

**ACCOUNTING INFORMATION SYSTEMS USED BY SMALL BUSINESS OWNERS
TO SUPPORT FORECASTING PROFITABILITY**

by

Patricia L. Green-Douglas

FREDA TURNER, PhD, Faculty Mentor and Chair

VANESSA WOOD, EdD, Committee Member

JASON SHEEDY, PhD, Committee Member

Todd C. Wilson, PhD, Dean, School of Business and Technology

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Abstract

Sustaining small companies is an issue that influences the economic development of a country. As of 2019, it is estimated that 59.9 million employees in the United States work for small businesses; however, the average failure rates for these entities are 20% and 49% in the first and fifth years, respectively. Small construction and renovation companies have the highest failure rates in the 1st and 5th years. Some factors that contribute to small business failures include poor financial management, management inconsistency, poor scheduling, and underuse of organizational resources. Research findings revealed a positive relationship between the efficient use of accounting information systems (AIS) and increased organizational performance. Although AIS contributes to enhancing organizational performance, scant literature was available that provided information about how some small successful business owners used the AIS to support financial gains. The purpose of this qualitative single case study was to explore the contributory factors that influence how AIS is used to support forecasting profitability by small construction and renovation business owners in the Northeastern United States. The research question that guided this study was, How do some small construction and renovation business owners in the Northeastern United States use AIS to support forecasting profitability? Data were collected from 12 one-on-one semistructured telephone interviews and two online focus groups. The interviewed participants were small construction and renovation business owners or their designated representatives (chief executive officer, accounting manager, and managers) using AIS for a minimum of 5 years. Three small business owners and nine designated representatives met the inclusion criteria for this study. NVivo®12 was used to perform thematic analysis, which identified the following themes: (a) accounting information quality, (b) strategic decision-making, (c) business performance, and (d) financial gains. The

findings revealed that small business owners used the AIS to document, store, and process accounting information on a project-by-project basis to determine the ability to perform similar jobs, job costing, scheduling timeframe, and financial gains. Accurate documentation of accounting and business information in the AIS was critical to determine profitability, but to conduct forecasting functionalities required the inclusion of an add-on application or the development of an advanced Excel spreadsheet coded with forecasting formulas and functions. The findings of this study may help small business owners, scholars, and researchers understand how to use AIS and supporting programs to maintain long-term operations. Further studies could examine different industries or focus on a separate geographical area.

Dedication

This dissertation is dedicated to my daughter, Zariah Alexandria Douglas, who is my motivation to set an example that the highest accomplishments are attainable despite all circumstances. This dissertation is also dedicated to my mother, Sharon Green; to my sister, Kimberly Faber; to my husband, Ryan Douglas; and to all my family and friends, who supported, motivated, and helped me so I could remain focus during this journey.

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The participants contributed valuable insights that provided meaning to a complex phenomenon and established a basis for further research. The time you all invested and the information you shared is appreciated.

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CHAPTER 1. INTRODUCTION

Introduction

Small companies are essential to the financial growth of a country (Bruwer & Smit, 2015). Maintaining a profitable small business has been of interest to scholars because of the increasing contribution of job opportunities, retainment of cash within the country, and involvement with developing local communities (Hussain, Salia, & Karim, 2018). The United States (U.S.) Small Business Administration defined a small business as a privately-owned company that hires less than 500 employees (Small Business Administration, 2018). The May 2019 SBA profile reported 30.7 million small businesses in the United States that employed approximately 59.9 million employees (Small Business Administration, 2019). These entities represented 39% of the U.S. gross national product (Yallapragada & Bhuiyan, 2011). Esparza-Aguilar, Garcia-Perez-de-Lema, and Durendez (2016) theorized that sustaining small companies add significant value that stabilizes the financial status of a country.

The Bureau of Labor Statistics (2018) reported that the failure rate of small companies averages 20% in the first year, 49.8% in the fifth year, and 70% by the 10th year. Habiba, Azhar, Annuar, and Mastora (2019) acknowledged one concerning area researchers have identified relating to small business owners is the lack of adopting a fully computerized accounting information system (AIS) to capture and process accounting, business, and financial data as a compelling concern for the sustainability of some small business owners. Long-term operation of small businesses may be achievable through efficient AIS implementation to (a) document

business transactions accurately and in a timely manner, (b) access business data using different technology devices from any location, and (c) predict the effectiveness of business health and performance (Allah et al., 2013). The AIS processes and organizes the accounting data and provides detailed information by generating financial statements, which are relevant to assess business performance. The implementation of an appropriate accounting system could assist small business owners in recording business transactions accurately and provide real-time data significant to business success (Bettner, 2018).

Hussain et al. (2018) identified a deficiency in accounting knowledge and practice as a concern in some small businesses. Bruwer and Smit (2015) determined that some small business owners cannot generate sufficient funds to cover business expenses because of poor analytical skills to document and assess accounting records. Some small business owners lack basic knowledge of accounting principles, which are the guidelines for documenting business transactions and for preparing financial statements (Esparza-Aguilar et al., 2016). Uyar, Gungormus, and Kuzey (2017) stated that some small business owners lack efficient accounting systems and bookkeeping practices to process accounting transactions accurately, promptly, and perform financial calculations to determine the financial health of the business. These accounting practices must maintain the long-term operation of the company (Bruwer & Smit). According to Esparza-Aguilar et al., a successful small business owner maintains proper accounting records that are significant to the decision-making process. Therefore, a need exists to explore the processes and contributory factors that influence how successful small business owners use AIS to capture and process business data, which is relevant to estimate financial gains and sustain company operation.

Chapter 1 includes foundational content based on the works of scholars, highlighting transitional struggles small business owners encounter, and the value of AIS to assess business performance and contribute to strategic decision-making. The business problem, research purpose, rationale, and significance provide content to increase understanding about the relevance of AIS on forecasting profitability. The research question establishes the basis for obtaining responses to address a gap in accounting practice and in the extant literature regarding how AIS is used to support financial gains estimation. The knowledge acquired from this study might help small business owners, practitioners, and academicians with insights of a computerized accounting system used to record transactional data needed to forecast profitability. The theoretical framework is expected to identify contingency factors that align with predicting profitability and the use of AIS to process financial information.

Background

The ability to sustain small business profitability has been a business problem studied profusely by practitioners, scholars, and academicians. Various empirical studies identified some factors that caused small business failure as management incompetency (Bushe, 2019), budgeting and financial management issues (Abdul-Rahamon & Adejare, 2014; Bruwer & Smit, 2015; Shahhossein, Afshar, & Amiri, 2018), little to no long-term operational focus (Esparza-Aguilar et al., 2016), and underuse of organizational resources (Lussier & Hyder, 2016). Allah et al. (2013); Baykara, Demir, and Yaman (2015); Prasad and Green (2015) recommended solutions to maintain long-term (more than 5 years) small business operations by ensuring continuous profitability and strategic decisions are implemented. Devising strategies and efficient use of organizational resources that maintain profits through the increase in revenue and

reduction in cost is significant to long-term business operation (Bukanya, 2014). Therefore, the development in technology influenced the accounting profession requiring the use of computerized systems that store and process financial information in real-time necessary to assess economic performance (Christauskas & Miseviciene, 2012).

Prasad and Green (2015) defined AIS as accounting systems designed to gather, process, store, maintain, and control accounting and business data to generate financial statements used to inform management about the financial health and performance of the company. The use of AIS is vital for managing and implementing internal control systems that align with the fundamental principles of the company (Prasad & Green, 2015). Small business owners can use an accounting system to structure rules and procedures to ensure the reliability of accounting and financial reporting and operational efficiency (Yallapragada & Bhuiyan, 2011). Table 1 depicts an overview of the main functions performed by an accounting system to process transactional data for assessing the business performance (Christauskas & Miseviciene, 2012).

Table 1

Main Functions of an Accounting System

Functions	Explanation
Collect and store transactional data	The accounting system documents and stores daily business activities and financial transactions. Information captured from source documents is processed based on the format of the accounting cycle implemented by the company.
Provide information	Preparing a log of daily transactions allows access to valuable information regarding the business operation necessary for management decision-making.
Provide control	Data processed follows set accounting principles that maintain prescribed regulations as observed by the financial reporting policies.
Forecast future activities	Some accounting systems can provide information based on predictive analysis to determine the future position of the company.

Note. Created based on the accounting system functionalities used to process transactional data (Christauskas & Miseviciene, 2012).

Bruwer and Smit (2015) concluded that establishing efficient AIS practices are essential for monitoring financial information, which provides business owners with accurate and timely content required to identify fraudulent acts, make decisions, and design strategic plans to advance the business operations.

Before the 1800s, accountants and business owners recorded financial information using paper-based journals, ledgers, worksheets, or traditional databases (Wilkinson, 2013). Scholars and practitioners reported issues with traditional accounting data collection related to the timeliness of financial reports and human errors in preparing the financial data (Wallman, 1996). Although significant for developing the accounting process, traditional accounting data collections are insufficient for gathering useful information for managerial decision-making in an evolving industry (Abdul-Rahamon & Adejare, 2014). Small business owners operate in a technologically advanced environment, which affords easy access to industry trends, expertise, and innovative ideas required to maximize growth opportunities (Bruwer & Smit, 2015). Therefore, business owners seek to understand accounting principles and practices necessary to forecast profitability with the potential to increase survival rate, maximize investment options, and expand operations (Uyar et al., 2017).

According to Brecht and Martin (1996), the evolution of information technologies impacted the development of commerce, thereby creating a demand for business owners to implement accounting systems that provided accurate and timely accounting and financial information. Although significant to increase business performance, small business owners struggle with using AIS to advance long-term growth opportunities beneficial to employees, the community, the business, and the country in which they operate (Bruwer & Smit, 2015).

Esparza-Aguilar et al. (2016) reported that some small business owners maintained a less formalized management control system (MCS) and underused AIS for decision-making. According to Prasad and Green (2015), rapid changes in the business environment signal the need for continual improvement and management of AIS to optimize business performance. Prasad and Green (2015) stated that operating in a complex environment requires the use of modernized AIS that captures and communicates accurate real-time accounting and financial data by (a) recording daily business transactions, (b) producing financial statements to analyze the financial position of the company, and (c) managing the operation of the business to prepare for the complexities of the external environment.

Optimal use of the appropriate AIS to process financial information for forecasting profitability in small businesses has not been widely researched (Esparza-Aguilar et al., 2016). Scholars and practitioners are challenged with determining whether computerized accounting systems are a value-added phenomenon worth the investment cost to improve business performance or seek alternative management information systems (Bruwer & Smit, 2015). Although Bruwer and Smit (2015) and Esparza-Aguilar et al. (2016) documented a connection between AIS and increase business performance, the small business sustainability rate decreases annually in the United States (SBA Office of Advocacy, 2018; Yallapragada & Bhuiyan, 2011). According to Angonese and Lavarda (2014), the cost-benefit principle, relevance principle, small business regulations, and owners' perception are some factors influencing the decision to invest in an AIS. However, to forecast profitability small business owners can implement a management system that provides accurate and timely financial information to make strategic decisions (Dearman, Lechner, & Shanklin, 2018).

Business Problem

Small business owners contribute to the economy by providing job opportunities to employees who share knowledge and innovative ideas to support continuous growth (Abdul-Rahamon & Adejare, 2014). Approximately 99% of employing entities in the United States are owned and operated by small business owners (Small Business Administration, 2018). The contributions of small businesses are fundamental to economic growth; however, some of these entities fail to sustain operations for more than 5 years (Bruwer & Smit, 2015). The Bureau of Labor Statistics documented U.S. small business failure rate within the first year averages 20%, 49.8% in the fifth year, and 70% by the 10th year (Bureau of Labor Statistics, 2018). Bruwer and Smit attributed some small business failure to owners underusing decision-making tools to generate relevant, reliable, and recent information. Uyar et al. (2017) stated that inadequate accounting systems and poor bookkeeping practices might be one reason some small businesses fail. According to Esparza-Aguilar et al. (2016), the lack of comprehensive accounting knowledge and practices deters the transmission of financial data relevant to control management decisions.

The U.S. Census Bureau (2015) reported that only 36.4% of small construction and renovation business owners sustain operation for 5 years. Additionally, the construction industry has the lowest sustainability rate based on the 2014 census (Bureau of Labor Statistics, 2018). According to Gonzalez, Gonzalez, Molenaar, and Orozco (2014), some small construction and renovation business owners cannot accurately budget and schedule projects. Approximately 85% of projects fail, with 28% because of poor accounting and financial management, which results in increased cost and budget overruns (Cullen & Parker, 2015). The general business problem is

that underusing AIS in some small businesses may result in the inability to forecast financial status for sustainability (Bruwer & Smit, 2015; Esparza-Aguilar et al., 2016). The specific business problem is that some small construction and renovation business owners underuse AIS to support forecasting profitability, which influences the sustainability of these entities. Understanding, implementing, and using financial and managerial tools might contribute to viable business information, which enhances long-term profitability. An AIS might be a tool for processing transactional information to minimize business failure. A small business owner's ability to accurately document accounting data so that accounting managers can predict profitability is significant in expanding business operations, increasing the survival rate, maintaining competitive advantage, and improving financial stability (Esparza-Aguilar et al., 2016; Prasad & Green, 2015).

Research Purpose

The purpose of this qualitative single case study was to explore the contributory factors that determine how AIS is used to support forecasting profitability by small construction and renovation business owners in the Northeastern United States. The qualitative single case study methodological design allows the exploration of a complex phenomenon within natural setting with little to no manipulation by the researcher (Yin, 2018). According to Baxter and Jack (2008), the case study approach is significant for answering *how* and *why* research questions and used to uncover contextual conditions on a phenomenon that is understudied. Small business profitability is a going concern that has been extensively studied to reveal factors that causes business failures and organizational resources that contribute to company success. However, scant literature document how companies in operation for more than 5 years and generate profits

use organizational resources to support continuous financial gains in a volatile market. This study contributed to the body of knowledge regarding how AIS is used by small business owners to support profitability forecast, which was understudied in previous literature.

Prasad and Green (2015) determined that small business owners who implemented a computerized AIS that complements the managerial competencies reported increase in organizational performance. Diavastis, Anagnostopoulou, Drogalas, and Karagiorgos (2016) concluded that the use of an accounting system has a positive influence on economic performance; however, management needs to implement an automated AIS that produces relevant financial information applicable to the operation of the business. Bruwer and Smit (2015) emphasized the value-added contribution of implementing applicable AIS practices pertinent to the decision-making process. Scholars supported the implementation of AIS to assess small businesses financials; but, noted the need for some small business owners to use all the applicable functionalities of the system to improve performance and decision-making (Bruwer & Smit, 2015; Esparza-Aguilar et al., 2016; Uyar et al., 2017).

Although Mia (2017) documented that an applicable AIS is significant for improving business sustainability and performance, there are some contributory factors that determine how an accounting system is used in the small business to enhance continuous profits. Diavastis et al. (2016) noted significant relationships between efficient use of organizational resources and internal control to safeguard accounting information, generate financial statements to analyze the financial position of the business, and implement procedures to control cash inflows and outflows. Uyar et al. (2017) noted the value of keeping adequate accounting records to document, monitor, and track daily transactions to sustain the operation of the business. Some

business owners lack establishing internal reporting, controlling, and monitoring practices, using the appropriate management tools while seeking to maximize growth opportunities (Uyar et al., 2017). Esparza-Aguilar et al. (2016) emphasized the significance of developing fundamental accounting and managerial skills required to efficiently and effectively use computerized AIS to analyze accounting information to determine future business growth. Therefore, small business owners seeking to improve operation may benefit from this research to understand how AIS is used to help estimate economic status and make strategic business decisions.

Research Question

The U.S. Census Bureau (2015) reported that only 36.4% of small construction and renovation business owners sustain operation for 5 years. The construction and renovation sector had the highest failure rate within the first and fifth years (Bureau of Labor Statistics, 2018). According to Gonzalez et al. (2014), some small construction and renovation business owners cannot accurately budget and schedule projects. Shahhossein et al. (2018) research findings indicated financial concerns regarding budgets for bidding projects as a major issue that caused small construction and renovation company failure. Mia (2017) recommended the use of accounting systems that support organizational objectives as one solution to prevent small business failure. The need to improve profitability in small companies through efficient use of organizational resources derived the research question. The research question that guided this study was, How do some small construction and renovation business owners in the Northeastern United States use AIS to support forecasting profitability?

Rationale

Hart (2017) emphasized that the advancement in information and communication technology created significant changes to document, control, and monitor accounting information. Cloud-based AIS disrupted the accounting industry as accountants and business owners can share accounting and financial information in real-time (Asatiani & Penttinen, 2015). However, Prasad and Green (2015) posited that AIS used in small businesses are not upgraded to reflect a changing environment significant to transaction processing, information reporting, and management of the control environment. Mia (2017) encouraged small business owners to use appropriate accounting tools to generate accurate and real-time accounting information to aid with managing financial resources and forecasting profitability.

Some small business owners underuse accounting systems to generate accounting information, which has an apparent effect on measuring business health (Allah et al., 2013). Mia (2017) suggested that AIS are accounting tools efficient for maintaining and processing financial information. However, based on research findings, some small business owners lack the implementation of AIS to manage cash flows and collect real-time information necessary for growth opportunities to advance in the volatile market (Mia, 2017). Patel (2015) examined the effectiveness of AIS practices and concluded that the use of accounting systems provided financial information relevant to increase economic gains. Small business owners and accountants are encouraged to develop the appropriate competencies to maximize the offerings of an AIS to enhance firm performance (Asatiani & Penttinen, 2015).

Allah et al. (2013) attested that accounting systems are relevant to the business operation, but some small business owners still struggle to improve business performance, profitability,

solvency, and generate funds for growth. According to Allah et al. some small business owners use a manual AIS that requires manual calculations of accounting information, which can be susceptible to human error. Muhindo, Mzuza, and Zhou (2014) emphasized that a computerized AIS compatible with business operations enables the company to manage valuable resources (accounting, business, and financial information). Small business owners should use AIS to provide affordable, comprehensive solutions for managing the entire business operation (Allah et al.). Allah et al. suggested that small business owners invest in a computerized AIS to provide stakeholders with real-time accounting information applicable to the decision-making process. According to Esparza-Aguilar et al. (2016), the lack of accounting practices hinder the managerial process required to make final decisions about business health and performance. An efficient AIS is useful in the decision-making process by improving the quality of financial reports and enhancing small business performance measures (Patel, 2015).

Conceptual Framework

The use of an appropriate AIS could provide small business owners with accurate accounting and financial information to make strategic decisions regarding growth, profitability, and sustainability (Patel, 2015). However, how small business owners use the AIS are based on specific factors that affect decisions regarding the operation of the business. The contingency theory of management accounting (CTMA) was used to identify factors that influence the decision-making process and the use of AIS to analyze the performance and ability of a firm to generate profits in a complex environment (Al-Eqab & Ismail, 2011; Kalkhouran, Rasid, Sofian, & Nedaei, 2015). The conceptual framework for this study is the CTMA, as the researcher

intends to explore how small business owners use AIS to support forecasting profitability (see Figure 1).

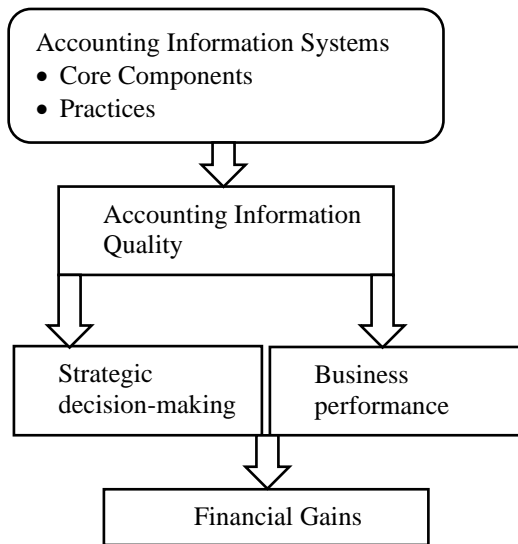


Figure 1. Conceptual framework of AIS to support forecasting profitability.

Otley (1980) applied the concepts of CTMA to the accounting literature during the mid-1970s and viewed the framework as insufficient to address organizational control and effectiveness. The reason for this Leite, Fernandes, and Leite (2016) emphasized that developers of the original CTMA model did not take into consideration various factors, like technology, big data, and the demand for better quality that created changes in the business environment. According to Gong and Tse (2009), the CTMA could provide a framework for business owners to identify specific aspects of the accounting system and implement appropriate strategies to address the circumstance. Otley (1980) developed an improved CTMA to emphasize that management AIS are not standard for every organization and require amendments based on the business situation. The design of an AIS should align with specified contingencies to provide a holistic development of the business (Otley, 1980).

Business owners can implement viable accounting systems that align with the contingency factors of the company to estimate profitable options (Al-Eqab & Ismail, 2011). Gong and Tse (2009) listed the following contingency factors that affect implementing an AIS to generate accounting information for decision-making (a) organizational size, (b) technology, (c) demand for quality, (d) culture, and (e) owner's accounting competency. The use of AIS by some small business owners may be conditional on different characteristics and attributes of the owners, environmental factors, and the goal of the company. Operating in an innovative-driven market requires small business owners to use accurate accounting and financial information to adjust to changes, implement new strategic plans, and maintain long-term operational and financial stability. Gong and Tse (2009) stated that researchers use the CTMA to understand the alignment between accounting systems and contributory factors associated with the organization to achieve an outcome.

Significance

Although deemed a concern by various authors, the ability to use accounting systems to support forecasting profitability is a complex phenomenon that requires in depth understanding (Esmeray, 2016). The data from this study may add insights that small business owners might find helpful to improve profitability by using the computerized accounting system for recording business transactions relevant to decision-making and assessing business financial performance effectively. Approximately 99% of employing entities in the United States are owned and operated by small business owners (Small Business Administration, 2018). Approximately 36.4% of small construction and renovation business owners sustain operation for 5 years (U.S. Census Bureau, 2015). The growth, performance, and longevity of these entities are significant

to the U.S. economy, specifically to decrease poverty and unemployment rates (Yallapragada & Bhuiyan, 2011). Based on the contributory factors of small businesses to the U.S. economy, additional scholarly and practitioner research is needed to explore how AIS is used by successful business owners to support forecasting profitability. Bruwer and Smit (2015), Esparza-Aguilar et al. (2016) identified AIS as an efficient accounting tool to generate financial information significant to small businesses decision-making. Although Bruwer and Smit (2015) explored the value-adding phenomenon of AIS practices, Mia (2017) stated that some small business owners struggle with implementing a suitable AIS to generate real-time accounting and financial information.

Bruwer and Smit (2015) stated that the inability of some small business owners to use accounting and financial information to make crucial decisions regarding forecasting profitability impedes optimal business performance. Although scholars and practitioners examined the implementation of management accounting tools and practices to improve business performance (Allah et al., 2013; Bruwer & Smit, 2015; Esparza-Aguilar et al., 2016), literature regarding how AIS is used to generate and process financial data to forecast profitability is scant. This research is significant to provide insights, based on the knowledge and expertise of successful small business owners and their designated representatives regarding how AIS is used to support financial stability.

Estimating profitability is significant to maintain and expand small business operations over a long period (Mia, 2017). Investors, creditors, small business owners, academicians, and practitioners use profitability ratios (profit margin, return on assets, return on investment, and return on equity) to measure the efficiency of the company to use assets to generate earnings

(Mia, 2017). The content presented in this dissertation may benefit small business owners by providing information regarding the optimal use of AIS to generate accounting and financial information to make strategic decisions regarding current and future operations. Scholars might further develop findings from this dissertation by applying the study results to current trend issues affecting small business growth. Practitioners can use this information to encourage the development of dynamic AIS that caters to the specific operation of the business.

Definition of Terms

Accounting information systems (AIS) practices. AIS practices are a set of internal control principles established to govern, monitor, and process daily transactions of a business (Roberts & Scapens, 1985).

Business performance. Business performance is the progress analysis of the company during a period and the ability to maintain long-term operation (Diavastis et al., 2016).

