Assessing the Digital Technology Competencies of Certified Public Accountants: A Gaze into Ilokano Workplace Context

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ABSTRACT

The study focused on the Digital Technology (DT) Competency of Certified Public Accountants (CPAs) in Ilocos Sur. This study will be beneficial for the upskilling of CPAs in Ilocos Sur and serve as a guide to development of competency-based curriculum for accounting students and intervention programs by accounting professional organizations. Using a validated survey instrument, the researcher considered 107 CPAs that responded. Total enumeration was used. The survey investigated the CPAs' level of digital technology along five competency domains. Descriptive method of research was utilized Their level of DT Competency is interpreted as "Proficient". The study hints that they are not so far behind in terms of digital competency, and they have an enormous potential in relation to IT utilization, management, administration, and risk management. Reassessment of the BS Accountancy curriculum, encouraging CPAs to take advance studies and future research in this line is recommended. CPAs in Ilocos Sur can optimistically adapt to the ever-changing demands of the workplace.

Keywords: digital technology, competencies, accountants, Ilokano, workplace

INTRODUCTION

In five years, a large amount of the skills thought to be essential for accountant work today will have altered. The workplace will advance in the next ten years as it adjusts to the status quo and develops new tools, systems, and methods. Accountants and financial officers helped by robots and artificial intelligence are anticipated to sit on a corporation's board of directors. As a consequence of technology's aid in automating some of their administrative and technical labor, accountants of the future will play a more creative and strategic role in their organizations. As a result, their businesses will experience improved resilience, agility, and competitiveness along with more efficient processes and insightful accounting data. Business processes have changed quickly as a result of the fast growth of digital technology. In order to provide effective and expert services, accountants must possess knowledge of and skills in digital technologies that are relevant to their responsibilities.

To deliver effective and expert services, accountants must possess the IT knowledge, talents, and skills that are relevant to their workers. But because IT is such a large field, not all IT knowledge and abilities are applicable to the role of an accountant. For instance, accountants are not need to be proficient programmers. That is under the purview of the computer programmer. As long as they are aware of how data is transmitted between computers, accountants do not need to grasp the technical elements of data transfers. With the development of computer technology, accountants no longer have to manually enter data while searching for mistakes. In the digital age, accounting professionals can achieve substantially more in far less time, and their focus has shifted to analysis and consulting. Therefore, the profession should be aware of how important it is to adapt to and embrace these new technologies in order to become a fully realized 21st Century accountant.

It turns out that these changes are constructive rather than harmful. Every aspect of business has been greatly influenced by the huge advancements in information technology (IT) during the past several decades. IT has altered how data is gathered, stored, analyzed, and dispersed across business stakeholders (Nasiopoulos and Lamprini, 2015). Pepe (2011) said that because digital technology, or IT, is an essential part of accountants' everyday job, they were among the first professional groups to be impacted by this transition. These days, it is impossible to execute most accounting and financial tasks without the use of IT, which implies a significant change in the skill sets needed for accountants to do their duties (Ahmed, 2003). In order to address these fundamental developments in accounting, interested professional accounting groups are actively participating.

Competency frameworks were created by the Chartered Professional Accountants of Canada (CPA) and the International Federation of Accountants (IFAC) (Nasiopoulos and Lamprini, 2015). Nevertheless, several corporate accounting systems throughout the world have voiced concerns about the degree of IT-related skills needed for today's accountants. Gonzales (2021) stated that according to the Philippine Institute of Certified Public Accountants (PICPA), professional accountants need to be up to date on the newest digitalization trends, which includes receiving training in accounting systems and the add-on tools that complement such systems. In order to succeed in the field, accountants must upgrade their skills and broaden their core capabilities. With the use of technology and a cooperative work environment, accounting organizations will be filled with trained accounting professionals and subject matter experts from other corporate divisions. Future accountants may act as consultants, bringing well-known data experts and business intelligence experts, and working together on a strategic sourcing strategy. Digital technology will enable accountants to access data that was previously inaccessible in real-time, improve information assurance for use in decision-making, and improve data quality through increased accuracy and timeliness. It is simple to understand why there is a rising need among accounting professionals for sophisticated IT skills and expertise. Anecdotal evidence suggests that accounting professionals are missing in sophisticated IT knowledge and abilities, such as IT forensic, IT audit, and data analytics.

