow the tool to become a replacement for the tax advisor. The study found that most participants did not believe this would be the case, such as the human connection, trust between the client and professional, and the ability to have a greater insight into the client's mindset, goals, and needs rest with the human relationship. Many businesses, including tax professionals, have already allowed a disconnect of personal contact using automated prompts and robots, third-party outsourcing, and the use of email and cell phones. This was further exasperated during COVID-19 with work-from-home and use of Zoom. The one-on-one meeting with clients has become the exception, not the rule. Admittedly, the fault lies with the tax accountant and the client or customer who prefers or has become more accustomed to non-meeting interaction. Now is the time for professionals to seize the moment by not letting GAI invade their client contact by insisting on more personal meetings, if not in person, at least by continued use of Zoom. At least the client sees that the answers, the consulting, and the planning come from a human. Leveraging the efficiency provided by the tools should allow more time for human contact through meetings.

The profession can leverage technology through more advanced training and responsibilities for newer entrants, juniors, and seniors. By eliminating mundane and repetitive tasks, younger personnel should be given more opportunities for sophisticated and challenging work sooner rather than later in their career, developing early on to have direct client contact by involving them in meetings on strategy and planning sessions. The client should be reacclimated and have as much contact with firm staff as possible.

Using these tools should allow tax professionals to respond to client questions and projects in a timely manner but with more data and information, which leads to more ideas and creative responses. With the ability of tools such as ChatGPT to access millions more data in a shorter time than humans, such information gives the professional more to draw upon in identifying planning ideas. Chat can also allow for a quicker summarization of a meeting's discussion, including conclusions and recommendations, helping prevent ideas from being lost when meetings end.

As the tools become more sophisticated and available in such areas as tax preparation, diagnostics derived from tax return drafts could identify areas of audit risk, areas where opportunities such as deductions might be missing, and apparent inconsistencies and errors during the preparation process. Most tax preparation software provides diagnostics in some form at this time, but with GAI's ability to learn and think, this component of the tax return preparation process should only become more sophisticated. This could also result in fewer review steps as the return works its way up the firm's staffing hierarchy or at least reduce the time necessary for each review step. Some participant responses have suggested using the tools during the data entry process. It has been suggested that the tools can read PDFs and other original documents, such as a W-2, and enter the data into the tax preparation program.

The use of technology within the firm for administrative and internal processes will undoubtedly evolve. The tools might be used to find client similarities and synergies that the tax accountant can bring to their attention, potentially allowing for mutual business between clients. The tool could assist in identifying client marketing

opportunities. Using it in planning client engagements, cross-checking pro-Formas and checklists, or determining what questions, information, or concerns should be covered in accepting new clients could expedite and more thoroughly cover what needs to be asked and performed. Identifying weaknesses in production and billing realization, identifying bottlenecks in the review process, and real-time comparisons of budgets and actual, be it financial or staff time on a project, can increase revenue or reduce expenses.

Recommendations for Further Study

This study concerned the adoption and implementation of GAI in the tax department of a regional accounting firm in Southern California. One of GAI's first contributions was ChatGPT, introduced by OpenAI in November 2022, and its subsequent sister technologies, Microsoft's CoPilot, and Google's Gemini. The primary uses thus far included tax research and assistance with drafting correspondence such as emails, memos, and letters to clients. The firm intends to implement Chat policies, procedures, and controls to avoid abuses. These will be necessary to protect the firm against the most concerning ethical standards, client information/privacy protection, and due professional care. Some concern was expressed about the impact on staffing, particularly at the entry level and job security.

As more GAI technology becomes available, and as the existing tools such as ChatGPT are improved, businesses will have more data and feedback available that will allow a better understanding of their applications and benefits. Specifically for accounting firms and tax departments, to determine the implications, benefits, advantages, and disadvantages of adopting, implementing, and using GAI tools, the following additional research is warranted over the next five years or so:

1. How are the size of the firm and the number of employees a factor? Large, multinational firms have vast resources and skilled IT personnel, making it potentially easier for adoption and at a quicker pace. Their hierarchy of experienced staff suggests the ability for better supervision and ability to monitor uses and identify potential abuses. Smaller firms, mainly the sole practitioner, will most likely find it more challenging to adopt, for the opposite reasons listed above, with another critical factor – time. With fewer staff, the sole practitioner may find themselves in a Catch-22 situation: Too busy servicing clients to implement the technology that could help them better serve them.

2. As time goes by and the sophistication and abilities of the software grow, what are firms finding for other uses? It has already been suggested that the tools may play a part in tax preparation, but surprisingly, only a couple of participants mentioned tax planning as a use. The smarter the tools get, the more able to think and create potentially opening use in pro-active tax planning strategies and ideas; similarly, an integration into financial planning and the subsequent impact on the client's tax situation.

3. What are firms finding about the impact on jobs, particularly at the entry level? Were jobs lost, or were roles shifted as suggested, allowing junior staff the opportunity for more sophisticated and challenging work?

4. What is the impact on client relationships? Were clients lost because of their use of the tools, such as the fear when TurboTax was introduced many years ago? Did the role of the tax person change to one involving more advisory and consulting?

5. What has been reported concerning violations of client privacy or the accuracy of work products?

6. How have government and professional organizations responded? Have there been new mandatory regulations or controls enacted?

7. What policies, procedures, and guidelines have firms adopted that are explicitly related to using GAI tools?

8. What uses in other areas of the firm, such as auditing, financial planning, investment advice, and IT consulting, have seen implementation?

9. An update related to the same Southern California firm would provide an opportunity to explore the adoption and implementation from an actual perspective versus the hypotheticals and prognostications posed in the current research.

Each of these areas will be primed for research and exploration independently or as part of an updated comprehensive study like the current research.

Summary and Study Conclusions

Generative artificial intelligence and its early applications, such as ChatGPT, are already being used to some degree at all levels of the tax department of the subject firm in this study. Currently, it is a staff option and preference and not a required or deliberate tool implemented by the firm. The most frequent use is for tax research, similar to how Google and other search engines are used to initiate a research project. The tool also drafts emails and other internal and client communication forms. While prospects for future uses, such as tax preparation and tax planning, were mentioned, they are not currently being considered. In exploring risks to the firm, the protection of client privacy and the standard of due professional care were of the utmost concern. Firm policies, procedures, and guidelines will be implemented to ensure client data is not exposed in Chat or future tools, which is a risk at the query level. Most staff levels agreed; however, this risk is best mitigated by a conscious awareness by the staff, common sense, and an understanding of the environment, not unlike talking in public about clients. Due to professional care and its requirements to ensure accuracy, thoroughness, and reliability of work products, no different approach is currently employed to properly supervise, review, and double-check work even if, ultimately, the majority of work product results were generated by Chat. The unanimous understanding that these technologies are just tools, not unlike other tools used in the profession such as tax preparation, tax planning, and research software, concluded that the burden remains with the professional and their experience, knowledge, and judgment to protect ethical standards. Concerns about job security were not as abundant as early research suggested. Most participants do not see risk to the jobs, and any risk at the entrant level can be mitigated by suggesting to new entrants that these new technologies will provide opportunities for more challenging and rewarding work early on in their careers.

Since this technology is new and advancing rapidly, opportunities for future research to explore the advent of new tools that are sure to become more sophisticated and capable of taking on even greater tasks, such as the aforementioned integration of tax preparation and planning, will be crucial. Research into how these tools affect the profession based on firm size, for example, the sole practitioner versus large local, regional, and national firms, should be explored. Early literature suggested a significant impact on job security and losses was almost assured, but this study did not reveal such attitudes and concerns. As technology advances, future research will better answer this question.

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