Financial data. Financial data are a set of quantitative information regarding the economic health and performance of a business (Patel, 2015).

Profitability. Profitability is the ability to generate profits (revenues minus expenses) consistently for an extended period (Mia, 2017).

Assumptions and Limitations

Assumptions

Assumptions are a researcher's belief about a phenomenon that may not be substantiated (Creswell, 2007). Assumptions are essential for developing evidence and drawing conclusions. Assumptions included that all willing participants and designated representatives (chief executive officer, managers, and accounting managers) answered the interview questions

honestly, and each participant and designated representative has successfully implemented and used an AIS within a business that has sustained operation for more than 5 years. The findings of this study may be applicable for understanding AIS significant to support forecasting profitability in other small construction and renovation companies in other locations. Finally, it was assumed that small construction and renovation business owners and their designated representatives in the Northeastern United States would be willing to participate in the research and contribute information to help address the research question.

Limitations

Limitations in a research study refer to those factors out of the researcher's control that might weaken the study (Cooper & Schindler, 2014). Limitations may remain the same during the study or modified as the study develops. First, small construction and renovation business owners and their designated representatives were reluctant to disclose the business processes used to efficiently operate an AIS to support forecasting profitability. Business processes are sometimes deemed sensitive data and could indicate the financial status of a company (Abdul-Rahamon & Adejare, 2014). Second, this study was a qualitative case; hence data were obtained from small business owners and designated representatives operating in the construction and renovation sector located in the Northeastern United States, and the data may not be appropriate to other industries. Third, the data collection methods were one-on-one telephone interviews and online focus groups. Hence, the data collected was based on the knowledge and experience of the research participants. Fourth, while some small business owners may be using AIS strategies, they contract their accounting work to professional accountants; therefore, experienced minor difficulties responding to the interview questions. Finally, qualitative research findings are not

generalizable; consequently, the results of this study cannot be transferred to any other small business owner.

Organization for Remainder of Study

Some small business owners underuse accounting tools to forecast organizational health and profitability (Bruwer & Smit, 2015; Esparza-Aguilar et al., 2016). The ability to predict business activities that yield financial gains is significant to maintain the long-term operation of small businesses. The researcher explored information regarding how AIS is used to support forecasting profitability. Chapter 1 included the business problem and relevance of the study by presenting background information, the purpose of the research, the research question, an overview of the conceptual framework, and the significance of the study. Chapter 2 includes a review of scholarly and professional studies related to the AIS used by small business owners to assess financial health. Chapter 3 focuses the methodological approach and design used in the research process to obtain information significant to address the research question. Chapter 4 presents an analysis of the findings obtained by interviewing the participants and conducting the focus groups. Finally, Chapter 5 provides a discussion of the results, conclusion, and the need for further studies and recommendations to extend the body of knowledge.

CHAPTER 2. LITERATURE REVIEW

Introduction

Hyder and Lussier (2016) identified financial issues related to budgeting, capital inflows, asset management, and business planning as major factors that caused small business failure. Mia (2017) recommended the use of accounting information systems (AIS) to document, store, and process accurate accounting information necessary to provide financial statements used to assess the business performance as one solution to reduce small business failure rate. The purpose of this qualitative single case study was to explore the contributory factors that determine how AIS is used to support forecasting profitability by small construction and renovation business owners in the Northeastern United States. Chapter 2, literature review, provided an assessment and examination of previous scholarly works about the contributory factors that influence the use of AIS to support continuous financial gains in small businesses.

The first section of the literature review explored the conceptual foundation of AIS with an analysis of different frameworks used as the basis for developing accounting practices. Based on primary literature, an extensive review is provided documenting the challenges with management theories, which led to the evolution of the CTMA. An in-depth analysis of management theories was necessary to provide knowledge regarding the formulation of CTMA after critical reviews of primary management approaches to determine the need for a framework that applied to a continually changing business environment. Other sections of Chapter 2 focused on the seminal and core literature, major themes, overview of research methodologies, synthesis of the research findings and conclusions.

Methods of Searching

Different methods were used to locate supporting literature for this research study. Some of the databases located at the Capella University Library used in the review of the literature were (a) Business Source Complete, (b) EBSCOhost, (c) ProQuest Central, and (d) Science Direct. Google Scholar was used to search for additional literature regarding this study. The supporting literature sources included peer-reviewed journals, government data, and trade articles published within the last 10 years. The review of accounting, finance, management, and small business journals provided the framework for understanding the contexts relevant to this research. Accounting information systems, profitability, forecast, accounting information, small business performance, organizational resources, and accounting system practices were search words used to identify relevant articles and content for this study. Google search was performed to identify articles published on secondary databases regarding AIS and organizational performance and small business forecasting profitability.

Conceptual Foundation for the Study

Researchers applied various conceptual concepts and models to explain the effectiveness of the design and use of AIS to (a) analyze small business operation, (b) assist with management decision-making, (c) evaluate company operations in terms of environmental changes and competitive advances, and (d) process accounting and financial data to predict business performance (Chenhall, 2003). Some conceptual contexts applied to AIS research include the contingency theory, dynamic capabilities framework, general living systems theory, and the waterfall model. The conceptual contexts used to understand AIS were developed through management control systems (MCS) theories, which have been heavily criticized over the years

(Luthans, 1973). Luthans and Stewart (1977) identified limitations of MCS theories to explain organizational behaviors in an innovative market. Despite the critical review of management theories used to interpret small business performance, strategized decision-making, and analyze the value-relevance of AIS, it is vital for small business owners to understand how different factors such as organizational resources, environmental factors, human behavior, competition, innovation, and technological advancements affect long-term operation. Therefore, Haynes (1977), Luthans and Stewart (1977), Otley (1980) attempted to create conceptual frameworks, based on organizational and managerial problems, to understand organizational behaviors significant to the management decision-making process.

Contingency Theory

The contingency theory was developed through the work of two Ohio State University researchers in the 1950s to explain that in a continually changing environment there are various factors influencing business performance and there is no universally appropriate method to approach a situation (Luthans, 1973). Researchers argued that existing management theories lacked the situational approach that provided better directives for management on how to manage organizational issues relevant to the decision-making process (Luthans, 1973). Based on this premise, Fiedler (1967) applied the contingency theory to leadership, noting that an effective leader can adjust his or her leadership style to accommodate various circumstances. The method focused on the leader's situational control of three elements (a) task structure, (b) leader or member relations, and (c) positioning power (Fiedler, 1967). The contingency theory served as the lens through which leadership research addressed organizational issues related to guiding human resources to conduct assigned tasks to meet company objectives.

Accounting researchers implemented the contingency theory to management accounting (CTMA) systems requiring the identification of contextual variables that could potentially affect the design of an effective structure (Chenhall, 2003). Otley (1980) developed the CTMA based on organizational control and effectiveness relevant to AIS. The central focus of this theory is that management accounting is contingent on a variety of factors that affect the effective use of organizational resources for decision-making and assessment of business performance.

Dynamic Capabilities Framework

Prasad and Green (2015) used the dynamic capabilities framework to examine how organizational competencies can create productive performance results through proficient mastery of AIS. The dynamic capabilities framework developed by Teece, Pisano, and Shuen (1997) related to management's ability to build, integrate, and reconfigure organizational (internal and external) competencies and to effectively use a complementary MCS in a rapidly changing business environment. Emphasis was placed on the efficient and prompt use of operational resources to produce beneficial results in a continually evolving environment (Teece, 2007). Eisenhardt and Martin (2000), Henri (2006), Powell and Dent-Micallef (1999) deemed the dynamic capabilities framework significant to the design of an AIS that captures, processes, and stores accurate accounting information reflective of the business operation so management can make informed and profitable decisions.

General Living Systems Theory

The general living systems theory (GLST) developed by Miller (1978) related to the existence of living systems and the subcomponents that formulate the structure. The GLST researcher Miller (1978) provided a detailed analysis of the different levels of living systems and

the associated subsystems that execute essential life processes. According to Swanson and Miller (1986), the integration of accounting and managerial functions required a conceptual framework that examined management roles concerning the entire corporate and societal system. The theory deemed significant to guide the accounting systems research process because AIS is viewed as a subset of the information processing subsystem (Swanson & Miller, 1986). Furthermore, Swanson et al. argued that the GLST is relevant for analyzing company operations by focusing on the concrete realities of business and societal functions significant to assist business owners and accountants use accounting tools to evaluate business performance.

The Waterfall Model

The waterfall model was primarily applied to the manufacturing and construction industries, especially in software development, in a linear sequential downward flow of activities to attain the intended outcome (Sularto, 2016). Software developers designed systems by following a rigid top-down method based on a sample model (Royce, 1970). Royce (1970) developed a modified version of the waterfall model, which required that advancement to another phase was only practicable when the preceding step was completed and verified. Sularto (2016) recommended that the waterfall model was valuable in developing AIS because of the structured developmental stages necessary to construct the ideal system that complements the operation of the company. Designing an AIS following a sequential order allows for insights into problems and incompatibilities with the management objectives (Sularto, 2016). Teece (2007) concluded that the real-time information obtained from the sequential development of the AIS provided developers with immediate information to improve the system and thereby meet the interests of management.

In previous studies of management accounting systems, researchers applied various conceptual frameworks to evaluate the value-adding phenomena of AIS to understand, examine, and predict organizational performance (Otley, 2016). The theory that seemed appropriate to explore how small business owners use AIS to support forecasting profitability is the CTMA. The CTMA can be used to represent how small business owner's ability to predict profitability is contingent on the effective use of the appropriate AIS to document, monitor, and process transactional data to aid management with making significant decisions and assessing business financial performance.

Contingency Theory of Management Accounting

Theorists in the 19th century formulated various conflicting managerial approaches that failed to provide management with a clear understanding of organizational operations (Luthans, 1973). According to Luthans and Stewart (1977), the management theories contained opposing assumptions and constructs that did not adequately prepare business owners to function effectively in a demanding and competitive environment. Koontz (1961) noted that management theories differed broadly, often focusing on a single operational area; therefore, they would be unable to formulate a clear conceptual framework that explained the functions of the business in different situations. Luthans (1973) referred to management conceptual approaches as a *jungle* of theories with no one approach being capable of addressing every organizational challenge. Researchers identified a gap in management theories based on inefficiencies to address situational factors that affected the business functions (Gordon & Miller, 1976; Koontz, 1961; Luthans, 1973; Luthans & Stewart, 1977). Koontz (1961) insisted that management theories were valuable; however, business owners had trouble in implementing the appropriate tools to

evaluate situational factors that influence organizational behavior. The limitations of management theories required the development of a conceptual framework that emphasized the effects of situational factors on different business functions and circumstances. Table 2 provides an overview of seminal and core works contributing to the development of CTMA.

Table 2

Overview of the Seminal and Core Literature on CTMA

Author and Year	Title	Journal
H. Koontz (1961)	The Management Theory Jungle	<i>The Journal of the Academy of Management</i>
F. Luthans (1973)	The Contingency Theory of Management	<i>Business Horizons</i>
L. A. Gordon and D. Miller (1976)	A Contingency Framework for the Design of Accounting Information Systems	<i>Accounting, Organizations and Society</i>
D. C. Haynes (1977)	The Contingency Theory of Managerial Accounting	<i>The Accounting Review</i>
F. Luthans and T. I. Stewart (1977)	A General Contingency Theory of Management	<i>Academy of Management Review</i>
J. H. Waterhouse and P. Tiessen (1978)	The Contingency Theory of Managerial Accounting: A Comment	<i>The Accounting Review</i>
D. T. Otley (1980)	The Contingency Framework of Management Accounting: Achievement and Prognosis	<i>Readings in Accounting for Management Control</i>
R. H. Chenhall (2003)	Management Control Systems Design within its Organizational Context: Findings from Contingency-Based Research and Directions for the Future	<i>Accounting, Organizations and Society</i>
M. Al-Eqab and N. A. Ismail (2011)	Contingency Factors and Accounting Information Systems Design in Jordanian Companies	<i>IBIMA Business Review</i>
D. T. Otley (2016)	The Contingency Theory of Management Accounting and Control: 1980-2014	<i>Management Accounting Research</i>

The organizational structure of a business model is influenced by several internal and external situational variables (Gordon & Miller, 1976). Variables such as advances in

technology, the size of the organization, costs, and environmental situations affect managing the business operation, the leadership approach, and the decision-making process (Donaldson, 1999). Luthans and Stewart (1977) concluded that the intensification of situational influences affected business operation requiring business owners to use organizational resources effectively to aid in the decision-making process. The contingency theory was deemed appropriate based on the necessary changes needed by management to accommodate situational factors. Researchers such as Fiedler (1967), Haynes (1977), Luthans and Stewart (1977), Otley (1980), and Weill and Olson (1989) applied the contingency theory to understand and explain the situational and contributory factors that may affect different business functions. Fiedler (1967), Otley (2016) implemented the contingency theory and derived a unified conclusion that there is no best way to handle uncertainties that affect business operation. Significant to achieving organizational goals requires (a) flexibility to changes, (b) strategic planning, and (c) use of appropriate accounting systems to understand and evaluate business performance (Ginsberg & Venkatraman, 1985). Gordon and Miller (1976) inferred that the contingency theory was relevant for accounting research as the focus includes environmental elements, organizational attributes, contributory factors, and managerial decision-making styles necessary to examine business performance and forecast financial gains.

Development of the Contingency Theory of Management Accounting

During the mid-1970s, accounting researchers implemented the contingency theory to understand various factors that influenced budgetary control (Otley, 2016). Accounting and financial information are critical for evaluating business performance and control approaches, which are essential in the management decision-making process (Purswani & Anuradha, 2017).

Haynes (1977) explained that obtaining accurate and relevant accounting data is contingent on various situational factors (environmental, organizational, economic, and governmental) affecting the subunits of the company. The empirical works of Chenhall (2003), Gordon and Miller (1976), Otley (1980), and Woodward (1965) emphasized that the variable nature of contingencies may require a change in organizational structure and management processes. Understanding the effects of contingency factors became essential to accounting research, as emphasized by Gordon and Miller (1976), who advocated developing accounting systems that are flexible to adapt to situational factors and capable of producing accurate financial data. According to Odar, Kavcic, and Jerman (2015), the implementation of an appropriate management accounting system is necessary for predicting economic gains, maintaining the long-term operation of the business, and successfully operate in a competitive and innovative market. Small business owners require knowledge about specific situational, contributory, and organizational factors to implement the appropriate computerized AIS to gather accounting and financial information beneficial to sustaining operation.

Management accounting researchers developed the CTMA; however, theorists criticized the theory because of the narrow and inflexible view portrayed regarding accounting information (Gordon & Miller, 1976). Haynes (1977) argued that accounting information not only represents financially quantifiable data but also includes content relevant for management decision-making regarding various elements of the organization's hierarchy. In addition to the limited representation of the value of accounting information, Waterhouse and Tiessen (1978) challenged the contribution of CTMA and the applicability to management accounting citing limited conceptual developments to determine the link between causal variables and

organizational behavior. Further development of the CTMA was required to accommodate the various situational and contributory factors that may affect the efficient use of an appropriate AIS to capture valuable accounting data. Haynes (1977) inferred that the continuous growth in business operation and significance of accounting information needed a reorientation of the contingency approach relevant to accounting research.

Otley (1980) redefined the CTMA based on the contingency variables that affected the design and use of AIS to process transactional data to analyze business performance. The focal point of Otley's study was that there is no universally appropriate accounting system, which applies to all circumstances that affect the business. The work of Haldma and Laats (2002) demonstrated that changes in cost, management practices, technology, and organizational aspects are some factors that affected the organizational structure and may require the use of an accounting system capable of adapting to these modifications. Chenhall (2003) theorized that the significance of identifying contextual variables (environment, technology, structure, size, and design of AIS) is essential for management to understand the impact on business performance. The findings of Gul (2012) indicated that environmental uncertainties affected management accounting systems on small business performance. Developing knowledge regarding contingency variables that can influence the organizational structure is significant for management to select the appropriate AIS beneficial to the decision-making process.

Review of Literature

One challenging task small business owners face is implementing a computerized AIS that match the individual needs of the company (Johnston, 2003). Bechor, Neumann, Zviran, and Glezer (2010) postulated that this challenge is because of owners operating in uncertain

environments that require forward-thinking strategic plans and effective use of existing organizational resources. Practitioners and researchers in accounting consider the need for understanding the contingency variables that can affect the efficient use of accounting systems to analyze business performance and forecast profitability (Abba, Yahaya, & Suleiman, 2018). Small business owners rely on accurate financial data to make decisions regarding the operation of the business. The appropriate AIS best practices are required based on situational, contributory, and organizational factors to develop the specific nature of the company.

Small business owners appreciate an AIS that is explicitly designed to meet the needs of the company to produce relevant information essential to the decision-making process (Al-Eqab & Ismail, 2011). The recommended design for an accounting system is one that is adaptable and flexible to meet specific organizational circumstances (Odar et al., 2015). Chenhall and Morris (1986) determined that the implementation of a computerized AIS is affected by corporate and individual variables. The work of Choe (1998) demonstrated that different situational and organizational factors influence the usage level of AIS. Daoud and Triki (2013) studied the effects of certain contingency variables (the respective roles of managers, relevance of accounting information, contribution to the assessment of business performance, external computer experts, and accounting staff competency) and noted that these variables impact the adoption of the particular AIS used to analyze small business performance. The dynamic and uncertain nature of the commercial environment today requires small business owners to implement an effective AIS to acquire relevant accounting and financial data.

Seminal Literature/Core Literature/Major Themes

This section provides information that relates to the major theme identified through a review of literature relating to AIS and forecasting profitability. The conceptual themes explored were accounting information quality, strategic decision-making, business performance, and financial gains. After the review of primary literature that pioneered the works in developing and assessing CTMA, the analysis of seminal and core literature provided an understanding of accounting information relevance. A detailed overview of the process to document accounting information is provided based on academic teachings and practices of accounting professionals. Included in the study, is an evaluation of accounting information in small businesses, the challenges, and value-relevance to the decision-making process and analyzing business performance.

Based on the advancements that affect operating a business, the literature provided information geared toward the developments of AIS and the effect on small business owners decision-making process and performance analysis. Essential to AIS used in small business is the implementation of a system that is compatible with the functionalities of the company to produce data relevant to management. Additionally, significant to AIS are implementing internal control principles that govern documenting and safeguarding financial data. The final section of the literature review focuses on forecasting profitability in small businesses. Although forecasting profitability requires planning for future gains, the literature reported some reservations toward the process. However, the integration of an AIS to forecast profitability provides another perspective for further study in the accounting field.

Accounting Information Quality

Accounting information is the data obtained from recording transactions and events regarding business operations during a given period (Abdul-Rahamon & Adejare, 2014). Hall (2007) referred to accounting information as a business resource significant to the survival of a company. Organizations conduct multiple transactions daily that affect assets, liabilities, and equity (Bettner, 2018). The documentation of accounting data provides small business owners with information for analyzing performance and making decisions that are critical for prosperity and even survival of the company (Abdul-Rahamon & Adejare, 2014). Accountants practice completing the accounting cycle in a fiscal period to determine the financial health of the company (Wild & Shaw, 2019). Rude (2011) reviewed 10 accounting textbooks and identified variations in the steps required to complete the accounting cycle. Although the accounting cycle steps differ by authors, the process should verify that assets equal liabilities plus equity (accounting equation); therefore requiring quantitative-problem-solving and technological skills for accurate recording of transactions (J. C. Porter, 2019).

According to C. S. Warren, Reeve and Duchac (2018), the accounting process begins with business owners obtaining primary transactional data from source documents (receipts, invoices, and bank statements). Each transaction is recorded chronologically in either a general journal or special journals using a manual or computerized system (Rude, 2011). Based on the information entered into the journals, accountants create ledgers for individual accounts to determine ending balances based on the effect of the transactions (Wild & Shaw, 2019). After posting to the ledgers, an unadjusted trial balance is prepared using the ending balances of every account to verify that total debit balances equal credits (Wild & Shaw, 2019). Companies that

follow the accrual accounting method may need to adjust prepaid expenses, unearned revenues, accrued expenses, and accrued revenues to show changes in the ending balances (Porter, 2019). After adjustments, the adjusted trial balance is prepared, which includes all accounts and the updated amounts, ensuring that debit equals credit balances (J. C. Porter, 2019).

According to Rude (2011), accounting textbook authors indicated that from the trial balance (unadjusted or adjusted), accounting professionals prepare the financial statements. There are four common financial statements to evaluate company performance: (a) the income statement reports whether the company made a net profit or loss within a period, (b) the statement of owner's equity illustrates how the equity changes over a reporting period, (c) the balance sheet details the financial position of the company, and (d) the statement of cash flows summarizes cash inflows and outflows from operating, investing, and financing activities (Porter & Norton, 2017). The preparation of financial statements allows accounting analysts to measure the economic performance of the business using financial ratios (Faello, 2015). At the end of the fiscal period, temporary accounts (revenue, expenses, income summary, and owner's withdrawal) are closed and the post-closing trial balance prepared using the permanent accounts (C. S. Warren et al., 2018).

Documenting transactional information depends on the type of accounting method used and the procedures implemented. Regulatory agencies in the United States specify a set of generally accepted accounting principles (GAAP) that standardize the recording of transactional data to report the financial position of a company (Higson, 2003). Essential to documenting transactional data is the accounting method selected by the company, which is also obligatory by the Internal Revenue Service (IRS) for computing taxable income (Wild & Shaw, 2019). The

IRS reported in 2018, based on changes in December 2017, that under the Tax Cuts and Jobs Act (TCJA), small business owners whose annual gross earnings is \$25 million or less in the former three-year-period can report taxable income under the cash method, which revenue is recognized when cash is received and expenses deducted in the period paid (Internal Revenue Services, 2018). According to Abdul-Rahamon and Adejare (2014), those small business owners who are issuers adhere to the accrual basis (in which income is documented when earned and expenses when incurred). Under the accrual method, business owners recognize economic events regardless of the receipt or payment of cash; however, this method does not adequately reflect actual cash flows (Olatunji, 2013). Some small companies, especially micro-businesses, use the cash method mainly because it is less complicated; but, the downfall with recordkeeping is that some small business owners often do not implement acceptable accounting procedures to visualize the company's performance in the long run (Olatunji, 2013). Essential to understanding business performance is accurate documentation of accounting information that follows standardized procedures and uses the appropriate method to reflect the effects of daily transactions on the company.

Small business accounting information. Factors resulting in small business failure have been of critical concern to academicians, researchers, professionals, and public authorities (Hyder & Lussier, 2016). Abdul-Rahamon and Adejare (2014) identified poor recordkeeping of accounting information as a significant factor in some small business failure. Some small business owners found the process of recordkeeping daunting (Ezejiofor, Emmanuel, & Olise, 2014). Although empirical studies examined the value-relevance of quality accounting information, the requirements are based on regulatory standards to disclose financial data that do

not readily apply to some small business owners (Chaney, Faccio, & Parsley, 2011; Habib & Azim, 2008; Purswani & Anuradha, 2017). Hyder and Lussier (2016) argued that the value-relevance of accounting information in small companies is limited to recording daily transactions for tax compliance, capital investment, and maintaining short-term operations. Underexplored is the need for small business owners to adhere to acceptable accounting practices to determine survivorship by predicting successful outcomes and strategic planning based on business trends (Hyder & Lussier, 2016). Maintaining transactional data for decision-making and analyzing business performance are critical to prevent small business failure and also essential to develop a long-term (more than 5 years) vision for the business operation (Al-Hawari & Nassar, 2017). Additionally, maintaining accurate records can provide small business owners with valuable data to understand factors (economic, technological, environmental, and legal) that influence the business operation.