The workforce of accounting organizations will be composed of specialized accountants and subject-matter experts from other firm divisions, who will work together in a collaborative setting and be supported by technology. The accountants of the future may act as counselors, bringing eminent data

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professionals and business intelligence experts, and working together on a strategic sourcing plan. Using digital technology, accountants will be able to access data that was previously inaccessible in real-time, enhance information assurance for use in making decisions, and raise data quality by making sure it is accurate and timely. It is clear why there is an increasing need for accounting professionals to possess sophisticated IT skills and expertise. Anecdotal evidence suggests that accounting professionals are missing in advanced IT knowledge and abilities, such as IT forensic, IT audit, and data analytics. According to Herawati et al. (2021), an accountant had to be flexible in order to keep up with developments in technology and information before the pandemic, therefore this adaptability is essential for CPAs.

Automation is replacing accountants' easier, clerical tasks as digital technologies progress. Interestingly, Khanh (2018) and Wahyuni (2020) show that accountants' tasks are changing from being bookkeepers to experts in providing financial data or as data analysts, and accountants need to be computer savvy to handle these new duties. This makes it necessary that the key competency area where professional accountants are lacking is in digital technology (ACCA, 2016). The paper lists the areas of knowledge where accountants fall short. Simply said, a rising number of financial and non-financial stakeholders inside and outside the organization will have shifting needs those accountants will need to fulfill. In light of technological improvements, the International Federation of Accountants defined the functions accountants may play in the IT environment as early as 2003. (IFAC, 2003). Having IT skills enables individuals to address professional prospects related to IT, according to IFAC (2003). They eventually obtain executive or leadership roles as a result, and they play a significant role in important organizational decisions regarding the use of technology. Consequently, accountants must improve their capacity to contribute more to the organization (ACCA, 2013). The ACCA (2020) report emphasizes how digital accountants assist businesses in battling the pandemic. It looks at how the digital quotient affects digitalization and future growth, as well as how tech-savvy accountants should be and what skills they should develop.

Research Gaps and the Significance of the Study

Numerous research support certain digital technology skills that an accountant must possess. The most crucial skills for accountants include accounting software, financial spreadsheets, and word processing (Bahador & Haider, 2012a), as well as business graphics, presentations, audit software, and tax preparation software (Chen et al, 2009). Small business systems, database management systems, computerized accounting packages, an assessment of an entity's ICT assurance needs, and communication tools were also included to the list by Dzuranin et al. (2018). (Email, file transfer, web browser). The aforementioned was backed by Lee et al (2018a), who claimed that business-related software is often used in different areas of accounting and to diverse degrees of proficiency. It's interesting that Lee et al. (2018b) and Spraakman et al. (2015) both stressed the value of excel skills for professional accountants and accounting grads. Additionally, the internet is progressively developing into a crucial instrument for the accounting profession even at the turn of the century. (1999; Baker and White, Jr.).

According to the researcher, this study would significantly help the accounting industry by upskilling and maintaining Certified Public Accountants' (CPAs') abilities in line with international trends. Additionally, their services' quality will be negatively impacted. As a result, organizations and several interested parties—but most significantly, the general public—will have increased faith in published financial reports. This study will contribute to the expanding body of knowledge in the accounting field, especially in the area of accounting pedagogy and research that integrates digital technology skills into accounting curriculum to prepare students for a digitally-driven workplace. As a result, the academic community will benefit from a foundation for creating a curriculum that is focused on technology. In light of this, a competency-based approach intervention plan can be developed for CPAs in Ilocos Sur. Additionally, this study acts as a guide for individuals conducting related research and is open to improvements offered by subsequent researchers. The quick adoption of technology and digital transformation in the workplace after the COVID-19 epidemic has increased the study's value and relevance.