Small business owners who adhere to accounting best practices generate financial statements that provide useful data to help understand the performance outcomes of the company. Quinn (2014) recommended that small business owners prepare three financial statements that provide insights into the economic health of the company (a) income statement, (b) balance sheet, and (c) statement of cash flows. The performance outcomes revealed through the application of financial ratio analysis on each line item of the financial statements provide data for decision-making, strategic planning, business success and failure, and disclosure of economic value (Alo, Akosile, & Ayoola, 2016). Although financial statement analysis is significant to understanding business performance, Faello (2015) cautioned that errors on the financial statements interfere with the quality of the information provided. Misstated values in

the accounting records distort the actual financial position of the company and can adversely affect the decision-making process (Faello, 2015). Nonetheless, maintaining a standardized format to document accounting information is critical for creating accurate financial statements to help small business owners make sound decisions.

The documentation of accounting information should provide small business owners with data that enriches understanding to facilitate decision-making. Operating in an uncertain environment exposes small business owners to disruptions that can restrict performance (Eijdenberg, Paas, & Masurel, 2017). Companies rely on accounting data to understand and evaluate operating in an innovative and revolutionalized business environment (Papazov & Mihaylova, 2014). There is a large volume of structured and unstructured data available to small business owners; but, essential usage is dependent on the small business owners' ability to gain insights through analyzing patterns and trends to build and maintain competitive advantage (Warren, Moffitt, & Byrnes, 2015). Without appropriate management accounting tools to capture data that represents the functions of the company, small business owners are unable to make decisions beneficial to the survival and prosperity of the business. Therefore, appropriate and acceptable accounting practices, based on the business function, should be adopted to record accounting information valuable to the decision-making process (Hasso & Duncan, 2013).

Challenges of accounting information in small businesses. Some small business owners focus on the immediate effect of a transaction rather than forecasting for long-term operation. Nyathi, Nyoni, Nyoni, and Bonga (2018) determined that the relationship between accounting records and business performance is not contingent on the length of time; but, the quality of the information and relevance to providing insights beneficial to small business

owners. In contrast, Abdul-Rahamon and Adejare (2014) results indicated that short-term focus caused severe financial damages for small business owners seeking to operate in the long-run. Welsh and White (2000) identified some of the economic losses associated with short-term financial focus as (a) theft of assets (cash and supplies), (b) vulnerability to fraudulent acts, (c) noncompliance with tax laws, (d) refusal of capital investment from lending agencies, and (e) inability to predict cash flows. The focus on long-term operation and quality accounting information is essential in accounting practices that could help small business owners understand business trends to create a competitive company (Bettner, 2018). Small business owners seeking to maintain long-term operation should practice recordkeeping based on accepted accounting principles to analyze business performance in the long-run.

Accounting information in some small businesses are of lesser quality and does not capture the actual financial position of the company. Worku (2014) identified the use of a less formalized method for documenting daily transactions as a continuous problem with small business owners. Some small business owners lack proper management, monitoring, and control of accounting records that should correctly document the progress of the company (Mitchell & Reid, 2000). Al-Hawari and Nassar (2017) identified the following factors that influence the emphasis small business owners place on accounting information as (a) company size, (b) cost of obtaining a sophisticated accounting system, (c) years of business operation with the same management, and (d) the business owner's knowledge of accounting. Failure to provide accurate transactional data is an ongoing problem that impacts the increase in profits and long-term operation of small businesses (Padachi, 2012). Unless small business owners implement appropriate accounting procedures, the opportunities to maximize growth and build competitive

advantage is unattainable (Chaney et al., 2011). Mitchell and Reid (2000) determined that the data collected, recorded, and processed should serve a significant purpose in advancing the plans and functions of the company.

Although accounting information provides a basis for management decision-making and performance analysis, Eierle and Schultze (2013), found that not all accounting data is relevant to every company. Hasso and Duncan (2013) explained that some small business owners are more interested in increasing profits; therefore, they would react positively to quantitative data, such as profitability analysis of financial statements. In contrast, some small business owners seek qualitative data to understand factors related to managerial responsibilities that influence employee work enthusiasm (Hasso & Duncan, 2013). Accounting information is only viewed as useful if it communicates relatable data to small business owners (Purswani & Anuradha, 2017). Furthermore, to improve the quality of accounting information, small business owners should understand the formalities of accounting principles to determine data necessary to the business' operation (Mitchell & Reid, 2000). When the quality of accounting information aligns with the business function, then small business owners can strategically maneuver the business environment and maintain a successful company (Van Caneghem & Van Campenhout, 2012). Abdul-Rahamon and Adejare (2014) recommended that small business owners capitalize on formal education in financial literacy to understand the relevance of accounting information for business operation.

Researchers posited that some small business owners lack the knowledge of financial accounting practices required to strategically position the business in a competitive market for growth and opportunities (Chhabra & Pattanayak, 2014). Bay (2011) emphasized a going

concern regarding the financial literacy of small business owners, which affects the emphasis on recording transactions to analyze business performance. Gregory (2018) recommended that small business owners obtain formal training in accounting to understand accounting principles and practices beneficial to the business function. Arasti, Zandi, and Talebi (2012) attributed small business failure to the owner's limited knowledge and experience in formal accounting education. In general, the basic accounting curriculum covers (a) documenting transactions following the double-entry system, (b) preparing financial statements, (c) using financial ratios to analyze business performance, (d) ethics and regulatory agencies, (e) disclosure of financial statements (f) GAAP, (g) computer applications in accounting, and (h) tax compliance (C. S. Warren et al., 2018; Wild & Shaw, 2019).

Burnett (2010) argued that educators sometimes fail to streamline the accounting curriculum; hence, the information taught does not always reflect current changes in accounting standards and policies. With formal accounting education, small business owners could develop accounting competencies required to document accurate transactional data according to accounting practices rather than incurring the cost to outsource such task (Mitchell & Reid, 2000). Precise accounting information allows for data analysis that reflects the actual financial position of the company (Otley, 2016). However Mia (2017), based on research findings determined that the implementation of a computerized AIS was essential to maintain accounting information significant to positioning the company and determining financial health.

Computerized Accounting System

Operating a small business requires the use of an efficient accounting system to control and manage transactional data. A large volume of data is available to small business owners for

decision-making regarding business trends, innovative ideas, competitive analysis, customer preferences, internal control practices, and business performance (J. D. Warren et al., 2015). An AIS functions as a subset of management information systems (MIS) to capture financial and nonfinancial information for evaluating the economic value of the company (Odar et al., 2015). Additionally, Saeidi, Prasad, and Saremi (2015) identified the six primary components required to operate an AIS as (a) data, (b) people, (c) procedure and instructions, (d) software, (e) hardware, and (f) internal control. Each component contributes to the integral role of processing transactional data; however, Saeidi et al. (2015) argued that deficiency in any of the components could affect the functionality of the system. The AIS would not serve the purpose of providing relevant, reliable, and comparable accounting information to analyze the business functions so small business owners can make sound decisions (Bettner, 2018). According to Gelinas, Dull, Wheeler, and Hill (2018), understanding the range of capabilities of an AIS requires a comprehensive study of the elements necessary to design the system (see Figure 2). Therefore, understanding the significance of each component is vital for operating an efficient accounting system that complements the business operation.

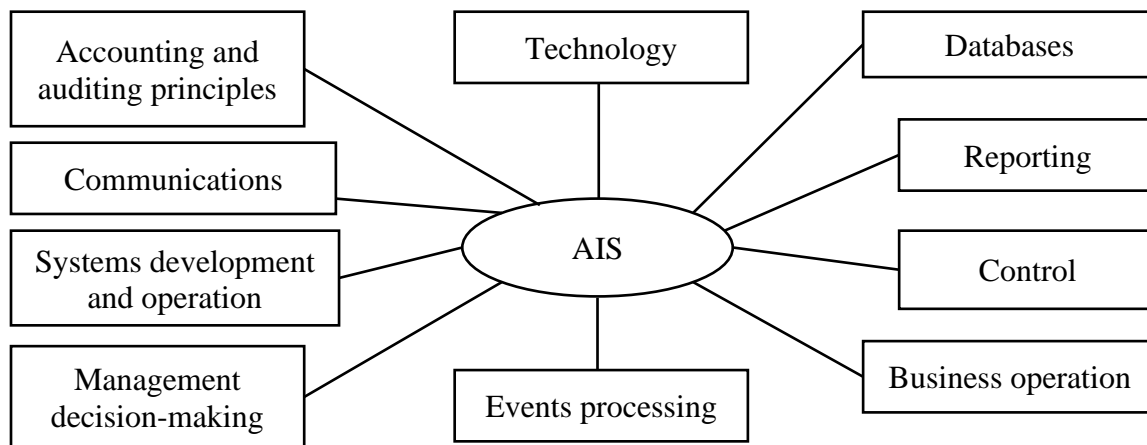


Figure 2. Elements of the study of AIS.

Components of an AIS. The components of the AIS should work in unison to provide beneficial accounting and financial information for small business owners. According to Bruwer and Smit (2015), an AIS adds value to the company if the data retrieved, processed, analyzed, and evaluated is comparable to past transactions and provide an accurate representation of the financial position of the company. Saeidi et al. (2015) stated that the data entered into the AIS should capture daily events that affect the finances of the business (sales orders, purchases, payroll, inventory data, tax information, and customer billing statements). Optimal use of the appropriate AIS is achieved when competent accounting managers, who are knowledgeable about acceptable accounting procedures, are responsible for inputting and analyzing transactional data (Hall, 2007). Accounting managers possess knowledge regarding the procedures and instructions for manual and automated techniques to operate the AIS and prescribe internal control principles as enforced by accounting and financial regulatory bodies (Saeidi et al., 2015).

Essential to maintaining transactional data, Johnston (2003) stated that the use of a computerized software program (QuickBooks, Sage Business Cloud Accounting, Accounting Edge Pro, or Sage 50cloud Accounting) is recommended to process accounting and financial data. Reliable and compatible hardware systems (computer, printer, server, and storage devices) are required in conjunction with a computerized software program to optimize the performance of the AIS (C. S. Warren et al., 2018). Finally, Hall (2007) asserted that the sensitivity of accounting information requires an AIS designed with aggressive security measures (password, pattern lock, finger scan) to guard against unauthorized access. Operating in an information-driven and competitive business environment requires an accounting system that functions effectively according to the operations of the business. However, integral to AIS competency is

the design of subsystems that capture specific accounting necessities to monitor daily transactions.

AIS subsystems. The integration of appropriate AIS should provide useful financial information promptly so management could strategize the business operation, however, requiring full functioning of the subsystems. Hall (2007) accentuated that achievement of the required goals and purposes of an AIS is reliant on efficient functionality and harmonious interplay of the subsystems. One limitation of computerized AIS is that each part of the system is dependent on the other to complete specified tasks; therefore, if there is a malfunction in an area the entire structure is deemed inefficient to perform the required duties (Gelinas et al., 2018). The standard AIS comprises of a transaction processing system (TPS) that captures daily accounting transactions and events needed to generate financial statements (Hall, 2007).

The transactional data obtained by the TPS is processed by the general ledger or financial reporting system (GL/FRS) to create financial statements required by users of accounting information to analyze the business activities in a fiscal period and identify issues that affect successful operation (Saeidi et al., 2015). The final subsystem of the AIS is the management reporting system (MRS) that uses financial ratios and analytical tools to evaluate business performance to provide feedback for management (Hall, 2007). Each subpart of the AIS functions to provide management with information to construe the business performance and control financial resources. Additionally, developing an understanding of the contributory factors associated with AIS to financial and managerial accounting is significant to operate a small business.

Computerized AIS. Significant to associated components and efficient subsystems, Guney (2014) emphasized the need for computerized AIS that provides real-time data to build competitive advantage. Advancements in information technology contributed to transforming the accounting industry requiring the use of automated systems to enhance knowledge sharing, data storage, coding, and information retrieval (Ghasemi, Shafeiepour, Aslani, & Barvayeh, 2011). Small business owners require accurate processing of financial information to make managerial decisions in a constantly changing and efficient environment driven by innovation, voluminous data, and technological advancement. According to Abdul-Rahamon and Adejare (2014), the small business owners' immediate access to financial reports for decision-making and financial performance measurement builds advantage over market competitors. Researchers recommended the use of computerized AIS that is compatible with the information flow and functionalities of the small business (Taipaleenmaki & Ikaheimo, 2013). The major advantage of an automated accounting system is the only requirement of users is to input daily transactions; then, the program processes the remaining steps in the accounting cycle (Arcega et al., 2015). However, some accounting software are more advanced containing additional features such as calculating depreciation, inventory tracking, payroll, and purchase ordering (Johnston, 2003). Nonetheless, small business owners need to conduct extensive research regarding the software package and relevant hardware systems that could optimize financial reporting to increase small business survivorship.

Accounting software packages. Predesigned accounting software programs could contribute to small business long-term operation. According to Fagbemi and Olaoye (2016), the manual method of recording transactional data is inefficient; therefore, based on research results,

recommended the integration of an automated accounting software to help small scale businesses document reliable transactional data. Software developers designed a plethora of accounting programs such as QuickBooks, Sage 50cloud, Xero, NetSuite ERP, and FreshBooks to reduce the time devoted on spreadsheets, databases, and manual labor required to record accounting information (Johnston, 2003). According to Trigo, Belfo, and Estebanez (2016), AIS developers advertise accounting computerized programs as tools necessary to increase the survival rate and level of competitiveness in small businesses.

Although accounting programs are deemed beneficial to improve the survivorship of small businesses, Christauskas and Miseviciene (2012) argued that the cost associated with acquiring and maintaining the programs are of major concern to small business owners. In response to this concern, software developers created cloud-based accounting programs (Sage Intacct, QuickBooks Online) to address (a) the cost-benefit factor emphasizing convenience, (b) real-time data, (c) accessibility to financial information, (d) software updates to improve accuracy, and (e) cloud storage for large volume of data (see Table 3). According to Christauskas and Miseviciene (2012), there are risk factors (data safety concerns, internet failures, and business owner's dependency on providers because of lack of control) associated with cloud-based programs; however, small business owners search for the ideal accounting software package has increased over the years. Essential to implementing the complementary accounting software, Johnston (2003) emphasized that adequate training is required to use the program efficiently. In conjunction with acquiring software knowledge, Aduamoah, Yinghua, and Anomah (2017) reported the need for small business owners to invest in capable hardware systems to maximize using the properties of a computerized accounting program.

Table 3

Advantages and Characteristics of Cloud-Based Accounting Software

Advantages	Explanation and characteristics
Reduced costs	Decrease in expenses associated with the purchase of hardware, software license, update of software, and networking and storage devices.
Security	Small business owners pay a monthly subscription fee and the terms of payment, usage and monitoring is specified based on the details of the contract. Greater emphasis is placed on safeguarding data and maintaining internal control practices.
Respond to business	Availability of options with regular upgrades and resources to support growth and new ventures.
Easier administration	The web browser is the dominant tool required to access real-time accounting information that is visible to all users.
Compliance	Designed to meet regulatory standards that govern accounting practices and internal control.
Global access	All authorized users of the company's accounting information have unlimited access.
Try before buy	Cloud-based accounting software vendors offer free trials and demos to understand the functionalities of the system before implementing.

Note. Created based on content provided by Christauskas and Miseviciene (2012).

Information technology infrastructure. Hall (2007) referred to information technology infrastructure as the hardware devices that host accounting software. Small business owners are responsible for acquiring input, output, storage, and networking devices that are secure and reliable to maintain business information. Essential factors related to hardware selection include cost, speed, storage capacity, and upgradability. Aduamoah et al.'s (2017) results indicated that the hardware systems should be compatible with the AIS software to receive optimal performance. According to Johnston (2003), operating in a digitized business environment requires the use of updated, fast operational, and modernized hardware. Taiwo (2016) suggested that small business owners purchase a system that includes the hardware and software as per the business requirements. Also, Taiwo (2016) noted that significant to the investment in an optimal

hardware system, is making provisions for maintenance, upgrades, and secure storage options as the company evolved in a competitive business environment. The level of sophistication of the AIS is dependent on small business owner's perceived value-relevance of the program and contribution of the system toward maximizing growth opportunities.

Level of sophistication of the AIS. According to Johnston (2003), a challenging task for some small business owners is selecting accounting software that complements the operation of the company. Wu and Young's (2002) research findings confirmed that some small business owners used a less formalized and modernized accounting system to manage and control daily transactions. The type of AIS used in small businesses varies depending on (a) the size of the company, (b) volume of data, (c) depth of problem-solving, (d) cost to purchase and maintain the system, (e) task-data dependency, and (f) user's perspective regarding the value-relevance to the company (Hall, 2007). Some small business owners still use the paper-and-pencil method for recording transactional data and rely on receipts, invoices, and statements to track business activities (Fagbemi & Olaoye, 2016). The issue noted by Johnston (2003) with some modernized accounting software is the significance of some features to the company, which require small business owners to receive training to maximize usage. As a result, some small business owners tend to perform recordkeeping based on familiarity and comfort with traditional accounting methods (Abdul-Rahamon & Adejare, 2014). However, the developments that impact business operation by providing a wealth of data required to advance in the industry created the need to implement a modernized computer-based AIS.

Although limited empirical studies associated the level of sophistication of an AIS with small business success (Al-dmour, Al-Fawaz, Al-dmour, & Allozi, 2017); current studies infer

the need to implement a computerized AIS to maintain the flow of information so accurate comparative analysis of financial statements can be performed (Arcega et al., 2015; Daoud & Triki, 2013; Taipaleenmaki & Ikaheimo, 2013). Understanding small business performance is dependent on comparative financial data that examined the changes in business activities at different fiscal periods. According to Taipaleenmaki and Ikaheimo (2013), the integration of sophisticated accounting software is a necessary prerequisite for the convergence of financial and managerial accounting. Transactional data serves as the basis for management to interpret factors that affect business performance, analyze and forecast budgets, predict business trends, and standardize control principles that enhance competitive advantages (Belfo & Trigo, 2013). Arrowsmith (2019) noted that rapid changes in the market signals the need for advanced and efficient accounting systems; therefore, accounting software vendors focus on creating newer iterations of financial accounting programs.

Daoud and Triki (2013) reported that commerce adoption of enterprise resource planning (ERP) system revolutionized AIS. An ERP consolidates core business procedures using technology and software to provide real-time data (Taipaleenmaki & Ikaheimo, 2013). The changes with modern business operation required a shift from the labor-intensive workforce to a machine intensive process with cloud-based integration that improves control of business activities. As a result of the continuous changes, accounting software developers needed to update and recreate programs to meet the demand and information-flow of organizations (Suhaimi, Nawawi, & Salin, 2016). Seethamraju (2015) noted the advantage of a computerized AIS is the online access to all functionalities without investment and management cost, in contrast to the physical software. Despite the transition to modernize accounting software,

Seethamraju (2015) based on research findings indicated that vendor's reputation, software compatibility with the business operation, no guarantee of product maintenance for the life of the system from vendors were some challenges that affect small business owner's adoption of a computerized AIS. According to Christauskas and Miseviciene (2012), an efficient accounting system should process transactions, control accounting data, and generate financial reports. Therefore, current developments of accounting software focus on integrating the software with an online platform (internet) and intensifying automation to provide a broader basis to control and manage accounting and financial information so management can make sound decisions (Daoud & Triki, 2013).

Strategic Decision-Making

Accounting standards establish the requirements for recording transactional data so that small business owners can make decisions beneficial to operate a profitable company. Successful management of a small business is dependent on the small business owners's ability to strategically position the company against disruptions, while simultaneously maintaining a competitive advantage (Purswani & Anuradha, 2017). Small business owners operate in a competitive market and are vulnerable to various factors (environmental, technological, new entrants, natural disasters, and governmental regulations) that could interfere with the business operation (Chenhall, 2003). Each situation requires small business owners to implement appropriate management systems to function effectively and remain competitive (Otley, 2016). Small business owners can develop the necessary competencies to analyze business operation by measuring the line items of financial statements to interpret the effects of specific contexts on the business operation (Bettner, 2018). Underuse of accounting information can interfere with the

decision-making process resulting in misappropriation of valuable resources and poor accountability (Bukenya, 2014). Accounting information in the decision-making process is critical for small business owners to advance in a competitive or uncertain environment.

Essential to small business owner's strategic decision-making process is relevant, timely, accurate, and complete accounting and financial information (Gelinis et al., 2018). The conventional methods (paper-based and spreadsheets) of preparing financial information are considered insufficient for management decision-making needs in a constantly evolving business environment (Brecht & Martin, 1996). Christauskas and Miseviciene (2012) determined that AIS is valuable for providing financial information necessary for the decision-making process in small businesses. According to Daoud and Triki (2013), AIS provides a holistic vision of the operation of the company by embedding transactional data in a single program for processing and generating financial reports. Through accurate documentation of accounting information, management can (a) obtain comparative data of the past and present operation, (b) identify unnoticeable factors that affect daily activities, (c) run statistical reports that measures business performance, and (d) provides an overview of future directives and decisions (Socea, 2012). On this basis, Maya and Purwanegara (2016) accentuated the need for small business owners to understand the relevance of using a computerized AIS for decision-making in small businesses.

Despite the varying results regarding the effect of a computerized AIS and small business growth, McMahon (2001) based on statistical results, identified a positive association as perceived by accounting professionals with accurate documentation of transactional data to provide feedback essential to management decision-making. Accounting managers exerted a decisive approach to the integration of information technology and the use of the internet in

accounting activities (Jawabreh & Alrabei, 2012). As computerized systems and devices reflect changes in size, speed, cost, and usage, accounting tasks can be performed by accounting managers more efficiently and effectively (Jawabreh & Alrabei, 2012). However, significant to the use of a computerized AIS is the user's level of satisfaction with the programs to perform required duties without errors or interferences (Azleen, 2008). On this basis, the effectiveness of an AIS is dependent on the capabilities to provide useful information (Shuhidan, Mastuki, & Nori, 2015). Data retrieved from the AIS should present the financial position of the company and information relevant to the business functionalities to enhance the strategic decision-making process necessary to sustain long-term operation. Similarly, accurate recording of transactional data can help small business owners evaluate business performance.

Business Performance

The information obtained from daily events is required to perform financial analysis (liquidity, solvency, and profitability), prepare budgetary forecasts, or compare different capital investment options (Bettner, 2018). The usefulness of accounting information is reliant on the ability of small business owners to use financial statements to communicate reliable, relevant, comparable, comprehensive, timely, and valid information beneficial to forecasting profitable options (Bettner, 2018). Accurate documentation of accounting data, including, the use of financial ratios to perform analysis, is essential for small business owners to evaluate the firm's performance (Tamoradi, 2014). The precise measurement of a company's performance requires different analytical tools to obtain a holistic view of the business' financial position (Obeidat, El-Rimawi, Masa'deh, Maqableh, & Al-Jarrah, 2013). Al-dmour et al. (2017) stated that there are various measurements to assess a company's performance; however, there is no general

guideline that specifies the appropriate choice of measurement. Although business owners can use different types of performance tools to measure business operation, the data required to measure that performance derives from recording transactional information during a fiscal period (Ionascu & Ionascu, 2012). Therefore, accurate accounting information is essential to the decision-making process and to assess business performance. Fundamental to documenting quality accounting information, Magro, Turra, Klann, and Lemes (2017) identified the need for timeliness in producing and accessing accounting data for decision-making and performance evaluation of small companies.

Timeliness of data. Magro et al. (2017) theorized that the quality of accounting data is dependent on the timeliness of preparing financial statements. Timeliness of accounting information contributes to improved management planning for opportunities and threats presented in uncertain environments (Dearman et al., 2018). Wild and Shaw (2019) stressed the importance of using accounting systems to produce scheduled transactional reports (on a quarterly or semiannually basis) to inform small business owners regarding the performance of the company. Each business entity (accounting, human resource management, marketing, and production) depends on accurate documentation and processing of daily transactional data to implement control measures for improving business performance. Likewise, the prompt processing of accounting records provides valuable information for external users (creditors, investors, and regulators) regarding the company's strengths and weaknesses in an innovative market for investment decisions, and to show that the business conforms to regulatory laws (Ezejiofor et al., 2014). When transactional data is documented accurately following the

practices of a suitable accounting method, small business owners can access quality information significant to understanding the financial health of the company.

Accounting information obtained from daily transactions and documented to generate financial statements should provide valuable insights regarding the value of the company (Kargin, 2013). Accurate documentation, interpretation, and control of accounting information require appropriate management accounting systems to process and interpret real-time data (Al-Hawari & Nassar, 2017). Small business owners and associates operating in a competitive and innovative environment demand continuous access to relevant data to determine business performance and make fact-based decisions. Access to relevant transactional data helps small business owners strategize how to control and manage the business functions for long-term operation (Wise, 2013). Linton and Solomon (2017) encouraged small business owners to implement computerized AIS to record and process accounting data and produce financial reports at regular intervals to understand business performance. The use of an appropriate accounting system to improve small business performance can provide information and techniques beneficial for survival, prosperity, and forecasting profitability.

The processing of accounting data provides small business owners with an overview of the company's financial position (Daoud & Triki, 2013). A vast majority of small business owners focus on historical reporting that is based on comparative analysis of past financial reports (McMahon & Davies, 1994). Using financial measurement tools (profit margin, return on equity, current ratio, and debt to equity ratio), accounting managers can assess the company's performance based on liquidity, solvency, and profitability (Bettner, 2018; Esmeray, 2016). Small business owners are responsible for ensuring detailed documentation of transactional data

is recorded to obtain a precise evaluation of the company's performance during fiscal periods. However, Al-dmour et al. (2017) identified a going concern with small business owners to implement appropriate accounting systems to document transactional data for accurate performance evaluation.

Accounting researchers reported a lack of empirical studies identifying a significant association with historical financial reporting, the integration of a computerized AIS, and improved financial performance in small businesses (Al-dmour et al., 2017; Grande, Estebanez, & Colomina, 2011; McMahon, 2001). Esmeray (2016) argued that understanding performance requires an extensive analysis of measurement problems and the numerous variables that interfere with the context. Although understanding factors related to performance evaluation and management is valuable, Chenhall (2003) professed that the appropriate design of an AIS for small business supports strategic success and can increase organizational performance. According to Soudani (2012), research studies conducted in Spain, Finland, Pakistan, and Iran corroborated that the adoption of AIS did improve company's performance by providing financial data necessary to position the business strategically. Soudani (2012) based on research findings, indicated that the investment in a computerized AIS would contribute to a stronger, more flexible, and productive corporate culture to handle continuous changes that affect the business environment. The information produced from inputting transactional data provides management with feedback significant to understand organizational performance; therefore, procedures can be implemented and geared toward business success. However, maintaining proper internal control of financial and nonfinancial information is significant for small business growth.

Internal control and small business performance. An essential factor to consider regarding successful business operation is internal control of financial and nonfinancial information. According to Fanxiu (2016), the conceptual concepts of accounting practices and information technology developments were integrated as the fundamental basis for designing an AIS. Soudani (2012) regarded AIS as a significant component for managing the company and implementing internal control principles (see Figure 3). An AIS is used to capture, store, and process transactional data to produce financial reports; however, advancements in technology, enabled the system to provide nonfinancial information, which is also beneficial for management decision-making (Guan, 2010).

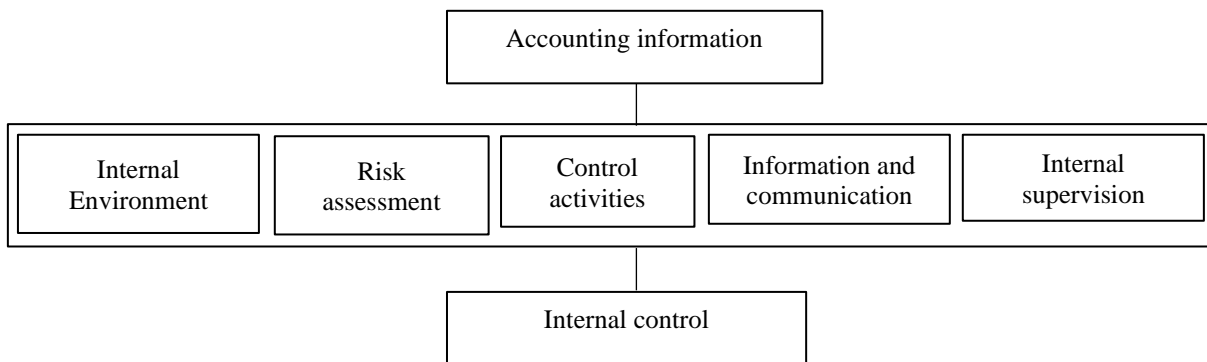


Figure 3. Relationship between AIS and internal control.

The volume of information accessible to small business owners requires the implementation of procedures that control and monitor the business activities, safeguard assets, and ensure compliance with laws and regulations (Wild & Shaw, 2019). The inclusion of effective internal control principles detect and prevent fraudulent acts and protect the company's resources (Hall, 2007). As small business owners seek to improve performance, maintaining accurate transactional data and implementing appropriate AIS practices were confirmed essential

(Suhaimi et al., 2016). Additionally, an extensive analysis of small business performance with the integration of a computerized AIS inspired a focal area related to forecasting profitability.

Financial Gains

The implementation of future- and business-oriented strategies, which require the use of forward-looking accounting information and nonfinancial measures, are valuable to small business survival (Jain, 2003). Bettner (2018) recommended the need for small business owners to focus on predicting future (long-term) financial gains rather than short-term operational budgeting. Some small business owners prepare monthly, quarterly, or annual budgets to project sales, expenses, and profit for the current fiscal period (Abdul-Rahamon & Adejare, 2014). Bettner (2018) noted that forecasting profitability should provide projections beyond short-term analysis and focus on 3 to 5 years projected financial statements for small businesses.

Forecasting is an essential financial management skill that requires small business owners to develop assumptions based on economic and competitive environments, and the impact on the business operation (Fama & French, 2000). Based on this premises, projected financial statements (income statement, balance sheet, and statement of cash flows) can be prepared to predict the possible outcome of the future operation to make relevant business decisions (Jain, 2003). Although forecasting is significant to small business survivorship, there are some reservations that affect implementing appropriate models to predict profitability.

Reservations toward forecasting. According to Wolmarans and Meintjes (2015), some small business owners lack financial management skills and practices, which cause failure to predict profitability. The lack of financial management skills and practices limit the small business owner's understanding of the essentials required to plan and forecast for long-term

operation (Wolmarans & Meintjes, 2015). Additionally, Lev, Li, and Sougiannis (2010) noted that forecasts are projections, which means the estimates may not be accurate, however, relevant to understanding the financial and operational position of the company in uncertain environments. There are some reservations toward forecasting because of the amount of time required to prepare projected financial statements, and the issue of unrealistic values and bias (Lev et al., 2010). According to Bukunmi, Olusola, and Adebayo (2018), long-term operation of a business is dependent on the quality decisions made from accurate comparative and projected financial information. Therefore, adequate time is required to ensure extensive research regarding contingent factors that may affect the business and approximate values are used in the preparation of projected financial statements (Armstrong, Green, & Graefe, 2015).

Time consuming. The primary issue with forecasting profitability is the amount of time required to ensure accurate planning of financial, organizational, and environmental resources to increase business gains (Armstrong et al., 2015). Forecasting profitability requires estimates for revenues and expenses based on analyzing various contingency factors (technology, business trends, government regulations, and changes in customers' preferences) that affect the business operation (Chenhall, 2003). Tessier and Armstrong (2015) deemed accurate forecasting time-consuming because of the requirement for in-depth knowledge regarding past, present, and future situations that affect the business operation to ensure predictive validity of profitability. Lev et al. (2010) mentioned that preparing forecasts for profitability is significant as reliable estimates may improve business performance. However, the tendency to include unrealistic values and bias are factors that interfere with accurate forecasting.

Unrealistic values and bias. The determining factor for profits is revenues greater than expenses (Wild & Shaw, 2019). If the projections for revenues and expenses are off, this can produce inaccurate forecasts that affect management decision-making (Bettner, 2018). Tabatabai (2008) expressed that a major issue with forecasting accuracy is bias due to the incorrect observation of financial reports and over-or-under estimates of revenues and expenses. Liu (2013) explained that bias in forecasting profitability stems from the interpretation of financial data to support an assumed belief, or motivational factors to meet a particular outcome. The eradication of bias in business forecasting is necessary to derive assumptions beneficial to long-term operation of the business (Tabatabai, 2008). Successful prediction of profitability can be determined based on the differences between the forecast and actual values (Tabatabai, 2008). Therefore, the integration of accounting software with the capability to forecast was recommended as a requirement to obtain accurate statistical data for operational and strategic forecasting of financial gains (Jain, 2003; Muhindo et al., 2014).

Forecasting profitability and AIS. Mia (2017) research findings indicated that the lack of a computerized AIS in small businesses resulted in the inability of management to identify profitable options for the company. Parkinson, Riro, and Waweru (2016) concluded that a compatible AIS allowed small business owners and accounting managers to maintain business information that sustained long-term operation. Despite the significance of small businesses to a country's economic development, Turner and Endres (2017) reported that in 2012 approximately 50% of these entities end operation within 5 years. Lev et al. (2010) attributed the decline in small business survival rate to poor documentation of accounting information, which is needed so accounting managers can conduct comparative analysis and forecast profitability. The

advancements in AIS affords accessibility to valuable data required for profitability analysis (see Figure 4). With the focus on long-term operation, small business owners can (a) visualize more significant market opportunities and guard against threats, (b) foresee uncertainties that affect future earnings, (c) identify potential changes in business trends and the impact on the company's financial position, and (d) identify potential opportunities to generate long-term cash flow (Bettner, 2018).

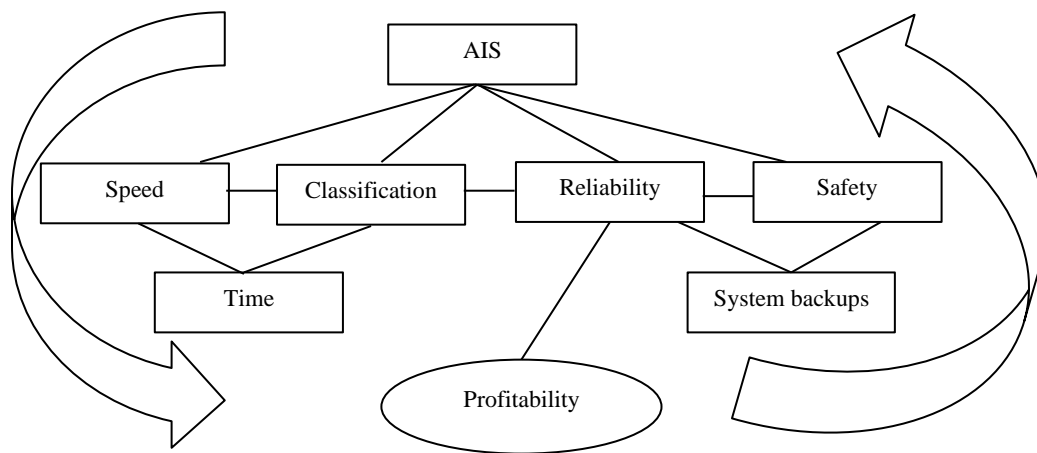


Figure 4. A research model for AIS concerning profitability.

Developers of accounting systems have integrated forecasting capabilities in the software to generate projected financial statements (Tabatabai, 2008). Forecasting features such as financial reporting, inventory management, asset management, and predictive budgeting could provide an advanced statistical method to project the future performance of the company (Mia, 2017). Additionally, the implementation of a computerized AIS could produce data relevant to measuring returns on funds invested in the business (Parkinson et al., 2016). According to Jain (2003), advancement in information technology contributed to (a) data processing, (b) data

accessibility (c) data warehousing, and (d) data mining, which are beneficial factors for forecasting profitability. The integration of a computerized AIS provides access to a large volume of financial and nonfinancial data that is easily accessible on different devices (laptop, tablet, and mobile) through an internet connection (Belfo & Trigo, 2013).

The developments in AIS now allow accounting managers and forecasters to estimate earnings for individual departments in the small business (production, sales, marketing, advertising, and human resources) to acquire a clearer understanding of how each unit uses organizational resources to generate long-term financial gains (Parkinson et al., 2016). With access to real-time data, accounting managers and forecasters can use the AIS to prepare projected financial statements and ratios to estimate profitability promptly (Tabatabai, 2008). Understanding contingency factors that can affect profitability and create projected financial statements are essential to small business long-term operation because of the ability to formulate decisions that are relevant to operating in an innovative and competitive environment (Chenhall, 2003; Gelinias et al., 2018; Mia, 2017).

Overview of Research Methodologies

This section examined the quality of the scholarly works used in the review of literature related to accounting information quality, strategic decision-making, business performance, and financial gains. The literature review revealed that some small company owners used the functionalities of a computerized AIS through documenting accounting information relevant to assess the business operation and strategize future initiatives (Abdul-Rahamon & Adejare, 2014; Mia, 2017). Abdul-Rahamon and Adejare (2014) performed mixed-method research and determined that accurate documentation of accounting information, which is relevant to the

business operation, had a positive impact on small business performance. The data collected from interviews and questionnaires were analyzed using descriptive statistics, Chi-square, and analysis of variance (ANOVA). The objective of the research was to investigate the significance of recording transactional data on small business performance.

The results of studies by Hyder and Lussier (2016) and Purswani and Anuradha (2017) supported the research findings of Abdul-Rahamon and Adejare (2014). Hyder and Lussier (2016) surveyed 143 small business owners to determine the factors that influence success or failure. Factors such as inadequate capital inflows, unstructured documentation of accounting information, and underuse of organizational resources were identified as major factors that impact small business success. Likewise, Purswani and Anuradha (2017) examined the value relevance of accounting information based on financial metrics to enhance business performance. Common among the studies was the emphasis on ensuring documented transactional data adds value by contributing meaning to the assessment of business performance. Further findings concluded the significance of financial statements to report the performance of the company; however, accuracy is vital in the documentation of accounting information in the AIS (Abdul-Rahamon & Adejare, 2014).

Jawabreh and Alrabei (2012) performed quantitative descriptive research to determine the use of AIS in the decision-making process of hotels in Jodhpur. Questionnaires were issued to four and five-star hotel accountants (Jawabreh & Alrabei, 2012). The results of the study obtained through statistical analysis revealed that AIS was not used in the decision-making process, which rejected the hypothesized (Jawabreh & Alrabei, 2012). However, based on the review of previous literature, which indicated AIS contributed significantly to the decision-

making process, Jawabreh and Alrabei (2012) recommended that Jodhpur hotel management and accountants implement a computerized AIS to enhance planning, controlling, and decision-making.

Mia (2017) conducted qualitative descriptive research to examine AIS and the impact on profitability in small scale companies. Data were obtained through the review and analysis of company records, journals, business reports, practitioners' articles, and textbooks (Mia, 2017). Documents were examined to identify comparative data regarding the role of accounting information on the profitability and performance of small businesses (Mia, 2017). The research findings indicated that small business owners underuse AIS, which affects performance levels. Additionally, some small business owners do not implement an AIS; therefore, the recommendation was made to adopt a computerized accounting system that complements the organizational functions (Mia, 2017).

Abdul-Rahamon and Adejare (2014), Jawabreh and Alrabei (2012), Mia's (2017) research studies differ in terms of target population and industries; however, the results revealed similar insights concerning some small business owners underuse of AIS, which was deemed relevant to support continuous financial gains. Because of the underuse of AIS, some small business owners lack financial information needed to assess business performance, contribute to the strategic decision-making process, and forecast profitability (Allah et al., 2013).

Synthesis of the Research Findings

Mia's (2017) qualitative research findings revealed the need for small business owners to adopt and use AIS efficiently to enhance organizational performance. Although Al-dmour et al. (2017) provided results that support AIS positively impact company operation, scant literature

explored how AIS is used by successful small business owners to support predicting financial gains. Otley (2016) noted that continuous changes that affect the corporate environment signal the need to use organizational resources that complement operational objectives and management initiatives. The contributory factors influencing AIS use are contingent based on the prevailing circumstance. The elements must meet the organizational functionalities to provide accounting and financial information relevant, useful, comparable, and consistent (Al-Eqab & Ismail, 2011). Further review of the literature uncovered the contributory factors that determine the use of AIS as (a) accounting information quality, (b) strategic decision-making, (c) business performance, and (d) financial gains.

Abdul-Rahamon and Adejare (2014) documented that small business performance is assessed through accurate documentation of transactional data. Transactional data refers to various business activities occurring daily that could affect company assets, liabilities, and equity (Bukenyua, 2014). These accounts determine the performance of the company, which allow management to make strategic decisions about sustaining the business operation (Bukunmi et al., 2018). Essential to accounting information quality is documenting the data without errors so that profitability forecasts can be precise. Company management and designated representatives use AIS to generate financial statements (income statement, balance sheet, and statement of cash flows) to assess how the company operates within a period with a focus on liquidity, solvency, and profitability (Abu Bakar, Yusof, Tufail, & Virgiyanti, 2016).

The use of AIS to support forecasting profitability should be perceived as a management control system that manages accounting, business, and financial data relevant to the successful operation of a small business operating in a volatile market. The financial information presented

from the AIS provides management with an overview of the company's performance. However, the research findings revealed that technology advancements influenced the sophistication of AIS to include comprehensive analytical features required to predict financial gains (Taipaleenmaki & Ikaheimo, 2013). The ability to predict future earnings is an essential factor that ensures the sustainability of small businesses to generate continuous profits (Mia, 2017).

Conclusions

Chapter 2 provided a review of scholarly literature on topics of AIS practices and forecasting profitability as it relates to small business performance. The key development of the CTMA was discussed, which served as the conceptual framework for the study. The chapter covered the major themes uncovered through an extensive review of the literature, which were (a) accounting information quality, (b) strategic decision-making, (c) business performance, and (d) financial gains. The conclusions drawn from previous literature emphasized the need for accurate documentation of accounting information to determine business performance and strategize company operations. However, research findings indicated that small business owners underuse accounting systems relevant to documenting, storing, and processing transactional data. The AIS is significant to organizational performance because the accounting information in the system was deemed essential as the financial statements generated present a basis for an analysis of the company's financial health. Essential to the objective of this research is extending the body of knowledge and to fulfill a research gap in extant literature based on the knowledge and expertise of small business owners and their designated representatives to explore the contributory factors that determine how AIS is used to support forecasting profitability. Chapter 3 will provide information about the methodological design, participants and setting, research

question, credibility and dependability, interview protocol, ethical considerations, and proposed data collection coding.

CHAPTER 3. METHODOLOGY

Introduction

Chapter 3 focused on the research design and methodology, identified the participants, setting, research question, discussed credibility and dependability, and addressed protocol to ensure ethical data collection and coding of the data is performed. The purpose of this qualitative single case study was to explore the contributory factors that determine how AIS is used to support forecasting profitability by small construction and renovation business owners in the Northeastern United States. The data in this research might contribute to AIS literature by providing the intricacies of a computerized accounting system used to document business events essential for assessing financial performance and assist with decision-making. The research explored the scholarly and practitioner implications of accounting information quality, AIS significance to strategic decision-making, assess business performance, and accounting system forecasting functionalities. Yin (2018) regarded case study design as integral to understand complexed phenomenon in the business profession. The case study design provided the basis for exploring this context in a real-life setting to add new perspectives to the accounting literature. The research question that guided this study was, How do some small construction and renovation business owners in the Northeastern United States use AIS to support forecasting profitability?

Chapter 2 focused on the literature review including the CTMA conceptual framework developed to identify various contingency factors affecting the design and implementation of accounting systems. Implementing computerized AIS that is appropriate for obtaining relevant information to analyze the financial position of a small business can help to strategize the

decision-making process (Christauskas & Miseviciene, 2012). The literature relating to the significance of accounting information in small businesses was explored. According to Abdul-Rahamon and Adejare (2014), various studies indicated that sustaining the operation of small businesses require analyzing financial statements to make sound decisions necessary to evaluate business trends and opportunities to advance the company. Esparza-Aguilar et al. (2016) noted that some small business owners underused computerized AIS to capture and process data required to forecast future projections for the business. Chapter 2 included information regarding AIS and developments of accounting systems to record and process transactional data cost-effectively and conveniently for the small business. Chapter 2 provided information regarding the value-relevance of forecasting profitability to help small business owners focus on long-term operation with the intent to build a competitive advantage in a volatile market.

Small business owners contribute significant value to the economic development of a country by providing employment opportunities and stimulate innovative ideas to maximize competitive advantage (Glaeser, Kerr, & Kerr, 2015). According to the 2018 small business profile, small businesses in the United States with less than 500 employees account for 47.5% of the private workforce; therefore, approximately 99% of the employing companies are small businesses (Small Business Administration, 2018). The continuous growth of small companies decrease unemployment rate of a country by providing jobs to skilled and professional employees; therefore, the research may contribute to increased knowledge relating to financial success and independence (Arasti et al., 2012). Although Bruwer and Smit (2015) determined that small businesses are essential to the economic development of a country, the Bureau of Labor Statistics reported that the small business failure rate averaged 20% in the first year,

49.8% in the fifth year, and 70% by the 10th year (Bureau of Labor Statistics, 2018).

Specifically, the U.S. Census Bureau (2015) reported that only 36.4% of small construction and renovation business owners sustained operation for 5 years. Huerta, Petrides, and O'Shaughnessy (2017) posited that the implementation of accounting practices and the appropriate system relevant for documenting accurate business transactional data to estimate long-term financial gains are significant to sustaining the small business operation.

Design and Methodology

The methodological and design approach used for this research was the qualitative single case study to explore how some small construction and renovation business owners in the Northeastern United States use AIS to support forecasting profitability. Dabic and Stojanov (2014) defined qualitative research as a set of interpretive, material methods that provides meaning about social or human problems by collecting data through fieldwork. Yin (2018) found that qualitative researchers often use the exploratory nature of a qualitative study to uncover information hidden in the responses to research questions from participants. Qualitative researchers explore the context in a real setting, which provides an enriching experience to comprehend the intricacies of a person's social or professional environment or an organization's internal and external context (Cooper & Schindler, 2014). According to Creswell (2007), a researcher using the qualitative method develops an in-depth understanding of real-life experiences by gathering unstructured data using open-ended questions, reviewing documents, observing and interacting with the participants. The integration of a computerized AIS in small business to forecast profitability is underexplored and requires a comprehensive exploration of the context by exploring how successful small business owners use AIS in their natural setting.

Massingham, Massingham, and Diment (2012) expressed that the qualitative methodology was relevant to contribute vital information in accounting research.

Quantitative research involves the collection and analysis of numerical data to explain a phenomenon (Cooper & Schindler, 2014). The quantitative research methodology was not applicable to this research purpose and question. The exploration of AIS used by some small business owners is significant to understand the contingency factors that affect the process of business decision-making and financial performance. The use of computational methods and manipulation of variables to reveal patterns in research and make general assumptions for the population would not generate findings significant to understand the phenomenon studied (Cooper & Schindler, 2014). Therefore, the quantitative methodology would not produce results relevant to understand an underexplored context (Yin, 2018).

The case study design was used to explore the process of implementing appropriate AIS beneficial to increase long-term financial gains in small companies. Exploring how AIS is used by some small business owners require an extensive review of the procedures implemented to record accounting information accurately and functionalities of the accounting system to support decision-making and assess business performance. Yin (2018) defined a case study as an observational method used to understand rare occurrences based on experiences of the participants without any form of behavioral manipulations. According to Baxter and Jack (2008), the case study design is significant for capturing data relevant to make business decisions. Although Zimmerman (2001) associated the case study design to the preliminary phase of an investigation, Parker (2012) suggested that underexplored situations require a deeper understanding of the context in the natural setting to establish the foundation for new research in

the field. Implementing appropriate AIS relevant to developing long-term operation and maintain financial gains is significant to sustaining small business operation (Mia, 2017). Therefore, a case study design was appropriate for this research to explore how AIS is used in small construction and renovation business to sustain long-term operation.