Objective of the Study

This study assessed the digital technology competencies of CPAs in Ilocos Sur during the Calendar Year 2021 – 2022 along five competency domains.

RESEARCH METHOD

Research Design

This study is quantitative research that made use of the descriptive method of research supplemented with a validated questionnaire adapted from IFAC's IT Competency Framework for Professional Accountants.

Population and Sample

A total enumeration was employed in the investigation, and 107 subjects consented to take part. Regardless of the institution or university they attended after graduating, all of the Certified Public Accountants (CPAs) in Ilocos Sur made up the study's respondents. Accountancy degree graduates who subsequently passed the Board Licensure Examination of Certified Public Accountants (BLECPA) and have a current Professional Identification Card are known as CPAs (PIC). The list of CPAs in Ilocos Sur was compiled using the PICPA Ilocos Sur Alpha-list of Members in Good Standing as a basis.

Instruments

The data collection tool evaluated the CPAs' competency in five (5) competency domains— (1) general IT knowledge, (2) general IT control knowledge, (3) user role IT control competencies, (4) assurance provider and evaluator role competencies, and (5) manager role competencies—to determine their level of digital technology. It was modified from the IT Competency Framework for Professional Accountants published by the International Federation of Accountants (IFAC).

Data Analysis

The various agency heads were contacted for authorization by the researcher. The researcher used a hybridized strategy to deliver the questionnaire and retrieve it (primarily web-based). To prevent misunderstandings, they were either physically or virtually instructed about the study's goals. Before collecting data, the respondents' permission was requested. Ethical considerations were observed from every aspect of conducting this research, including but not limited to respondent's voluntary participation, data privacy, risks and benefits and the right to request for the results. The researcher then utilized mean to describe the level of digital technology competency of the Certified Public Accountants (CPAs) in Ilocos Sur.

Ethical Considerations

The collected data were handled in the most transparent manner possible. As a result, after the data has been looked at, assessed, and processed, the survey responses were removed and/or destroyed. Throughout the process of gathering data, analyzing it, and presenting it, the researcher adhered to the ethical standards of research. The respondents' full assent was initially obtained, both physically and digitally, via an informed consent form. The Form further states that neither significant risk nor benefit may be contracted from their voluntary participation. To expand the virtual reach for qualified respondents, the researcher contacted students, acquaintances, coworkers, and local internet forums of accountants. Priority was placed on the rights, security, and overall wellbeing of the participants. Additionally guaranteed were the research participants' right to privacy and a high enough level of data confidentiality. Individual privacy was maintained, and all discussions pertaining to the study were carried out in an honest, open, and transparent way. The names of survey respondents were coded with numbers. Individual respondents' data were treated with extreme privacy, and in order to protect participant identity, only aggregate data from the findings were disclosed, if duly requested.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

The overall mean rating of 3.91 in Table 1 indicates that, when taken as a whole, the level of digital technology competency of Certified Public Accountants in Ilocos Sur along General IT Knowledge is at a "Proficient" level. This might mean that Certified Public Accountants are able to complete activities relating to General IT Knowledge on their own and are recognized within the industry as "the person to ask" when difficult problems concerning this skill come up.

"*Communication"* had the highest mean score of 4.31, or "Expert," in the domain.

Table 1. Summary of the Mean Ratings of the Level of Digital Technology Competency of Certified Public Accountants in Ilocos Sur along General IT Knowledge

GENERAL IT KNOWLEDGE	Mean	Descriptive Rating
Communication	4.31	Expert
Information Technology Architecture	4.25	Expert
Software Development Life Cycle	3.68	Proficient
Management of Information Technology	3.76	Proficient
Information Technology Strategy (IT Governance)	3.79	Proficient
Business Process enablers	3.65	Proficient
Overall	**3.91**	**Proficient**

The capacity to regularly demonstrate competence in employing this skill in one's chosen profession or line of work may suggest that the respondents are capable of raising the level of awareness among their coworkers and external stakeholders. This could occur as a result of Certified Public Accountants' experience using the internet as a medium for communication. This might also indicate that the emphasis on integrating information systems and communication technology into accountants' jobs is a feature of the accounting curriculum.