The case study design allows the exploration of a single unit of analysis (person, organization, interactive state, or event) within its natural setting to understand the holistic context of the problem (Eriksson & Kovalainen, 2015). Additionally, Massingham et al. (2012) noted that the qualitative case study methodology addresses why, how, and what research questions. The focus of this study was to explore how some small construction and renovation business owners in the Northeastern United States use AIS to support forecasting profitability. The use of a *how* research question could provide specific data relevant to the AIS practices some small business owners use to capture and process accounting information to maintain long-term operation and financial gains. The context of the case study design was implemented and the unit of analysis was small business owners operating in the construction and renovation sector.

Participants and Setting

Participants

The U.S. Bureau of Labor Statistics documented 680,000 construction and renovation companies in the United States that employed more than seven million contractors, staff members, professionals, and specialists (Bureau of Labor Statistics, 2018). Construction and renovation business owners focus on new build, rebuild, remodel, and renovation of residential and commercial properties (Fulford & Standing, 2014). According to Balogh, Price, and Moser

(2009), some construction and renovation business owners are registered with professional organizations and complete courses for certification to gain insights regarding current practices in the field. Some professional content provided includes (a) business trends, (b) new construction laws and designs, (c) new products and designs for remodeling, (d) interior design samples, and (e) amendments of property laws and building codes (Balogh et al., 2009). The National Kitchen and Bathroom Association (NKBA) and the Shore Builders Association are two of the member organizations for construction and renovation business owners used to recruit participants for this study. The use of professional organizations (NKBA and Shore Builders Association) provided a homogeneous sample of participants who have varied perspectives regarding how AIS was used to support estimating future financial gains.

The nature of this study required the participation of CEOs, managers, and accounting managers that work for small construction and renovation companies located in the Northeastern United States. Some small business owners contract accountants to provide (a) bookkeeping services, (b) financial statement preparation, (c) tax services, (d) inventory management, (e) insights on cash flow patterns, and (f) assessment of fiscal performance (Hoglund & Sundvik, 2016). Accountants are educated in accounting principles and practices that are essential to business success and possess the experience required to analyze business performance to determine new avenues of growth (Kirsten, Vermaak, & Wolmarans, 2015). Additionally, some CEOs, managers, and accountants are trained to use computerized AIS and understand the accounting system features necessary to assess business data (Carey, 2015). The inclusion of CEOs, managers, and accounting managers provided in-depth information regarding the process of using a computerized AIS to provide quality financial reports significant to strategic decision-

making, assess business performance, and forecast financial gains in small businesses. Therefore, the knowledge and experience regarding the phenomenon studied was better obtained from the small business owners and their designated representatives.

Yallapragada and Bhuiyan (2011) reported that small business failure rate in the United States as of 2011 was 51%, which represents a 5.6% increase since 2006. The 5-year survival rate of small businesses in the construction industry in 2014 was 36.4% (U.S. Census Bureau, 2015). Maintaining long-term operation of small businesses contributes to the continuous economic development of a country. The construction industry contributes immensely to the economic growth by providing structural development through building, remodeling, and maintaining properties (Balogh et al., 2009). Fulford and Standing (2014) posited an ongoing decrease in productivity and efficiency within the construction sector citing issues related to poor financial management (accounting practices), lag in technology advancement, and poor collaboration capability. Creswell, Hanson, Clark Plano, and Morales (2007) emphasized that participants should provide insights based on personal experiences to understand underexplored situations. Focusing on a sector that significantly contributes to sustaining a country was essential to understand the appropriate use of computerized AIS to support forecasting long-term financial gains.

Sampling

Sampling is important in research to define the study population and sample size (Cooper & Schindler, 2014). The purposive and snowball sampling techniques are deemed appropriate for this study to gather participants and obtain information from a diverse population of small construction and renovation business owners and their designated representatives operating in

the Northeastern United States. Yin (2018) defined purposive sampling as a technique used when the researcher selects participants who can offer substantial information based on their perspectives of the context studied. Rahi (2017) stated that in the snowball sampling technique, the participants who are selected by the researcher refer potential participants based on similar or varying experiences, characteristics, expertise, and perceptions that can add insights to the study. Small construction and renovation business owners were purposely selected from the NKBA and Shore Builders Association websites' contact pages. The designated representatives were referred by the small business owners based on their role in documenting, processing, and evaluating the accounting and financial information.

All participants were screened to ensure they met specific criteria to offer knowledge that was beneficial to explore the use of AIS to support forecasting profitability in small businesses.

Eligibility requirements to participate in this study are

- the participants must be the business owner or the designated representative (accounting manager, manager, and CEO) of a small construction and renovation business in the Northeastern United States that employs fewer than 500 employees;
- the participants and designated representatives must be in operation for more than 5 years in the construction and renovation sector or prepare accounting reports for companies in the industry;
- the participants and designated representatives must have implemented a computerized AIS used to collect, store, process, and generate financial and accounting data relevant to forecast profitability for a minimum of 5 years;

- the participants and designated representatives must be willing to discuss documenting and processing types of transactional data using the AIS;
- the participants and designated representatives must be willing to discuss accounting system forecasting features – not specific organizational data;
- the participants and designated representatives must be willing to participate in a one-on-one telephone interview session for 45-60 minutes; and
- the participants and designated representatives must be willing to participate in two online focus groups via Zoom for 1 hour per session.

The study relied on the knowledge and expertise of participants who successfully operated a small construction and renovation company and used computerized AIS to support forecasting profitability for more than 5 years. The use of a computerized AIS and the ability to interpret accounting and financial information aligned with accounting knowledge of principles and practices (Esparza-Aguilar et al., 2016). Therefore, participants who lacked basic accounting knowledge as required to answer the interview questions fluently, have been in operation for less than 5 years, and have less than 5 years' experience or no experience working with computerized AIS were excluded from this research study.

Approximately 12,051 members are registered with the NKBA and 322 with the Shore Builders Association. The NKBA website includes a filter feature by location to access the contact information of small construction and renovation business owners operating in the Northeastern United States. The directory contains approximately 5,000 potential participants that meet the research criteria. Contact information such as telephone, fax, mailing address, email address, company website, and the contact person is accessible through the *find a*

professional page on the NKBA and the *business directory search page* on the Shore Builders Association websites.

Creswell (2007) stated that the qualitative sample size should comprise enough participants to obtain insights based on their experiences related to the phenomena studied. When engaging in nonprobability sampling, enough participants are based on the concept of data saturation (Dai, Free, & Gendron, 2019). Yin (2018) noted that data saturation is reached when five to 12 participants provide consistent information without new material. Parker (2012) stated that data saturation is accomplished when the shared information becomes repetitive and without new information or perspective. Guest, Bunce, and Johnson (2006) presented data supported by research findings that indicated data saturation may occur after 12 participant interviews of homogeneous groups. Yin (2018) also noted that the number of participants is irrelevant when conducting a qualitative case study because the emphasis is on obtaining quality consistent information to understand the complex phenomenon. However, for this study, the aim was to interview between 12 and 15 participants or until data saturation was achieved.

The case study research requires the convergence of information from different data collection sources to provide a comprehensive understanding of the phenomena, ensure the quality of research findings, and test validity (Yin, 2018). According to Abdalla, Oliveira, Azevedo, and Gonzalez (2018), data triangulation is a common strategy used in qualitative studies. Therefore, in addition to conducting interviews, six participants (three individuals per group) were asked to participate in two online focus groups. Yin (2018) asserted that participants in a focus group could willingly share information and experiences. Guest, Namey, and McKenna (2017) based on research results, determined that two to six focus groups could

discover 80-90% of predominant themes within the data set. The researcher attempted to include two focus groups that contained the same participants used in the interviews or new participants that met the inclusion criteria. Data sources obtained from the one-on-one interviews, online focus groups, industry reports, and literatures related to recording accounting information, analysis of business performance, strategic decision-making and predicting financial gains were triangulated (Creswell & Poth, 2018; Yin, 2018).

Vital to research is maintaining the confidentiality of research data and participants' information (Creswell, 2007). Cooper and Schindler (2014) added that participants must be informed about the nature of the study and the extent of their participation. The contributions of study participants were voluntary, allowing the choice to participate, not participate, or discontinue participation without any adverse effect (Sargeant, 2012). Participants have the *right to privacy*, which means they can choose not to answer a question or not to participate in the study (Rahi, 2017). All participants were sent the recruitment email to participate, the screening questions, and a copy of the consent form that included the study details. The researcher ensured the consent forms were signed by each participant prior to conducting the interview sessions. Willing participants were required to answer all questions, or the data would be discarded.

Researchers must provide adequate information initially to inform potential participants about the study, data required, and reassure them that the information shared will be secured from unwanted access (Yin, 2018). Cooper and Schindler (2014) recommended that the researcher exclude information that can identify participants such as personal or company names and contact information. The researcher reminded participants and designated representatives that their participation in this study was strictly voluntary and they could withdraw at any time

without prejudice. The researcher created a coding system during the interview and while transcribing the participant interviews to protect the participants' identities. For example, the first participant interviewed was coded as P1. P2 was the code that represented the second participant. The identities of each participant and designated representatives will be secured in a key-locked safe for a minimum of 7 years accessible only by the researcher. At the end of 7 years, the researcher will personally and electronically delete all study materials.

Setting

Yin (2018) emphasized the importance of qualitative data collection methods to take place in a natural setting with limited disruption to gain insights. The data collection setting was quiet and semiprivate offices or conference rooms to limit distraction and ensure confidentiality. The one-on-one interviews were conducted via the telephone and the focus group sessions were conducted online using Zoom. This study required the participation of participants who use computerized AIS to collect and process business transactions to estimate long-term financial gains. Figure 5 illustrates the number of estimated participants required for the study to participate in the field test, one-on-one interviews, and online focus groups.

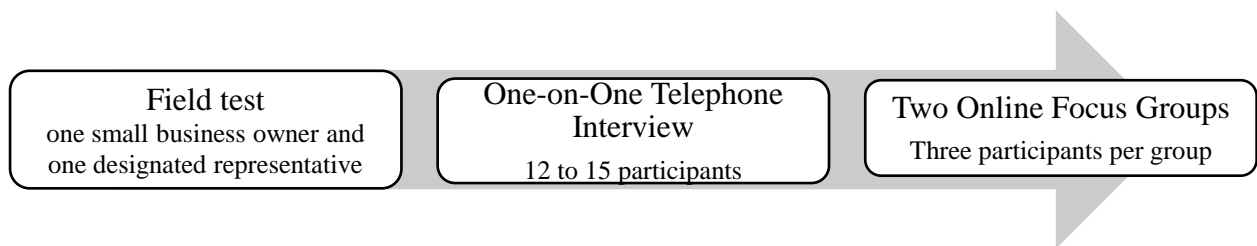


Figure 5. Estimated participants for this study.

Contact with a sponsoring organization was not required for this study, as contact information for small construction and renovation business owners was published on membership websites. Potential participants' contact information was obtained from the NKBA

and Shore Builders Association construction websites. The recruitment email was sent to potential participants that contained details about this research study and the researcher's contact information. Willing participants were screened using the sampling questions to determine eligibility to participate in this research. After eligibility was determined, willing participants received a scheduling email to select a date and time for a telephone interview that was audio recorded. The informed consent form was attached to the scheduling email, which participants were required to sign before participating in the telephone interview and online focus group.

Interview data collection technique. The interview data collection technique is a universal medium for collecting information in qualitative methodologies (Cooper & Schindler, 2014). Creswell (2007) added when preparing to conduct interviews, the researcher should consider location, time, type of interview (individual or group), and question structure (unstructured, semistructured, or structured). Interviews were scheduled on days and at times convenient and identified by the participant while at a quiet semiprivate location (office, conference room) via a standard or cellular telephone. Interviews conducted in a natural setting might provide in-depth information regarding how AIS is used in the construction and renovation sector. Interview sessions were scheduled per the participants' wishes for 45-60 minutes to limit interruptions and accommodate their schedules.

Focus group data collection technique. The focus group data collection technique encourages an interactive environment that capitalizes on communication among several participants while responding simultaneously to questions asked by the researcher (Vogl, 2018). Nyumba, Wilson, Derrick, and Mukherjee (2018) regarded focus groups as effective to explore participants' knowledge and experiences to determine what they know, how they think, and what

factors influence their way of thinking. Additionally, Nind (2019) stated that the focus group should last between 1 and 2 hours and contain approximately six to 12 participants to yield diversity in information. Yin (2018) recommended small group of participants who can contribute in-depth details to the research. Approximately six participants were solicited to participate in two online focus groups (three participants per group) to share information related to the effectiveness of AIS forecasting features to small business survival. The meeting date, time, and audioconferencing software (Zoom) were finalized based on availability of all participants in the focus groups. Each focus group session was scheduled for approximately 1 hour.

Based on the literature review, there is a gap to understand how small business owners use AIS to support forecasting profitability (Abdul-Rahamon & Adejare, 2014; Bruwer & Smit, 2015; Chenhall, 2003). Therefore, essential to the research is a methodology and design that supports the research gap identified in the literature, which is necessary to build a foundation for future studies (Yin, 2018). The scholarly conceptual contribution of the research provides additional information regarding contingency theory of management accounting. Additionally, this research could contribute to studies in automated accounting systems and small business sustainability with insights on contingency factors that determine how AIS is used to support forecasting profitability, which may improve long-term business operation in a volatile market.

Analysis of Research Question

The research question is an answerable investigation that sets the foundation for resolving a concern or issue (Cooper & Schindler, 2014). Abdul-Rahamon and Adejare (2014), Bruwer and Smit (2015), and Esparza-Aguilar et al. (2016) determined that some small business owners

underuse computerized AIS to capture and process transactional data required to understand business performance and make decisions. The lack of accurate accounting information can stagnate a company's growth because rather than focusing on long-term opportunities, some small business owners are concerned with the short-term process of generating cash to cover monthly expenses (Allah et al., 2013). On this basis, Yallapragada and Bhuiyan (2011) documented that approximately 50% of small business owners terminated business operations within the first 5 years. The Bureau of Labor Statistics (2018) analysis of business operation depicted that companies within the construction and renovation industry had a lower survival rate of 36.4% within a 5 year period. Bettner (2018) recommended that the implementation of appropriate AIS could assist some small business owners with documenting transactional data accurately to generate financial statements for measuring liquidity, solvency, and profitability. Understanding the financial position of the company in a competitive environment could provide insights regarding opportunities to advance the business.

The conceptual basis for understanding AIS use to support forecasting profitability in small businesses was the CTMA as highlighted in Figure 6. The CTMA prescribes various situational, organizational, and contributory factors that determine how organizational resources are used to support operation (Abba et al., 2018; Otley, 2016). Although the contingency factors vary by organizations, the application of relevant influences that align with the organization's vision is imperative to streamline the choice in management accounting systems (Al-dmour et al., 2017). The integration of a sophisticated accounting system is essential; however, how the system is used could generate relevant data significant to predicting financial gains, building competitive advantage, strategizing global operation, and sustaining long-term business

operation in a volatile market (Mia, 2017; Prasad & Green, 2015). Therefore, the research question that guided this study was, How do some small construction and renovation business owners in the Northeastern United States use AIS to support forecasting profitability?

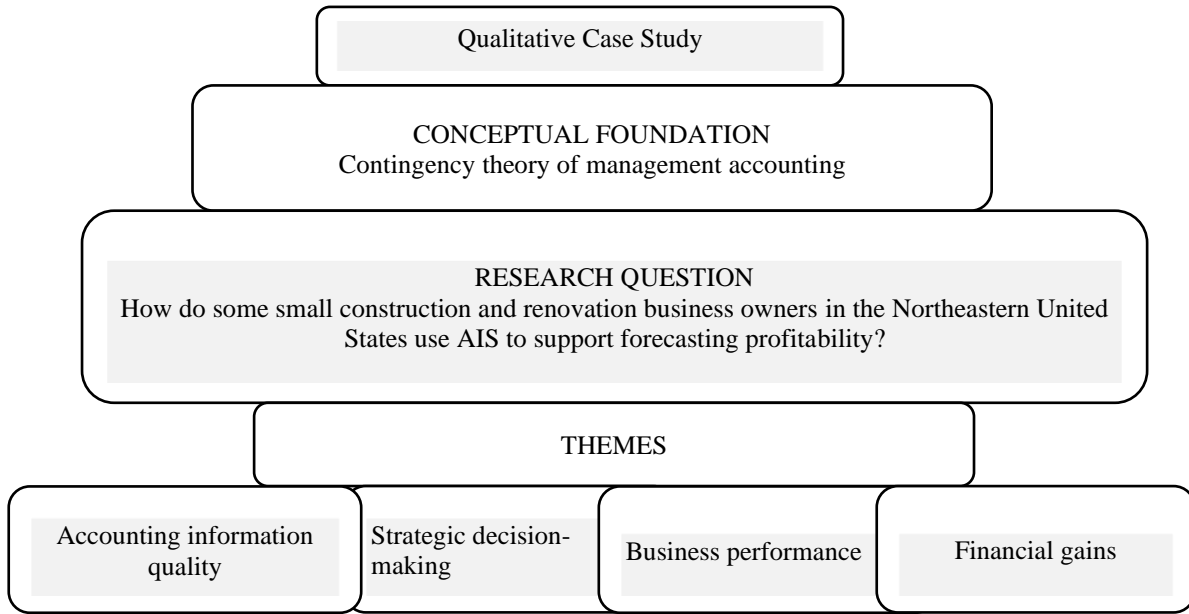


Figure 6. Conceptual foundation, research question, and themes.

The research question explores the dynamic capabilities of AIS to document, capture, and process accounting information and how it is used to estimate continuous financial gains, contribute to decision-making, and analyze business performance in small companies. The focus on forecasting profitability is significant to long-term sustainable operation as small businesses contribute economic value to a country (Bruwer & Smit, 2015). The answers obtained from the research question could inspire theorists to investigate the relationship between the value-relevance of implementing a computerized AIS and small business sustainability and success.

Developing an understanding of how AIS is used by some small business owners to predict financial status is significant to help with implementing strategies necessary to maintain

long-term operation (Al-dmour et al., 2017). Hence, the implementation of the interview and focus group data collection techniques to acquire rich and detailed information derived from the participants' experiences and perspectives (Yin, 2018). Data collection instruments provide a means for documenting information shared or observed in qualitative studies (Twining, Heller, Nussbaum, & Tsai, 2017). The instruments used to collect and document data obtained from willing participants were (a) an audio recorder, which was used to record conversations during the one-on-one telephone interviews and online focus group sessions, (b) an interview protocol, and (c) the researcher.

Developing the Interview Protocol

According to Kvale and Brinkmann (2009), an understanding of complex contexts is achieved through conversing with persons who are directly involved with the situation. Hence, the qualitative case study research protocol allowed for comprehending the socially complex organizational phenomena based on the lived experiences and perspectives of the participants (Creswell, 2007; Yin, 2018). However, there are methodological and conceptual issues associated with the interview technique that concern proper structure, reliability, and quality of data obtained from participants (Nunkoosing, 2005). Castillo-Montoya (2016) recommended the formulation and professional review of an interview protocol to limit some of the problems associated with the technique. The researcher developed instruments of inquiry (See Appendices A and B) that guided the interview and focus group process.

The qualitative researcher should structure the interview protocol to generate information from participants based on their own lives, experiences, and cognitive processes of the phenomenon researched (Cooper & Schindler, 2014). Castillo-Montoya (2016) recommended a

standardized format that aligns with the Interview Protocol Refinement (IPR) to enhance the reliability of the interview protocol. The researcher implemented the IPR four-phases in designing the instrument of inquiry by ensuring that (a) the interview questions aligned with the research question, (b) the questions were developed to stimulate conversation, (c) experts assessed the interview protocol and adjustments made based on feedback, and (d) field tests of the interview questions were conducted with one small business owner and one accountant to ensure questions were understandable and applicable to the purpose of the research (Castillo-Montoya, 2016). The data from the field test was not included in the results. Table 4 provides an overview of the information that was used to develop the interview protocol for this study.

Table 4

Creating Interview Protocol

Interview protocol	Description	Sample
Script for the interview process	The script will contain general information to share with the participants (a description and purpose of the study) and help to guide the interview process (Jacob & Furgerson, 2012). Additionally, information about research ethics such as informed consent (signed), confidentiality, voluntary contribution, rights to privacy, no harm caused by the study, and security of data collected will be included in the script (Cooper & Schindler, 2014).	The purpose of this study was to explore the contributory factors that determine how AIS is used to support forecasting profitability by small construction and renovation business owners in the Northeastern United States. Your participation in this study is voluntary; you can choose to participate, not participate, or discontinue participation at any time.
Formulate interview questions to align with the research question	Creswell (2007) suggested the use of open-ended questions in the interview process to collect data based on the lived experiences of the participants and allow for follow up questions if further clarification is required.	Tell me about the process of recording transactional data. What factors are evaluated to estimate long-term financial gains?
Interview date, time, and location arrangement	Participants will select the date and time to participate in the telephone interview, which will be conducted at semiprivate location to limit distraction and ensure confidentiality, for 45-60 minutes.	Based on the convenience of the participants: <ul style="list-style-type: none"> ▪ Off-peak hours ▪ Office or conference room ▪ Telephone call

Table 4 (continued)

Creating Interview Protocol

Interview protocol	Description	Sample
Collect informed consent	Participants will be allowed ample time before the start of the interview process to review the informed consent, ask questions for clarification, and sign the form “if they are still interested in participating in the study.”	
Audio recording	The interview process will be recorded using an audio recorder so that the researcher can engage in the interview process. Coding will be performed for the confidentiality of the participants (P1 – Participant 1).	
Start with the basics and easy to answer questions	Jacob and Furgerson (2012) recommended the use of appropriate background information to establish a relaxed mood before starting the interview. The recommended sequence for the interview process is, to begin with, the introductory questions, transition questions, key questions, and end the session with closing questions (Castillo-Montoya, 2016).	How long have you been working in the construction and renovation industry? Describe the effectiveness of the accounting system to forecast profitability
End Interview Session	Thank the participants and request approval for follow-up if further clarification is needed.	

Role of the Interviewer

Cooper and Schindler (2014) defined the role of the interviewer as an instrument to extract factual and relevant information from willing participants. The data collected should provide insights to understand in-depth the intricacies of the problem studied (Creswell, 2007). The recruitment screening technique was developed and implemented to select participants who met the research criteria and could articulate substantial information significant to the research and interview questions (Cooper & Schindler, 2014). After identifying participants, the scheduling email was sent to the participants to determine interview dates and times convenient to their availability (Jacob & Furgerson, 2012). The interview process was designed to obtain

enough information relevant to understand the factors associated with the business problem; therefore, I managed, controlled, and facilitated the interview process by strategically asking questions to obtain appropriate responses. Castillo-Montoya (2016) recommended using a hierarchal (broad to narrow) questioning structure to extract information from participants.

During the interview sessions, an audio recorder was used as the main notetaking instrument, which addressed any credibility and accuracy concerns with the findings. After each interview, I transcribed the data into a Microsoft Word document to allow for member checking. Birt, Scott, and Cavers (2016) referred to member checking as an essential technique in qualitative research to increase internal and external validity and trustworthiness of the results by having participants review the data transcribed to validate the information documented. After the participants reviewed the transcribed data to ensure the exact meaning was captured during the interview, the NVivo®12 software was used to analyze, code, and draw insights from the data. NVivo is a computer-assisted qualitative data analysis software (CAQDAS) system often used by qualitative researchers to identify patterns and themes (QSR International, 2019). The interviewer described the results based on the extracts from the interview process.

Expert Panel

Before data collection, a review of the interview protocol was conducted to identify any discrepancies with the interview questions. Sessions were scheduled at the August 2019 Track 3 Residency with three faculty members. The review of interview questions was essential to strengthen the quality of the interview design and questions (Yin, 2018). Table 5 shows a sample of the interview questions, which were structured to obtain responses that answered the research question, based on AIS competency, contributory factors, and themes derived from the

literature review. A mock interview was scheduled with a doctoral learner who had knowledge and experience in the field of accounting and worked with AIS. After the mock interview, the three faculty members provided feedback and suggestions to strengthen the interview protocol in preparation for the field test. Adjustments to the protocol were made before the end of Residency and reviewed by one of the faculty members who provided approval.