On the other hand, "*Business Process Enablers*" got the lowest mean rating of 3.65, described as "Proficient". This would suggest that the Certified Public Accountants are capable of attentively and impartially observing the performance indicators thought required to meet the demands of the shareholders, including but not limited to the service quality and other attributes as favored by the shareholders Furthermore, it demonstrates how professionally Certified Public Accountants integrate organizational goals with business processes and how they use control procedures to their fullest and most effective advantage in order to ensure the success of their organizations. This may also suggest that CPAs are capable of integrating IT to address problems with shareholder requirements, business model alignment, and risk assessment.

As shown in Table 2, the mean score for the level of digital technology competency of CPAs in Ilocos Sur along General IT Control Knowledge is 3.64, which indicates a "Proficient" level. This might suggest that CPAs can still complete the duties associated with this skill without assistance. When it comes to handling tasks and activities associated with this skill, CPAs are thought of as key human resource by the organization. They can teach others how to use a skill by describing the complex nuances involved; but, in certain situations, such as when developing risk responses, CPAs merely function as a supporter rather than a leader.

"*Information and Communication in Relation to IT*" got the highest mean rating of 3.85, which is interpreted as "Proficient".

Table 2. Summary of the Mean Ratings of the Level of Digital Technology Competency of Certified Public Accountants in Ilocos Sur along General IT Control Knowledge

GENERAL IT CONTROL KNOWLEDGE	Mean	Descriptive Rating
Internal IT control environment	3.65	Proficient
Setting IT Objectives	3.75	Proficient
Identifying IT risk events	3.62	Proficient
Conducting IT risk assessments	3.41	Proficient
Establishing IT risk response	3.37	Competent
Conducting IT control activities	3.69	Proficient
Information and communication in relation to IT	3.84	Proficient
Monitoring in relation to IT	3.75	Proficient
Overall	**3.64**	**Proficient**

This suggests that Certified Public Accountants (CPAs) are competent to complete successfully and independently the duties of creating and presenting financial reports that satisfy the requirements established by generally accepted accounting principles (GAAP), the Conceptual Framework for Financial Reporting, and the current accounting standards. The results show that CPAs carefully examine information sources to determine its reliability, validity, accuracy, authority, timeliness or relevance, and point of view or bias. Meanwhile, "*Establishing IT Risk Response*" got the lowest mean rating of 3.37, which is interpreted as "Competent". This can be because risk response strategies typically have an impact on time and money. The established reaction plan's duration and cost must thus be as precisely quantified as is practical.

In Table 3, the level of digital technology competency of CPAs in Ilocos Sur along User Role IT Control Competencies is at a "Proficient" level with a mean rating of 3.61. This demonstrates that certified public accountants are competent to do the tasks that are required of them in this competency. The Certified Public Accountants should be able to complete the assignment on their own the most of the time, however occasionally professional assistance may be required.

"Apply Appropriate IT Systems/Tools to Business/Accounting Problems" got the highest mean rating of 3.87, which is interpreted as "Proficient".

Table 3. Summary of the Mean Responses of the Level of Digital Technology Competency of Certified Public Accountants in Ilocos Sur along User Role IT Control Competencies

USER ROLE IT CONTROL COMPETENCIES	Mean	Descriptive Rating
Select suitable control criteria to analyze and evaluate controls	3.48	Proficient
Evaluate the internal IT control environment	3.72	Proficient
Evaluate IT risk assessment	3.57	Proficient
Evaluate the IT control activities	3.53	Proficient
Evaluate the information and communication, monitoring process and taken actions in relation to IT	3.54	Proficient
Apply appropriate IT systems/tools to business / accounting problems	3.87	Proficient
Demonstrate understanding of business and accounting systems	3.56	Proficient
Overall	**3.61**	**Proficient**

However, in this circumstance, online technologies or internet tools are employed to address problems, worries, and obstacles in business and accounting. One of the most crucial factors to take into account when a business is vying for growth and development is its accounting process. Accordingly, "*Select Suitable Control Criteria to Analyze and Evaluate Controls*" came as the one with the lowest mean score of 3.48, which can also be interpreted as "Proficient". This may suggest that Certified Public Accountants are adept at creating a precise benchmark against which to evaluate the effectiveness of controls and that they are great at identifying criteria for addressing the risks that are intended to be mitigated, such as risks to a user entity's internal control over financial reporting.