Field Test

The expert approved interview protocol was used as the guide for the field test to further ensure free-flow and that the questions were easily understood and aligned with the research question. The extensive review of the interview instrument was essential to ensure adequate data were collected to answer the research question, address the business problem, and fulfill the research purpose (Cooper & Schindler, 2014). Table 5 shows the sample field test interview questions for the study. Appendix A contains the finalized interview protocol and questionnaire used to collect data.

The field test was conducted with a small business owner and designated representative who met the inclusion criteria. The participants were informed about the nature of the field test and required feedback to improve the data collection instrument. Interview dates and times were scheduled as per the availability of the field test participants. The audio recorder was used to record the telephone interview sessions. After the field test with the small business owner, minor word changes were made to the interview protocol to include accounting terminologies specific to the construction and renovation industry. The data collected from the field tests was not included in the thematic coding process for this research. After changes were made to the

interview questionnaire and approval obtained from Internal Review Board (IRB), the interview sessions commenced.

Table 5

Sample Field Test Interview Questions

Section	Description	Theory and Themes Link	Question Sample
1.	Background	N/A	How long have you been working in the construction and renovation industry?
2.	AIS Core Competencies	N/A	What security measures are in place to protect accounting and financial data?
3.	Contributory factors	Theory	What factors influenced your choice to select the accounting system used in the company?
4.	Accounting Information	Chapter 2 Theme	What type of information is collected, stored, and processed in the AIS? Tell me about the process of recording transactional data.
5.	Business Performance	Chapter 2 Theme	Describe the financial metrics embedded in the AIS that you use to measure business performance.
6.	Strategic Decision-making	Chapter 2 Theme	How does recording, storing, and processing accounting information in a computerized AIS support the strategic decision-making process of the company?
7.	Predict financial gains	Chapter 2 Theme	Describe the effectiveness of the accounting system to forecast profitability

Credibility and Dependability

Credibility involves establishing that the research findings are valid and believable from the perspective of the study participants in qualitative research (Creswell & Poth, 2018).

Researchers must ensure data collection procedures, member checking, and data triangulation are implemented to ensure credibility of a study (Yin, 2018). Credibility of the findings was ensured by interviewing participants until data saturation or no new information or themes were provided and then engaging the participants in member checking to ensure their insights were captured correctly. Abdalla et al. (2018) expressed concerns regarding the trustworthiness of results in

qualitative research to validate findings that are consistent, comparable, and repeatable. Qualitative researchers are expected to establish trustworthiness by presenting meaningful results that are robust, detailed, comprehensive, and useful for addressing the phenomena studied (Nowell, Norris, White, & Moules, 2017). Additionally, the research results are considered credible if appropriate and applicable data collection and analysis methods were used to extract information that aligns with actual occurrences (Tracy, 2010). Therefore, the study results must reflect the truth as conveyed by the research participants without any form of manipulation in the interview, focus group, and documented in the literature. Credibility in qualitative study is tested by the (a) combination of research methods, (b) integration of different data collection techniques, (c) facts checking with research participants, and (d) the inclusion of multiple theories to provide an in-depth understanding of the business problem (Cooper & Schindler, 2014; Creswell & Poth, 2018; Yin, 2018).

The appropriate measures were implemented to ensure the research results represent the information conveyed by all participants based on their knowledge and expertise. Vital to establishing credibility and dependability of the research design is ensuring techniques implemented are free of errors, research bias, and constructed to obtain results beneficial to achieve the purpose of the study (Golafshani, 2003). According to Cooper and Schindler (2014), essential to qualitative research is the validity of the data collection construct to obtain results that add clarity to the context explored. The conclusions derived from the interpretation of data collected should represent the participants beliefs and experiences regarding the study topic to ensure validity (Creswell & Poth, 2018). Interview questions were created to collect information regarding how small business owners use AIS to support forecasting profitability. The expert

review of the interview questions was conducted to evaluate the quality of the data collection instrument to improve the data being collected. Three doctoral faculty members, during the August 2019 Track 3 Residency, reviewed and improved the interview questions. Adjustments were made to the interview questions according to the feedback received. Further improvements were made to the interview protocol after conducting two field tests with a small business owner and a designated representative. Credibility and dependability were achieved by ensuring the interview questions were free of errors, bias, and contained questions that will generate responses relevant to answering the research question.

Data Collection

The use of a qualitative case study method approach allows for exploring the problem in a naturalistic setting without any behavioral modifications (Creswell et al., 2007; Riege, 2003; Yin, 2018). Shenton (2004) recommended the four data collection techniques appropriate to obtain quality information for a qualitative case study as (a) interview, (b) direct observation, (c) focus group discussions, and (d) review of existing documents. Data valuable to address how some small construction and renovation business owners in the Northeastern United States use AIS to support forecasting profitability was collected using two methods (a) interviews with small construction and renovation business owners and their designated representatives that met this research inclusion criteria and (b) two focus groups. The use of multiple data collection sources allowed for a credible case study that could provide meaningful results to understand the intricacies of the business problem (Tracy, 2010).

Preparation Phase

After obtaining IRB approval, the recruitment email was sent to solicit the participation of small construction and renovation business owners in the Northeastern United States, who are registered members with the NKBA and Shore Builders Association. The contact information (company name, contact person, telephone number, fax number, mailing address, email address, and website) of potential participants was available on the professional organizations' website. Sixty small business owners (a set of 30 from each professional organization) were selected, based on the research criteria, from the contact list to send the recruitment email, that provided information about the nature of the study, research criteria, and request for participation. The research participants were selected based on (a) the size of the company - employs less than 500 employees, (b) operation period - more than 5 years, (c) industry and location - construction and renovation in the Northeastern United States, and (d) uses a computerized accounting system to capture and process accounting information for a minimum of 5 years. Figure 7 depicts a pictorial representation of the inclusion criteria for this research, which were used to screen research participants.

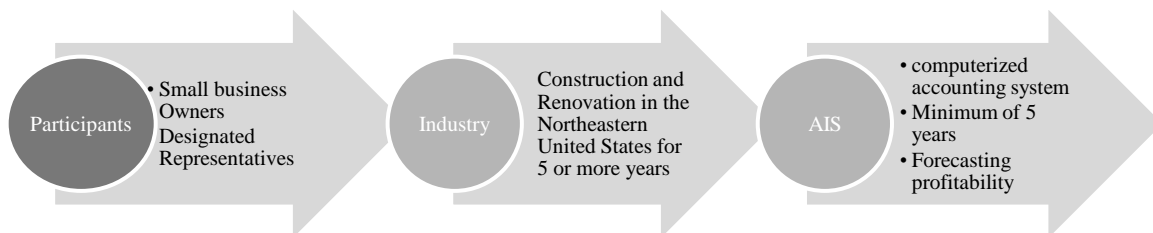


Figure 7. Inclusion criteria for this research study.

Yin (2018) determined that essential to the qualitative research process is the extraction of relevant information that answers the research question. The sampling questions served as a preinterview tool to identify participants who can communicate and contribute vital information

based on their knowledge and experience (Cooper & Schindler, 2014). After the preinterview process, the scheduling email was sent to willing participants with the attached informed consent form to peruse and sign. The small business owners and designated representatives were required to indicate a date and time as per their convenience to schedule the one-on-one telephone interview session. The researcher requested participants to nominate other small business owners who would be willing to participate in the study and met the research criteria (Rahi, 2017). The goal was to interview 12 to 15 participants for this study or until data saturation was achieved (Yin, 2018). Figure 8 shows the process of data collection for this study.

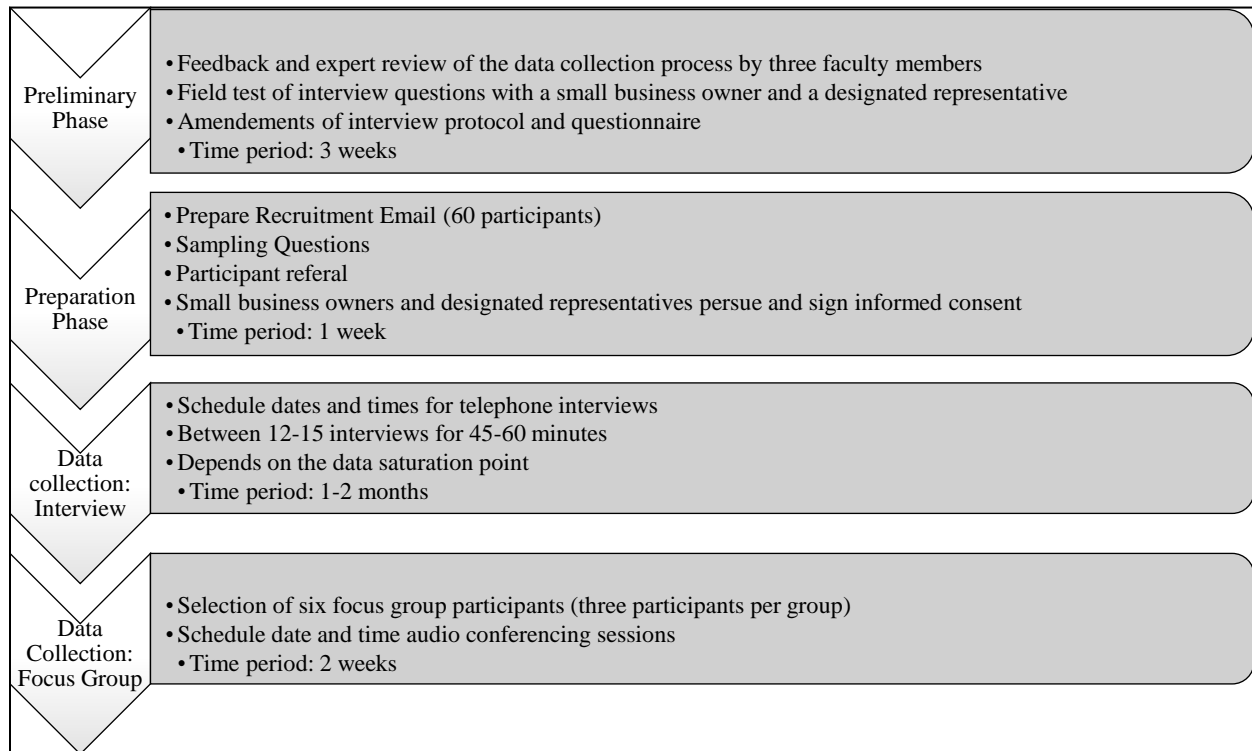


Figure 8. Data collection process model for this study.

Interview Sessions

Dai et al. (2019) declared the interview technique as one of the primary modes of data collection for a qualitative study. The interview method was considered significant for this study to collect substantial information to understand better the use of AIS to predict continuous financial gains in small construction and renovation companies. Some factors for consideration when formulating the interview process involves (a) type of interview structure, (b) number of participants, (c) interview setting, (d) question structure and order, and (e) convenient dates and times for the sessions based on the participants' availability (Castillo-Montoya, 2016).

Semistructured one-on-one telephone interview sessions were scheduled based on the confirmed availability of willing participants for 45-60 minutes. Cooper and Schindler (2014) recommended the semistructured interview format for an engaging dialogue to obtain valuable and elaborative responses to questions because of the flexibility of deviating from the interview guide.

Open-ended questions were asked based on a hierarchal structure starting with the broader to narrow topic (Cooper & Schindler, 2014); however, additional questions were asked, if required, to provide clarification or greater insights in responses. During the interview sessions, an audio recorder was used as the primary instrument for notetaking. Data from the audio recordings were transcribed verbatim in Microsoft Word and coded immediately following each interview for a credible assessment and documentation of information, experiences, and interpretations as provided by the participants. The transcripts were sent to participants for member checking and then uploaded to NVivo®12 for thematic analysis.

Focus Group

According to Creswell and Poth (2018), participants in a focus group contribute significant data to understand the phenomenon studied. Members share collective views based on knowledge and experience by discussing open-ended questions simultaneously in a group setting that is controlled by the researcher (Cowton & Downs, 2015). Essential to focus groups is the creation of a permissive environment that supports sharing perspectives and views freely (Guest et al., 2017). Guest et al. (2017) emphasized the need for participants to be comfortable discussing their views about the topic studied. If the participants are uncomfortable, lack knowledge about the topic discussed, and the research relies on statistical data for analysis, then formulating a focus group would not generate data significant to answering the research question.

Yin (2018) emphasized maintaining small groups of persons with similar professional, academic, social backgrounds, and experiences to corroborate the information shared about the topic studied. Appendix B contains the focus group discussion protocol and questionnaire used as a guide for the session. A total of six participants (three persons per group) who met the inclusion criteria were asked to participate in two online focus groups using the Zoom audio conferencing software. The focus groups were scheduled to meet for 1 hour per session on days and at times convenient to all participants while in semiprivate locations to ensure confidentiality of information shared.

Data Storage and Destruction

Cooper and Schindler (2014) identified that essential to research validity is the implementation of safety measures that protect data and the participants in the study. Identifiable data, which includes participants' personal information such as name, telephone numbers, email

address, and business information should be minimized in the data collection process and kept confidential (Cooper & Schindler, 2014). Therefore, the data sources excluded personal identifiers and used only coding labels to protect participants and secure information in this study.

The data obtained from the audio recorder was transcribed verbatim, in Microsoft Word immediately following each interview to ensure accuracy and then saved in an encrypted folder on a password-protected personal computer accessible only to the researcher. Cooper and Schindler (2014) emphasized that data collected from participants should not be stored on laptops and everyday used portable devices for a long time. Data stored on the researcher's personal computer was necessary for easy access to the embedded data analytical software required for coding the information to discuss the results of the study. After data coding, to ensure participant confidentiality, the information on the personal computer was transferred to a portable hard drive. The portable hard drive and the audio recorder was stored securely in a key-locked metal safe, which is only accessible by the researcher until the time of destruction. After 7 years, the portable hard drive will be wiped and the audio recordings deleted off the audio recorder by the researcher through electronic destruction.

Data Analysis: Data Captured and Coding Process

The data analysis strategy allows for coding and evaluation of the information collected from semistructured individual interview sessions, and the focus group. Creswell (2007) stated that the researcher is required to use different types of analytical methods to derive accurate interpretations, as presented by the participants, of the context explored. Yin (2018) suggested the use of automated data analysis software programs (NVivo, MAXQDA, Atlas.ti, and

HyperRESEARCH) in assisting to transcribe, code, and analyze data obtained from qualitative methods. Oliveira, Santos, Bitencourt, and Teixeira (2016) suggested that two factors should be taken into consideration in preparation for thematic qualitative content analysis (a) the use of themes (code names) developed based on the review of literature and before data collection, and (b) the knowledge the researcher has regarding the topic studied. The researcher should have adequate knowledge about the area of study developed through an extensive review of scholarly and professional literature. Understanding the research background is essential, as Yin (2018) emphasized that computerized data analysis programs, although improved in functionality, does not provide statistical data that interpret the results. Therefore, the researcher analyzes the coded data and used judgment to determine meaningful patterns that emerged (Yin, 2018).

Data Analytic Strategy

The review of literature, professional, and scholarly indicated that some small business owners underuse a computer-based accounting system to record and process transactional data (Bruwer & Smit, 2015; Esparza-Aguilar et al., 2016; Prasad & Green, 2015). Inaccuracies in accounting information hinder assessment of the company's performance, which is required for strategizing the business functions to maintain long-term operation and yield financial gains (Abdul-Rahamon & Adejare, 2014). Yallapragada and Bhuiyan (2011) recommended identifying the appropriate AIS that aligns with the functionalities of the business. The exploration of how small business owners use AIS to support forecasting profitability requires an in-depth inquiry to understand the lived experiences regarding the functionalities significant to the business sustainability. According to Creswell (2007), the evaluation of qualitative data requires different approaches to analyze the information to obtain meaningful insights about the phenomenon.

Figure 9 depicts the analytic strategy used in this study to analyze qualitative data collected from the interview sessions.

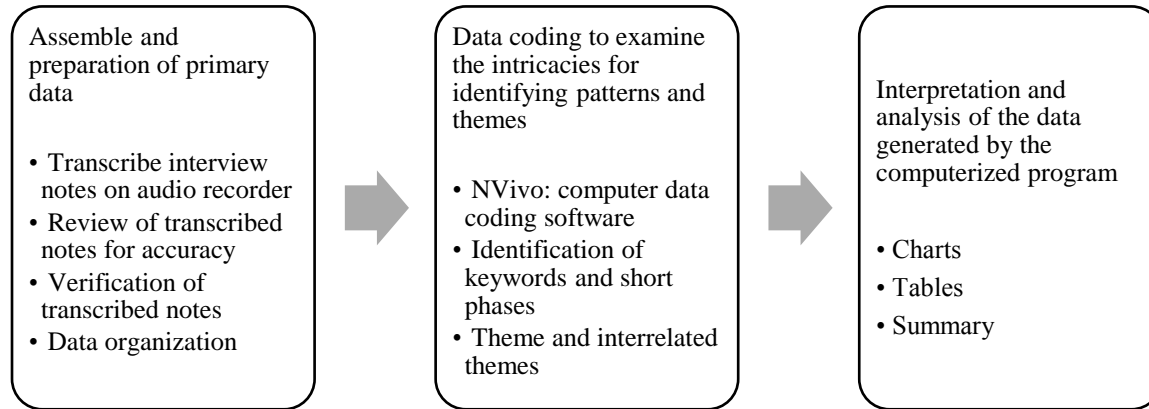


Figure 9. Data analytic strategy.

Data Assembly and Preparation

The data analysis process began with organizing and compiling the data sources obtained from the qualitative data collection methods (Yin, 2018). The data collected from individual interview sessions with construction and renovation small business owners and designated representatives was organized into categories formulated based on the context of the research question (Jacob & Furgerson, 2012). The assembly of data allowed for familiarization to understand the complexities of the business problem based on participants' knowledge and experiences (Creswell, 2007).

An audio recorder was the main recording instrument during the interview process. The data processing began with a verbatim transcription, in Microsoft Word, of the notes recorded on the audio device after each interview. According to Davidson (2009), verbatim transcription of data collected through the interview process was integral to generate insights as perceived by the participants regarding the phenomenon explored. Additionally, abbreviated notes were typed

during the interview to highlight information that may require further clarification with a follow-up question, or in the event, there was an issue with the audio device (Patton, 2002). Transcripts were reviewed and verified, by the researcher and participants using member-checking techniques, to ensure accuracy and completeness of the data documented. The transcript of the audio recordings should align precisely with the spoken word. After the transcription of the interview, then coding and data analysis occurred.

Data Coding

Creswell (2007) defined coding as the process of dissecting qualitative unstructured data by categorizing, tagging, and labeling text from the transcript to identify salient features relevant for understanding the phenomenon studied. Yin (2018) suggested documenting patterns, concepts, and insights from the data set as an essential start to coding the data by using keywords, themes, highlighting, creating charts, and drafting tables. Creswell (2007) recommended the use of a *codebook* to document keywords and organize data sets into categories. Similarly, Bianco, Schettini, and Gasparini (2014) asserted the significance of color-based coding to assign categories to data sets for tracking and controlling the information (which is necessary for interpretation), and identifying relevant data based on the research question. The use of graphical representations (flowchart, graphs) and tables to conceptualize the information will aid with organizing the unstructured data to create an analytical strategy (Yin, 2018). Oliveira et al. (2016) asserted that computerized software programs are updated and equipped with color coding and graphical representation features to create patterns that provide insights regarding emerging context.

The interview protocols comprised of open-ended questions, which Yin (2018) emphasized can generate different responses from participants and can complicate the coding process. The data collected was read thoroughly to comprehend the information conveyed by the research participants during the interview process. Yin (2018) suggested that a review of the transcripts could help the researcher connect with the information in preparation for coding the unstructured data. Saldana (2013) recommended a reassessment of the coding structure, after data collection, to ensure coded data provides substantial results to address the research question. Therefore, being organized and flexible are two key strategies that Saldana (2013) emphasized are valuable to the coding process. The interview transcripts were analyzed, using computerized coding software, to identify keywords and short phrases to breakdown unstructured data into simple categories relevant to understand the original text (Yin, 2018).

Computer software programs can provide a robust search for categorizing data to produce new information embedded in participants' responses. The computer-assisted qualitative data analysis software program used to code and interpret the data obtained from the interviews was NVivo®12. NVivo®12 is predominantly used to structure and manage empirical results by coding and evaluating text and video-based data sources in qualitative research to identify trends, themes, and patterns (QSR International, 2019). Oliveira et al. (2016) analyzed the functionalities of NVivo and MAXQDA and determined that the data coding and analysis software provided similar features and contributed significantly to identifying patterns and emerging context from the qualitative data sources. However, NVivo®12 was used because of the flexible interface and familiarity with the software program. The transcripts were uploaded to NVivo®12 for coding to identify meaningful information relevant to the context studied for

further interpretations. The coding process allowed for organization and summarization of data segments to identify associations that will formulate themes and subthemes for analysis and interpretation.

Themes and Subthemes

The thematic analysis technique was implemented to identify, analyze, and document patterns derived from the coded data (Oliveira et al., 2016). The focus of this study was to explore the contributory factors that influence how small construction and renovation business owners in the Northeastern United States used AIS to support forecasting profitability. Based on reviewing the literature, Figure 10 presents the themes and subthemes that were developed to answer the research question for this study, which was guided by the CTMA conceptual framework. However, flexibility is vital in the coding process to identify new themes and patterns that might emerge from data sources (Yin, 2018). Emerging themes and patterns were noted based on the researcher’s perception of the data elements presented by the software (Saldana, 2013).

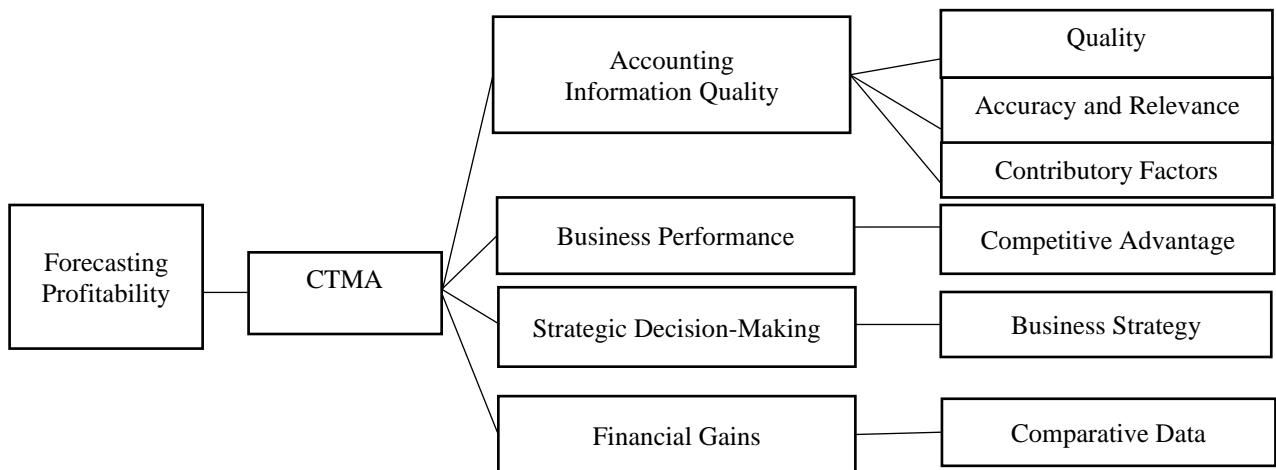


Figure 10. Themes developed from a review of the literature in relation to the research question for this study.

Data Analysis and Interpretation

Although computerized coding programs are designed to assist with breaking down large portions of data to obtain meaningful information (Creswell, 2007), Yin (2018) asserted that these programs are not capable of analyzing and interpreting the data. Data analysis and interpretation require the assessment of results based on the themes discovered to understand the complexities of the business problem (Oliveira et al., 2016). Therefore, Yin (2018) asserted that researchers should *play* with the data to identify important concepts that emerge through data manipulation. The researcher is required to use judgment to determine patterns derived from the themes that explain or describe the nature of the case study (Yin, 2018). Essential to qualitative research is producing credible, reliable, and comparable results regarding the context studied (Tracy, 2010). According to Dai et al. (2019), adequate data should be analyzed to the point of saturation (where all information is the same and no new insights are shared). Additionally, data triangulation was used to ensure the validity of the research by gathering data from interviews, focus groups, and external documents. Yin (2018) stated that triangulation of data in qualitative research allows information to be gathered from multiple sources which corroborate the findings.

The analysis of the results was presented in narrative format with the use of tables and charts to aid with summarizing and organizing the interpretation and conclusions regarding how small business owners use AIS to support forecasting profitability. Verdinelli and Scagnoli (2013) noted that the display of data interpretation should add value to the information conveyed, ensuring clarity by using the appropriate method to share the research findings. The data presented in this study reflected the mutual connection between the emerging themes derived through analyzing the interview responses of participants and review of scholarly and

professional literature. Finally, the findings should be reported so that readers can understand the concept; therefore, Yin (2018) proposed five features for comprehension (complete, honest, correct prediction, value-added, and credible), which established the foundation for presenting the interpretation and conclusion for this study.

Ethical Considerations

Research involving human participants was reviewed to ensure the relevant ethical principles was maintained throughout the process (Cooper & Schindler, 2014). The identity protection of willing participants and the data they shared was paramount to the research process. Therefore, before conducting this study, I sought approval from the IRB. Additionally, the Collaborative Institutional Training Initiative (CITI) modules, which reviewed the general ethical standards in the *Belmont Report* of 1978 that are accepted in academic research, was completed before seeking IRB approval.

Cooper and Schindler (2014) accentuated the need to ensure ethical treatment of participants by (a) clearly discussing the nature and benefits of the study, (b) explicate the rights and protections observed in the research process, and (c) after the review and clarification of the parameters of the study, obtain informed consent from willing participants. Academic research integrity was upheld by respecting the participants and any decisions made regarding involvement or noninvolvement with the study (Yin, 2018). Although participants in a qualitative case study contribute vital information based on their knowledge and expertise, participation is voluntary, and the participants can withdraw from the study at will (Baykara et al., 2015). However, protective strategies were implemented per ethical standards by maintaining

integrity and transparency in reporting information and protecting the participants (Cooper & Schindler, 2014).

This study required some small business owners and designated representatives to share data regarding how AIS is used to support forecasting profitability. Business information is considered private and sensitive for privately-owned companies (Bladu, Amat, & Cuzdriorean, 2017). Participants can decline to share any information deemed confidential. Additionally, all business information shared (data transcripts, and typed notes), the informed consent forms, and pre-interview questionnaires are saved to an encrypted folder on a portable hard drive that is stored in a metal key-lock safe for 7 years accessible only by the researcher. At the end of 7 years, all research data stored on the portable hard drive and recordings on the audio recorder will be personally destroyed by the researcher.

CHAPTER 4. RESULTS

Introduction

The purpose of Chapter 4 is to provide a summary and an explanation of the research protocol and findings obtained from the data collection instruments. Data for this study were obtained from one-on-one audio-recorded telephone interviews, two online focus groups, themes from the scholarly literature, and external documentation that includes construction and renovation websites, industry reports, and an artifact. Chapter 4 includes an analysis and critique of the data collection results along with the research protocol, description of the case context, participants, interview setting, field tests, semistructured interviews, online focus groups, data saturation and triangulation, external documentation, and the theming and coding process. Information is provided regarding the chain of evidence and data handling that is critical to case study research. A labeling structure developed to protect the identity of the participants and used to analyze the data collected is provided.

Data Collection Results

The data collection results include methods and processes implemented in the data collection. Griffin (2018), Lussier and Hyder (2016) identified five significant factors that cause small business failure in the United States as (a) managerial incompetence, (b) insufficient capital, (c) neglect, (d) inadequate accounting practices, and (e) poor control systems. Shahhossein et al. (2018) postulated that (a) poor budgeting, (b) incomplete experts' knowledge, (c) poor judgment, (d) underuse of accounting systems, (e) scheduling issues, and (f) financial concerns are some issues that continue to affect the sustainability of construction and renovation companies. Scholars identified some factors that caused small business failure within different

industries. Abdul-Rahamon and Adejare (2014) studied the effects of accounting information on small business growth and performance. Bushe (2019) explored the cause and impact of small business failure. Sibanda and Manda (2016) assessed the sophistication of AIS and business performance. However, additional information is required to understand the use of accounting systems to support continuous financial gains, which could be vital to decrease small business failure rate. This qualitative case study focused on how some small construction and renovation business owners use AIS to support forecasting profitability. AIS is an information system used to collect, store, and process business accounting and financial data for tracking the business operation (Prasad & Green, 2015).

Research Protocol

Yin (2018) noted that research protocols are established to structure the qualitative research by ensuring procedures and rules are in place to promote acceptable researcher handling, behavior, fairness, and guidance for the data collection phase. Research protocols (see Appendices A and B) were developed and submitted for approval from Capella University's IRB to guide the interviews and data collection process for this research. Creswell and Poth (2018) emphasized the significance of adhering to the research protocol from preparation (planning phase) to documentation of the responses from research participants. The IRB approved the research protocols, recruitment email to recruit potential participants, scheduling email for one-on-one interview sessions and the online focus group sessions, and procedures for securing data and documenting responses. The protocol presented a structured outline of procedural steps to prepare, conduct, and end the data collection process. The approved research protocol for this study included the following:

- Received IRB approval for recruitment, scheduling, interview sessions, and focus groups
- Located potential participants' public information (contact person and email address) from two professional construction and renovation websites
- Emailed recruitment email to prospective participants that met the inclusion criteria
- Screened participants using the IRB approved sampling questionnaire to ensure they met the inclusion criteria for this research
- Emailed participants interview scheduling information so they could select date and time for interviews
- Emailed participants the informed consent form requesting perusal and their signatures before participating in the one-on-one interviews and focus group sessions
- Conducted interviews and used an audio recorder to record participants responses
- Transcribed interviews verbatim and assigned a code to each participant as a pseudonym to protect the identity of the participants. Advised participants they were part of member checking
- Communicated by telephone the request for participants participation in two online focus groups
- Scheduled focus group sessions based on the proposed date and time identified by the research participants
- Used Zoom to conduct the two focus group sessions and an audio recorder for recording the information

- Transcribed the focus group sessions verbatim and assigned a code as a pseudonym for the participants and emailed the transcribed notes to the focus group for member checking.

Case or Phenomenology Context

The use of AIS in small construction and renovation companies was explored in this research. Figure 11 shows the case context for this research, which depicts the phenomenon, focus, and emerging themes.

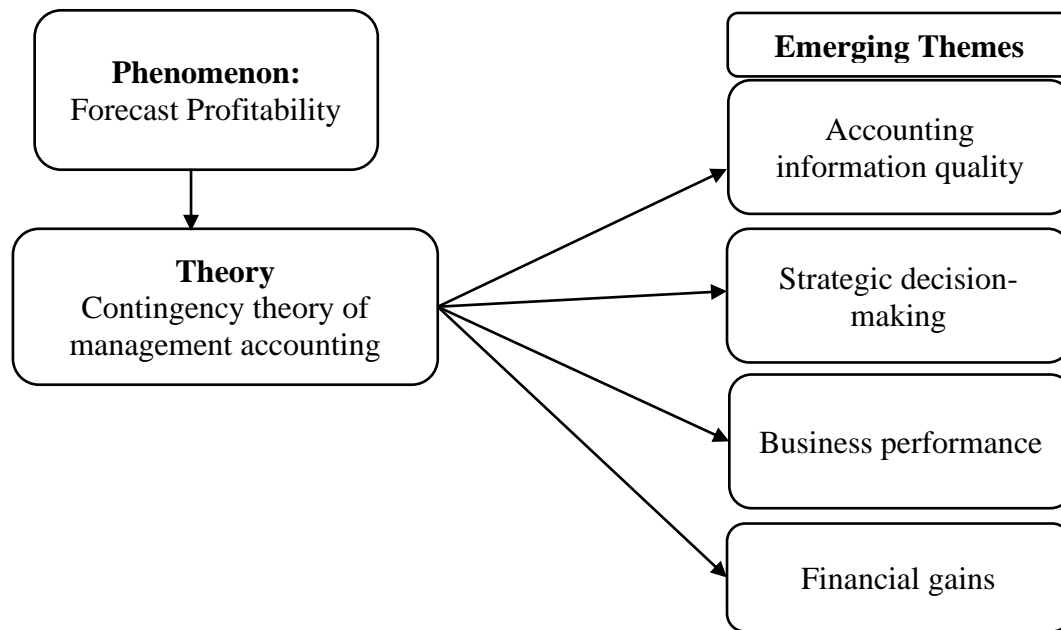


Figure 11. Case context: phenomenon, theory, and emerging themes.

Bushe (2019) documented that some small business owners fail to remain profitable within the 5 to 7-year period of inception, which affects long-term business operations. The Bureau of Labor Statistics (2018) reported that approximately 50% of small business owners terminate operation by the fifth year. Esparza-Aguilar et al. (2016) concluded that some small business owners underuse accounting tools, which are necessary to monitor the financial health for the

sustainability of a company. According to Abdul-Rahamon and Adejare (2014), documenting accurate accounting information using a compatible accounting system could help small business owners monitor business performance to ensuring profitable operations during fiscal periods. Therefore, understanding how some small company owners who have sustained business operations for more than 5 years by using AIS might be beneficial to reduce business failure rates.

Chapter 2 addressed the phenomenon of forecast profitability by some small business owners through extensive review of literature (Bruwer & Smit, 2015; Esparza-Aguilar et al., 2016; Prasad & Green, 2015) and the conceptual focus of CTMA (Abba et al., 2018; Chenhall, 2003; Otley, 2016). The literature review revealed emerging themes based on the theory and supported the use of AIS to forecast profitability, which included (a) accounting information quality (Al-dmour et al., 2017), strategic decision-making (Dearman et al., 2018), business performance, and financial gains (Mia, 2017). Although an abundance of quantitative researchers measured and assessed variables related to AIS and forecasting profitability, the need exist to understand the relevance of AIS to support profitable, sustainable operation. The emerging themes discussed in Chapter 2 could formulate a basis for further research that produces statistical data. Research exploring the use of AIS to forecast profitability provides further insights to understand the significance or irrelevance of accounting tools to sustain small business operations.

This qualitative single case study explored how AIS is used to support forecasting profitability based on the knowledge and experiences of small business owners and designated representatives (Yin, 2018). Case study research design extends the body of knowledge through

a comprehensive review of a phenomenon based on data gathered in a real-life context from a small number of participants (Cooper & Schindler, 2014). The function of the case study design is to allow exploration of bounded cases through detail and in-depth data collection using various sources to develop a robust understanding of the phenomenon (Thomas & Myers, 2015). Small business owners stimulate economic development of a country by supporting growth and innovation through employment opportunities to citizens unemployable by larger companies (Obi et al., 2018; Ribeiro-Soriano, 2017). More specifically, organizational leaders operating in the construction and renovation sector offer structural development products and services, which contribute to the wealth and development of a country. However, Shahhossein et al. (2018) expressed concern, in addition to poor project management and scheduling issues, some small construction and renovation business owners lack the awareness of accounting and financial practices necessary to sustain long-term operation.

Addressing the business problem required potential participants who were construction and renovation business owners or the designated representative (accounting manager, manager, and chief executive officer), in operation for more than 5 years, possess basic accounting knowledge, and used an AIS to support forecasting profitability. Participants were required to use the AIS for minimum of 5 years; therefore, having access to comparative data required to assess the financial health of a business. Participants who had no accounting knowledge and did not use an AIS was not included in this research study, because the central focus of this study was to explore how AIS is used to help maintain long-term successful operation of the small business. Figure 12 shows the inclusion criteria for the study participants.

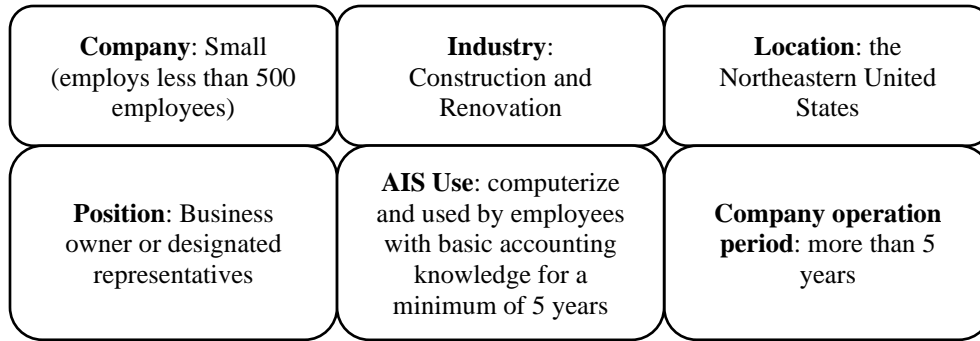


Figure 12. Inclusion criteria for study participants.

Interview Participants

The Department of Labor (2018) documented more than 21,000 registered construction and renovation companies in the Northeastern United States for the year 2018. A review of the National Kitchen and Bathroom Association (NKBA) and Shore Builders Association websites identified approximately 5,000 small construction and renovation business owners who are registered with the professional organizations in the Northeastern United States. Purposive sampling was implemented to choose the potential participants who were registered on the NKBA and Shore Builders Association websites. The goal was to find 12 to 15 small construction and renovation business owners or their designated representatives who are experienced using a computerized AIS to support forecasting profitability for more than 5 years and were willing to participate in the study.

Dabic and Stojanov (2014) suggested that significant to qualitative research is collecting information from enough participants until data saturation is achieved. Saunders et al. (2018) postulated that data saturation is an essential methodological element for qualitative research. Data saturation is a point in the data collection process when no new information is shared, or new themes emerged (Malterud, Siersma, & Guassora, 2016). Fusch and Ness (2015) identified interviews and focus groups as the two prominent data collection methods used that can benefit

from data saturation. Although Fusch and Ness determined that the number of participants is not as relevant as the depth of data collected, Yin (2018) stated that data saturation is achieved when the researcher collects sufficient information from five to 12 participants and no new information emerges.

Participants were purposely selected from the NKBA and Shore Builders Association websites. NKBA and Shore Builders Association are part of a professional organization for construction and renovation business owners operating in different regions of the United States. Contact information for small construction and renovation business owners was publicly available on these professional websites. Recruitment emails were sent to 60 small construction and renovation business owners operating in the Northeastern United States. Eleven potential participants expressed interest to participate in the study. However, eight participants referred their designated representatives to provide substantial information required for the study. The sampling questionnaire was emailed to the participants, which was used to ensure the participants met the research inclusion criteria. After the potential participants responded to the sampling questions, all 11 participants were approved (three small business owners and eight designated representatives). Figure 13 provides an overview of the participant recruiting procedure.

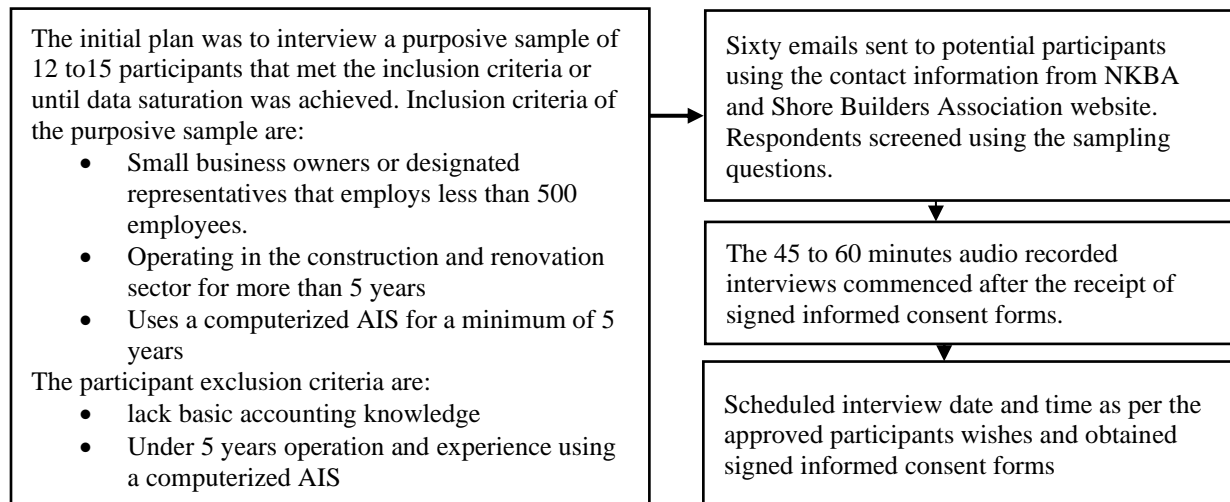


Figure 13. Participant recruitment procedure for this study.

The scheduling email was sent to the approved research participants, which included the informed consent, to indicate a date and time in December 2019 and January 2020 to schedule the one-on-one telephone interview and focus group sessions. Participants were instructed to email the signed informed consent form back to the researcher with their preferred date for the audio-recorded one-on-one telephone interview and online focus group sessions. Two of the approved participants (one small business owner and one designated representative) did not sign or return the informed consent form and did not respond to voice messages. The research study continued with nine willing participants.

The snowball sampling technique was used to identify additional participants for this study. According to Cooper and Schindler (2014), the snowball sampling technique is a chain-referral sampling that requires potential participants to refer other participants with similarities in knowledge and experiences. Participants were asked to refer potential participants by sharing the recruitment email and the researcher's contact information. Three additional small business owners expressed interest in the study. Two of the participants suggested their accountants would

provide substantial information regarding the research study. The sampling questions were emailed to the small business owner and two designated representatives. The three participants obtained from the snowball sampling technique were not registered with the NKBA or Shore Builders Association. All the referred participants met the inclusion criteria. The scheduling email was sent to the referred participants with the informed consent form attached to determine the date and time for an interview session. Table 6 provides a summary of the total participants that participated in this research study.

Table 6

Breakdown of the Recruitment Process

Recruitment Process	Participant Response	Participant Breakdown
Purposive sampling: Initial Contact	60 emails sent	30 sent to NKBA 30 sent to Shore Builders Association
Response	11 participants	3 small business owners 8 designated representatives
Declined	2 participants	1 small business owner - no reason was stated. 1 designated representative - no reason was stated.
Implied Consent	9 participants	2 small business owners 7 designated representatives
Snowball sampling: Response and approved	3 participants	1 small business owner 2 designated representatives
Total willing participants	12 participants	3 small business owners 9 designated representatives

The purposive sampling technique and snowball sampling yielded a total of 12 willing participants for this study. Twelve one-on-one telephone interviews were scheduled and conducted with three small business owners and nine designated representatives. Two sets of

focus group discussions were conducted with a total of five participants (two participants in the first focus group session and three participants in the second session). Table 7 shows the demographic information for the participants in this study obtained from the sampling questionnaire and the interview questions.

Table 7

Demographic Information for Participants

Participant	Primary Position	Years in the industry	Computerized AIS	Years using an AIS	Participation in this study
P1	Owner/Manger	13	QuickBooks Advanced Excel	5-10	Field Test Interview
P2	Owner/Manger	10	QuickBooks	5-10	Interview
P3	Accountant	7	QuickBooks Online	10-20	Field Test Interview
P4	Owner/Manger	17	QuickBooks	10-20	Interview
P5	Accountant	6	QuickBooks Online	5-10	Interview Focus Group
P6	Chief Financial Officer	15-20	QuickBooks Page Software 300 StarBuilder	10-20	Interview Focus Group
P7	Accountant	21	QuickBooks	10-20	Interview Focus Group
P8	Accountant, Chief Financial Officer	10	QuickBooks	10-20	Interview Focus Group
P9	Accounting Manger	30	QuickBooks TaxPro	Over 20	Interview
P10	Accountant	30	QuickBooks Advanced Excel	Over 20	Interview
P11	Accounting Manager	25	QuickBooks Advanced Excel	10-20	Interview Focus Group
P12	Chief Executive Officer	15	QuickBooks	10-20	Interview

Interview Setting

Castillo-Montoya (2016) regarded interviews as the cornerstone of qualitative research to gather data significant for addressing a business problem. Conducting a research interview in a location that is free of distractions and disruptions is essential to obtain rich and detailed

information (Yin, 2018). The interview sessions for this study were conducted via telephone (cellular and office landlines), at dates, and times selected by the research participants. The interview sessions were conducted in quiet and semiprivate locations (home office and conference room) to ensure the participants' responses were kept confidential. Most of the participants scheduled the interview sessions during regular working hours. Limited disruptions occurred during the interview sessions. During one of the interview sessions, the designated representative was required to attend to an office matter, that was resolved quickly and then continued the interview session. One of the small business owners conducted the interview at home, which required an occasional diversion in focus to address family matters. Other distractions experienced during the interview sessions were knocking on office doors, responding to business questions, and the phone ringing. These distractions did not disrupt the interview sessions, which were all completed successfully.

The focus group sessions were scheduled after the one-on-one interviews with participants. The researcher chose two dates and times to schedule the focus group sessions. The participants selected the preferred date and time based on their convenience. The two focus group sessions were conducted using Zoom, which is an audio and video conferencing software. During the focus group sessions, the audio recording feature in Zoom and a portable audio recorder was used to record the responses, while conducted in quiet and semiprivate location to ensure confidentiality of responses from the participants. The participants who were not responding to the question would mute their microphones to limit background noises and disruptions during the focus group sessions.

Semistructured Interview

Yin (2018) recommended a guided interview format rather than structured questions for a case study research. The formation of the semistructured interview questions allows for deeper probing by asking follow-ups to clarify content and provide new information to understand better the context of the research study (Castillo-Montoya, 2016). The researcher developed interview protocols (see Appendices A and B) with a set of open-ended questions that guided the process; however, during the interview sessions, questions emerged from the dialogue with the participants, which allowed for a deeper probing of the responses (Cooper & Schindler, 2014). Appendices A and B provide the interview protocols used for the field test and one-on-one telephone interview questions and the focus group protocol, respectively. The interview questions were organized into the following six categories essential to create a logical flow and gain insight into the business problem:

- Background information
- Contributory factors
- Accounting information quality
- Strategic decision-making
- Business performance
- Financial gains.

The structure of the interview questions allowed for meaningful dialogue with participants to understand how AIS is used to support forecasting profitability. Jacob and Furgerson (2012) suggested starting the interview session with general questions to ascertain a comfort level before asking specific questions. The background questions provided a better

understanding of the participants' knowledge in accounting based on years of experience and use of computerized AIS to document business data. The contributory factors question established the basis that determined the choice for AIS, which guided the process into the specific interview questions regarding accounting information quality, strategic decision-making, business performance, and financial gains. The order of the interview questions was structured to provide a logical flow of information, however, providing an opportunity to ask follow-up questions for clarification and to acquire a deeper understanding of the context. Therefore, scheduling adequate time to conduct the interview was essential to allow complete responses to open-ended questions.

Essential to the interview process is allowing adequate time to collect valuable information. Yin (2018) described the three types of case study interviews as (a) prolonged interviews - dialogue that could last over two or more hours, (b) shorter interviews - more focused interview that is conducted for 1 hour, and (c) survey interviews - uses a structured interview format. This research reflects the shorter case study interview. The one-on-one telephone interview sessions were scheduled for 45 to 60 minutes per participant. The focus group sessions were scheduled for 60 minutes per session. During the interview sessions, a recording device was used to document the responses from each participant. However, before the start of the one-on-one interview sessions, a field test of the interview questions using the interview protocol was scheduled with a small construction and renovation business owner and an accountant to ensure the interview protocol, questions, medium, and time allotted could contribute meaningful responses that addressed the research question. Minimal changes were made based on the participants requesting clarity of some terminologies and shared suggestions.