Per Table 4, the level of digital technology competency of CPAs in Ilocos Sur along Assurance Provider and Evaluator Role Competencies is at a "Proficient" level with a mean rating of 3.50. This shows that Certified Public Accountants (CPAs) are capable of understanding and expressing the application and consequences of process adjustments, as well as performing activities related to the supply of assurance services and assessment responsibilities. To execute these activities with limited and sporadic supervision, though, a little help might be required. Therefore, it must be considered that this skill best defines CPAs with experience in assurance services and external audits.

Table 4. Summary of the Mean Responses of the Level of Digital Technology Competencies of Certified Public Accountants in Ilocos Sur along Assurance Provider and Evaluator Role Competencies

ASSURANCE PROVIDER AND EVALUATOR ROLE COMPETENCIES	Mean	Descriptive Rating
Plan systems evaluation	3.43	Proficient
Evaluate systems	3.56	Proficient
Overall	**3.50**	**Proficient**

"Evaluate Systems" got the highest mean rating of 3.56, while *"Plan Systems Evaluation"* acquired the lower mean rating of 3.43. Both can be interpreted as "Proficient". Comparing the two Items may suggest that CPAs can use their own in-depth situational involvement, recognition of similarity or intuition based on enough prior experience to complete tasks related to providing services as an independent, qualified assurance provider with relevant expertise both in the planning phase and in the implementation phase, and as external auditors of the business occasionally appointed by the business to audit their financial statements. As a consequence, the CPA understands planning systems review instinctively but responds by making more calculated judgments, particularly when analyzing the standards and criteria for audits. The CPA can ignore the even more brilliant intuition that came before and instead credit the calculative features of success in the systems assessment process.

In Table 5, the level of digital technology competency of CPAs in Ilocos Sur along Manager Role Competencies is at a "Proficient" level with a mean rating of 3.43. This illustrates how CPAs demonstrate their skill in financial-related abilities, yet they may occasionally require support in managing certain tasks. Most importantly, the findings suggest that Certified Public Accountants are well qualified to work as efficient and economical project managers and IT administrators.

"Maintain Financial Control Over IT" got the highest mean rating of 3.56, which is interpreted as "Proficient".

Table 5. Summary of the Mean Responses of the Level of Digital Technology Competencies of Certified Public Accountants in Ilocos Sur along Manager Role Competencies

MANAGER ROLE COMPETENCIES	Mean	Descriptive Rating
Manage entity's IT strategy	3.39	Competent
Maintain financial control over IT	3.56	Proficient
Manage systems acquisition, development and implementation	3.38	Competent
Manage systems change and problem management	3.40	Competent
Overall	**3.43**	**Proficient**

By examining a project's financial inflows and outflows to see whether the predicted return reaches a predetermined standard, CPAs are skilled at appraising large projects and investments, such new plants or equipment. All other aspects gained an overall descriptive rating of "Competent" with emphasis to *"Manage Entity's IT Strategy"* having the lowest mean score of 3.39. This means that even though Certified Public Accountants are very knowledgeable about an organization's objectives, problems, and associated IT risks and benefits, recognizing and analyzing them, they might need help developing an IT strategic plan that is connected to the business strategy of the firm.

According to Table 6, the Certified Public Accountants (CPAs) in Ilocos Sur received a grand mean score of 3.62, which is considered to be "Proficient," when it comes to their level of digital technology competency. The mean score for general IT knowledge was the highest, coming in at 3.91, or "Proficient." With the Manager Role Competencies having the lowest mean score of 3.43, the other competency domains receive an overall descriptive grade of "Proficient."

Table 6. Summary of the Mean Responses of the Level of Digital Technology Competency of Certified Public Accountants in Ilocos Sur

SUMMARY	Mean	Descriptive Rating
General IT Knowledge	3.91	Proficient
General IT Control Knowledge	3.64	Proficient
User Role IT Control Competences	3.61	Proficient
Assurance Provider and Evaluator Role Competencies	3.50	Proficient
Manager Role Competencies	3.43	Proficient
Grand Mean	3.62	Proficient

DISCUSSION

The findings in Table 1 concur with those of Li *et al* (2020), who discovered that data anonymity can maintain the security of accounting information and that databases of accounting information have privacy and security issues. Because of this, accountants and their field may create a method for keeping data and information that is safer. Jui and Wong (2013) claim that business accounting specialists help with corporate strategy, offer guidance, and support firms in lowering costs, enhancing their top line, and limiting risks, which results in more accurate financial data that can be used for better business decisions.

According to Table 2, the findings support the hypothesis made in Heagy and Gallum's (1994) study that accountants should be able to identify new system needs, assess computer software and hardware, and generally be able to participate in the design and implementation of new systems. On the other hand, risk responses are often managed by the risk owner, or the person who can best implement the recommended countermeasures (Lavanya & Malarvizhi, 2008).

On the other hand, Table 3 showed that an accounting program may be quite expensive, whether it is created, bought, or rented. However, internet-based accounting software known as cloud accounting may help organizations prevent money wastage (Cameron, 2016).

According to Table 4, CPAs are keeping up with the responsibilities associated with that skill domain and are able to plan actions involving assurance services, which are crucial for risk management and unpredictable business occurrences. As a result, uncertainty may be reduced by letting an impartial expert provide an assurance service, which boosts decision-makers' confidence in the data. In an assurance service, a neutral expert tests the veracity of the material using a number of methodologies and then provides a report on the findings (AICPA Assurance Services Executive Committee, 2013). The independent professional providing the information must gain confidence as a service provider and in the process that they use to convey it in order to provide a service that fosters trust in the information. Simply, these competencies proved to be more suited to Certified Public Accountants that plays a role as an external and independent professional, e.g., external auditor, state auditors, etc.

In Table 5, the results are in line with the research of BDO United Kingdom (2020) stating that financial controls are at the heart of every organization's resource management and operational efficiency. In order to have effective financial control, a company must develop a budget and evaluate performance against it (BDO, 2020). A CPA must have a solid understanding of capital investment analysis and capital planning since IT resources are frequently fix-asset focused and require significant capital expenditures. Additionally, it is pertinent to the claim made by Hofstrand (2016) that CPAs may be fully aware of how each particular firm will compete in its market and industry, and they may contribute to the development

of IT-supported improved business strategies that are crucial to the company's success because they link the company to its markets.

In encapsulation, as Table 6 represents, CPAs have great understanding and appreciable digital technology competency. They are not experts in this field, but nonetheless not definitely way behind. However, at some competency domains, CPAs needs some forms of assistance to accomplish and successfully fulfil the related activity or task. The results pose a great challenge as well as an opportunity for CPAs in Ilocos Sur to expand their competencies and become a full-fledged digital accountant.

CONCLUSION

Based on the findings of the study, the researcher reached the following conclusions, to wit:

1. Certified Public Accountants (CPAs) in Ilocos Sur can accomplish and handle responsibilities and tasks associated with digital technology competency without a lot of assistance;
2. In their own workplace, CPAs can be seen as significant human resources who have a lot to offer an organization in terms of giving real-world examples of IT controls, risks, and benefits, displaying business and accounting systems, managing IT strategies, organizing and analyzing systems, and more.; and,
3. CPAs are capable of managing a variety of digital-related jobs and duties, such as those of IT managers, administrators, or anyone with high-level leadership and governance responsibility.

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