Field Test

Qualitative research could provide valuable information to understand a phenomenon based on the lived experiences of willing and knowledgeable participants (Majid, Othman, Mohamad, Lim, & Yusof, 2017). The qualitative process of inquiry can be challenging because of the structure and level of detailed information required to provide meaning to complexed contexts (Cooper & Schindler, 2014). Yin (2018) suggested conducting a field test of the interview questions, which allows the researcher to refine the content and procedures of the interview data collection plan.

The interview protocol was assessed and evaluated during a mock interview at the Track 3 Residency by three PhD professors. Feedback was recorded, and the necessary changes were made to the interview protocol. Two field tests were conducted with an accountant and a small construction and renovation business owner who met the inclusion criteria for this study. The researcher informed the participants about the objective of conducting the field test (Yin, 2018). The interview questions were emailed to the participants for review and preparation purposes before conducting the field test. The interviews proceeded after the participants reviewed the questions and obtained clarification regarding the interview protocol. The field test was conducted using the telephone, and an audio recorder was used to record the responses. During the session, follow-up questions were asked occasionally to obtain clarification and to extend the information provided by the participants. There were no major issues in administering the questions and the participants did not express any major concerns regarding the interview process. However, minor word changes were made to some of the questions after the interview with the small business owner.

Data collected from the field testing of interview protocol was reviewed to ensure questions stimulated responses that significantly contribute to understanding the phenomenon studied in the research. Based on the results from the field test, some questions were slightly modified to improve clarity and enhance the flow of information. Some accounting terms used in the questions were simplified to reflect the context recognized by operators in the construction and renovation sector. The simple changes to the questions did not alter the research topic. The field test showed alignment with the research question, a connection with the theory and themes in Chapter 2, and supported the coding structure initially created in Chapter 3. The data obtained from the field test was not included in the data collection process.

One-on-One Telephone Interviews

The one-on-one telephone interviews were conducted during December 2019. The interviews were conducted via telephone (standard office phone or cellular phone) and an audio recorder used to record each session. Before the interview process, the inclusion participants had returned the signed consent form back to me. Approximately five participants did not return the informed consent form during the prescribed time, however, after being reminded that they could not participate in the research without giving consent, the form was signed and emailed to the researcher in time to conduct the interview. Twelve persons (three small business owners and nine designated representatives) participated in the one-on-one telephone interview.

The participants were willing and eager to share their knowledge concerning the business problem addressed in this research study. Each interview session was scheduled for 45 to 60 minutes. The average interview time was recorded at 42 minutes. Table 8 shows a list of the times for each interview session.

Table 8

Participants Interview Times

Participant	Primary Role	Participant (Code)	Interview time (minutes)
Owner/Manager	Owner	P1	43
Owner/Manager	Owner	P2	51
Designated Representative	Accountant	P3	37
Owner/Manger	Owner	P4	46
Designated Representative	Accountant	P5	33
Designated Representative	Chief Financial Officer	P6	37
Designated Representative	Accountant	P7	39
Designated Representative	Accountant, Chief Financial Officer	P8	43
Designated Representative	Accounting Manager	P9	52
Designated Representative	Accountant	P10	49
Designated Representative	Accounting Manager	P11	39
Owner/Manager	Chief Executive Officer	P12	34
Total		12	503

The semistructured interview protocol and open-ended questions were administered to ensure natural dialogue with the participants. Follow-up questions were asked during the interview to provide clarification of concepts and procedures and further the responses to understand the experiences of the participants. Some of the interview questions were restated when the conversation digressed, especially when asked questions about assessing business performance. Some participants expressed that the interview questions stimulated a deeper self-assessment of their use of AIS in relation to predicting financial gains while operating in a volatile market. The participants were enthusiastic about participating in the study and requested a copy of the published dissertation to gain a better understanding of AIS used to support

forecasting profitability. After each interview session concluded, thank you emails were sent to the 12 participants.

Focus Group Interviews

After completing the 12 one-on-one telephone interviews, six participants (from the interview sessions) were selected to participate in two online focus group sessions. The purpose of forming the focus group sessions was to contribute new perspectives or solidify prior responses in a group setting with marginal influence by the researcher to enable data triangulation (Yin, 2018). Data triangulation allows for the use of different research methods or data sources in qualitative research while studying the same phenomenon (Abdalla et al., 2018). According to Noble and Heale (2019), collecting data from multiple sources is a strategy used in qualitative research to increase the credibility and validity of the findings by demonstrating a comprehensive understanding of the context. Yin suggested that focus groups remain small with two or three persons per group and include participants with similar characteristics such as professional experiences, academic achievements, and social background.

Participants who participated in the one-on-one telephone interview were called to participate in the online focus group. Two specific dates and times were suggested to schedule the focus group sessions. The two focus groups for this study comprised of participants with similar academic achievements and professional experiences in accounting. All six participants were knowledgeable regarding computerized AIS and worked in the construction and renovation sector for more than 5 years. Each focus group was arranged to comprise of three participants. However, the first focus group session was conducted with two participants because of an unforeseen medical issue that affected one of the scheduled three participant's participation at

the arranged date and time. The second focus group session contained three participants. Table 9 shows the focus group participants and interview times. The interview time for the first focus group with P5 and P6 was approximately 43 minutes. The second focus group session with P7, P8, and P11 interview time was approximately 58 minutes. The two focus groups were scheduled and conducted in January 2020.

Table 9

Focus Group Participants and Interview Times

Focus Group	Total Interview time (minutes)
Focus Group 1:	43
P5 - Accountant	
P6 - Chief financial officer	
Focus Group 2:	58
P7 - Accountant	
P8 - Accountant/Chief Financial Officer	
P11 - Accounting manager	
Total	101

The approved informed consent form, which was signed by the focus group participants, provided information about participating in the one-on-one telephone interview, member checking, and the online focus group sessions. During the two focus group sessions, I served as the moderator by guiding the sequence for responding to questions but I did not influence the information shared by the participants (Yin, 2018). Participants responded simultaneously to interview questions. Yin stated that focus group interviews allow for multiple responses to the same question; however, if participants are not comfortable communicating in a group setting, this could interfere with obtaining genuine and valid answers to address the research question. Minimal clarification of the questions was required during the focus group interview, as all participants were accountants and familiar with general accounting concepts used in the

construction and renovation sector. I did ask for additional information to stimulate in-depth responses based on the context of the interview question to obtain clarification.

Documentation, Social Media, Artifacts

Additional data sources from industry reports, and accounting and small business journals were examined to contribute insights for this research study. The inclusion of data obtained from external documentation and artifacts contributed information that validates and supports the evidence gathered from the different data sources (Yin, 2018). The review of literature in Chapter 2 provided a thorough assessment of seminal, core, and supporting works regarding the theoretical foundation of CTMA. The analysis of literature derived emerging themes that set the basis to address the business problem explored in this research study. Small business owners contribute to the economic wealth and development of a country by offering various job opportunities to citizens, which decreases the unemployment rate and increase innovation (Bruwer & Smit, 2015; Bushe, 2019; Yallapragada & Bhuiyan, 2011; Zafar, Waqas, & Nawaz, 2018). However, sustaining profitable long-term operation is a continued issue that affects small businesses (Bruwer & Smit, 2015; Esparza-Aguilar et al., 2016). There are various issues that caused failure in small businesses such as management incompetence, poor budgeting, improper financial management, and financial prediction problems (Abdul-Rahamon & Adejare, 2014; Bruwer & Smit, 2015; Bushe, 2019; Lussier & Hyder, 2016). Company management relies on accounting information to make informed decisions and to assess financial health. Therefore, essential to providing accurate business information requires the efficient use of accounting tools for inputting, storing, processing, and generating financial statements (Abdul-Rahamon & Adejare, 2014).

Additional data were obtained by reviewing websites of prominent accounting software developers such as Intuit and Oracle to understand the functionalities of different accounting systems and associated add-ons. Industry information from professional organizations' websites such as NKBA, Shore Builders Association, and The National Association of Home Builders provided valuable data relevant to understand the operations of the construction and renovation sector. The review of external documentation provided insights for industry data significant to this research study.

Yin (2018) identified physical artifacts as a source of evidence relevant for collection and observational purposes in case study research. Although deemed to have less potential in a typical case study, physical artifacts are considered critical when relevant to the case study (Yin). This study focused on how AIS is used to forecast profitability. An artifact obtained from a small business owner was an accounting manual that outlined the steps for using the AIS, inputting business data, and generating financial reports. The accounting manual was vital to review as it provided a clear understanding of how one small business owner uses the AIS for recording business data significant to assess company performance.

Data Saturation

According to Yin (2018), data saturation is the point of repetition when no new information or themes emerged from the participants' interview responses. The qualitative researcher should report (a) how, (b) when, and (c) at what point data saturation occurred (Creswell & Poth, 2018). The analysis of the data collected determined that saturation occurred at the tenth interview; however, interview sessions for the remaining two scheduled participants were conducted because the sessions were already scheduled and to acquire additional data,

which adds credibility to the research findings. The use of AIS and forecasting profitability was discussed intensely with all participants sharing similar information. Twelve participants contributed to the data collection process via one-on-one telephone interviews, which generated information to achieve the point of saturation regarding AIS use to support forecasting profitability.

Data Analysis and Results

The data analysis and results section will provide (a) an analysis, critique, and assessment of the data collected for this research study and (b) a synthesis of the insights and research findings. This qualitative single case study research focused on some contingency factors that influence the use of AIS to support forecasting profitability. The research question that guided this study was, How do some small construction and renovation business owners in the Northeastern United States use AIS to support forecasting profitability?

Essential to the research strategy is creating alignment between the research question, the interview questions, and inclusive of external documentation used to explore the phenomenon. Participants' responses to the interview questions were coded to answer the research question that guided this study. Yin (2018) emphasized the significance of developing a coding structure based on what information is essential to address the research question and how to code the data. Oliveira et al. (2016) suggested that the thematic coding structure allowed for deriving a comprehensive analysis that could develop an understanding of the research study. Coding was developed that allowed for assigning phrases, formulating words, and patterns to create meaning based on the data collected (Yin, 2018).

Theming and Coding Process

Figure 14 highlights the theming and coding process for this research. NVivo®12 was the software used to code the data obtained from the one-on-one telephone interviews and two online focus group sessions. An audio recorder was used to record the interview sessions with the participants. The participants' responses were transcribed verbatim in Microsoft Word from the audio recorder after each interview session. The transcripts were emailed to the individual participants for member checking. After member checking, the participant returned the transcribed transcripts, which were uploaded into NVivo®12.

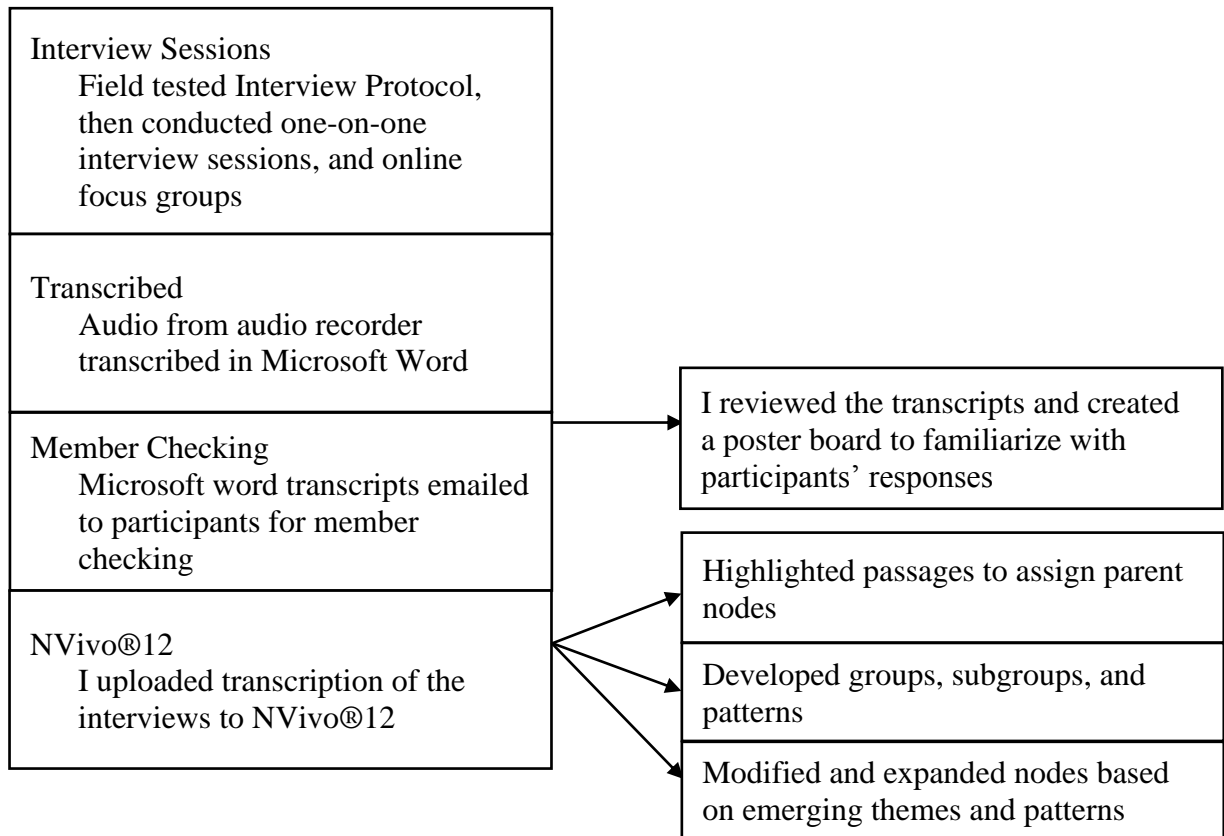


Figure 14. Theming and coding process.

The coding structure created the basis for formulating parent nodes, which included accounting information quality, strategic decision-making, business performance, and financial

gains. I reviewed the interview transcripts to ensure familiarization with the data to code passages into the established parent nodes. Throughout the coding process in NVivo®12 new themes emerged, which caused expansion and modification to identify groupings, subgroupings, and patterns based on the participants' responses. Additionally, I created a poster board and used different color highlighters to acquire meaning from the participants' responses, which helped with identifying emerging themes and patterns in the data. The final coding structure includes the preliminary and final coding framework for this research. The initial coding structure was modified to include child, grandchild, and great grandchild nodes to create the final coded structure.

Presentation of Data and Results of Analysis Using Thematic Analysis for Case Study

The thematic analysis was conducted using NVivo®12 to determine word frequency search. The parameters of the word frequency query were to identify the 25 most repeatedly used words with a minimum of six letters in the grouping of the one-on-one interviews, focus group, and core literature. The word clouds in Figure 15 revealed that the most frequently used terms in the interviews, focus groups, and core literature were (a) information, (b) accounting, (c) profitability/profits/income, (d) decisions/strategic, (e) financial, and (f) performance.

One-on-One Interviews

Online Focus Groups

Core Literature



Figure 15. Most frequently used terms in the interviews, focus groups, and core literature.

Although the word query revealed a strong conceptual connection between the data collection instruments (the core literature and themes developed from the literature review) new words emerged as frequently used in the interviews and focus groups, which were significant to the phenomenon explored in this study. Figure 16 Venn diagram shows the merging of the 15 most repeated words in the core literature, interviews, and focus groups.

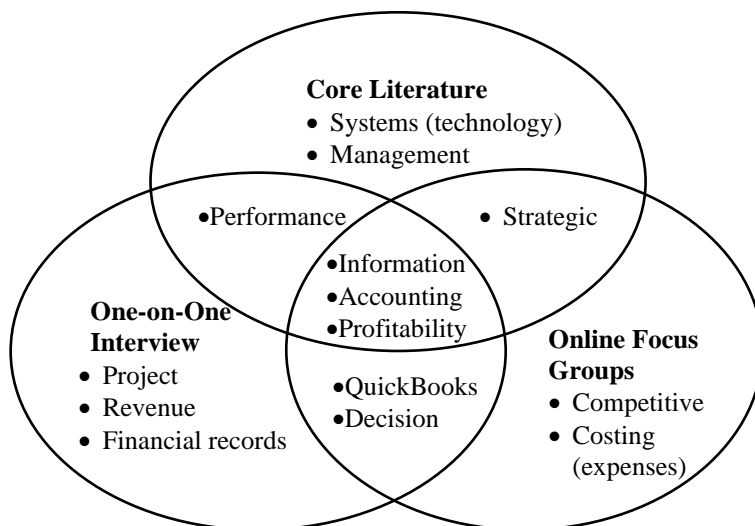


Figure 16. Venn diagram of repeated words in the core literature, interviews, and focus groups.

The interview and focus group questions were structured similarly and presented the following terms: (a) QuickBooks; (b) costing: job/project/materials; (c) revenue; (d) expenses; and (e) financial records. The word performance was common in the core literature and one-on-one interview, which is essential to accounting information quality. Figure 17 illustrates the focus group word query, that shows additional frequently used words during the interview sessions such as (a) costing, (b) people, (c) competitive, and (d) metrics that provided further guidance to understand assessing business performance to determine continuous financial gains and sustainability in a volatile market.



Figure 17. Focus group word query.

Analysis of Dominant Themes

The initial coding structure was modified and expanded to include new codes derived from the word query performed on the data collected from participants and external documentation. Data from the interviews and focus groups were transcribed into Microsoft Word, member checked, and inputted into NVivo®12 for manual coding. Additionally, core literature was inputted into NVivo®12 to help formulate the thematic coding structure for this research. The final coding structure was configured to include the initial codes as the parent

nodes, which were accounting information quality, strategic decision-making, business performance, and financial gains. Figure 18 presents the final coding structure for this research, which includes the parent nodes, child nodes, grandchild nodes, and a great grandchild node. The grey shaded areas indicated the modification of the nodes that stemmed from the parent nodes.

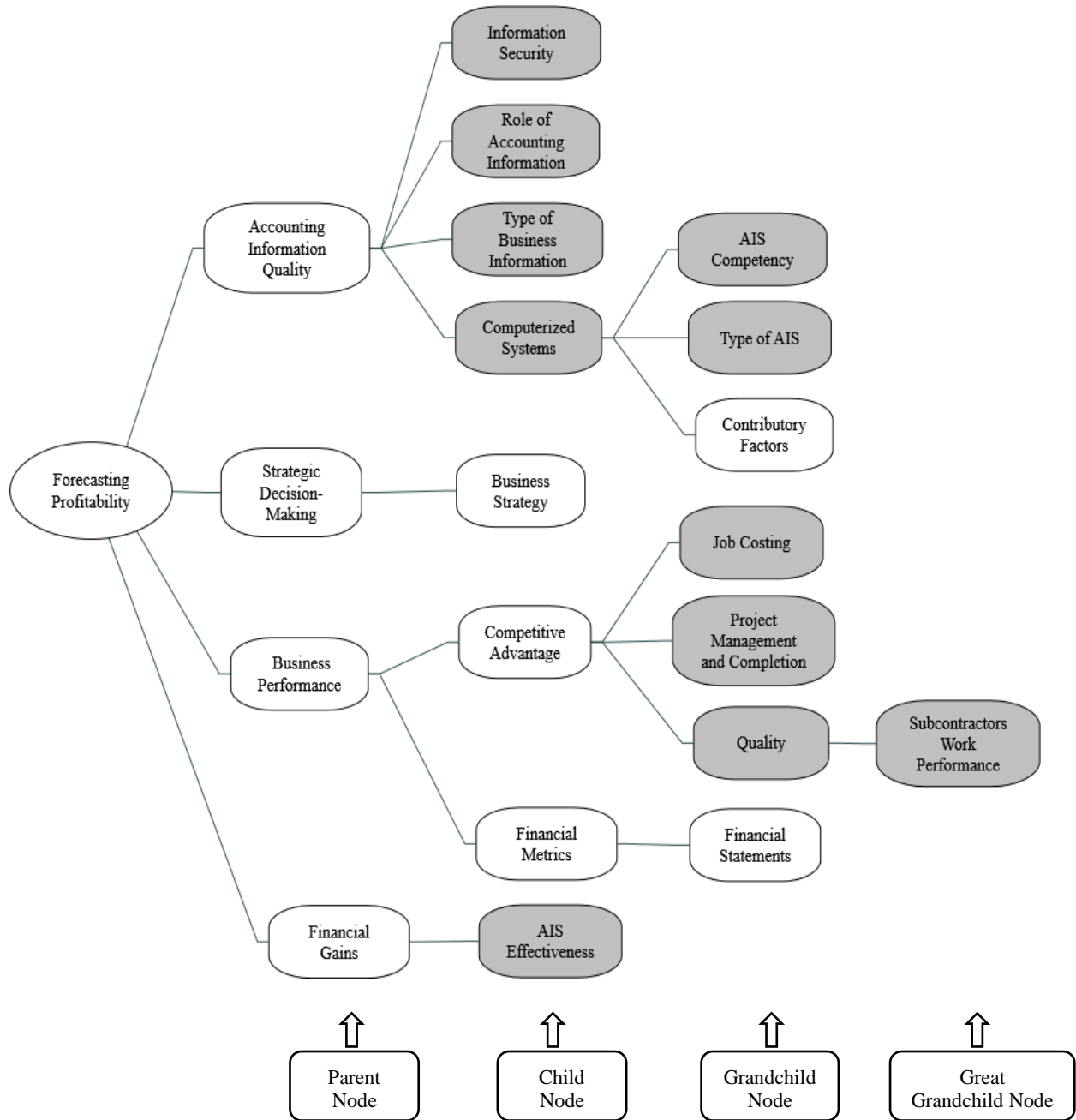


Figure 18. Final coding structure.

Accounting Information Quality

Figure 19 shows the coding structure for the accounting information quality parent node. The initial coding structure was modified to include the four child nodes as (a) information security, (b) role of accounting information, (c) type of business information, and (d) computerized systems. The computerized systems child node generated three grandchild nodes AIS competency, type of AIS, and contributory factors.

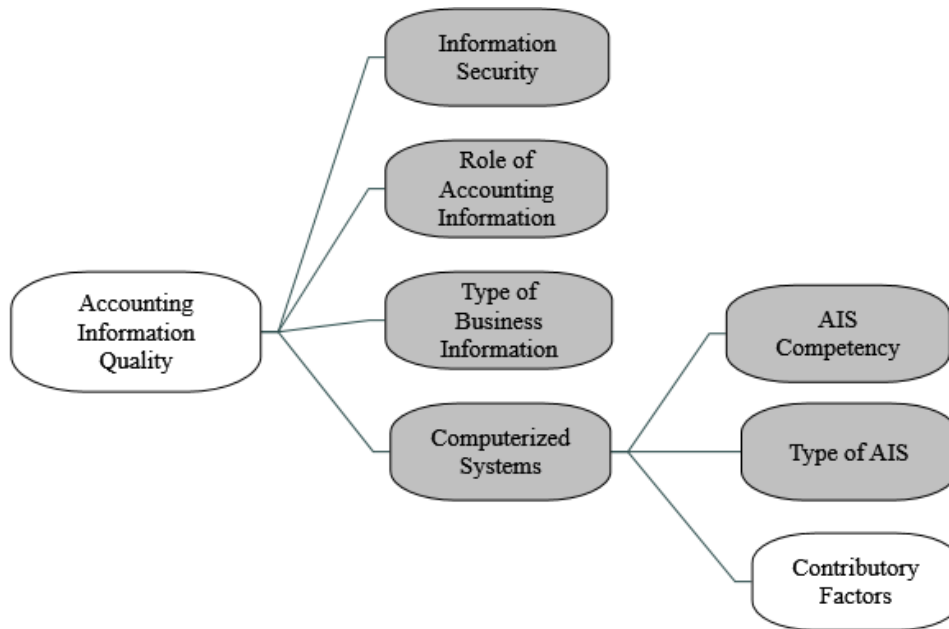


Figure 19. Accounting information quality parent, child, and grandchild nodes.

Yu (2019) defined accounting information quality as business data that is pertinent, reliable, comparable, and consistent to provide clarity and guidance in the business decision-making process. Essential to the quality of accounting information is accurate recordkeeping and using proper tools and systems that maintain the integrity of the data ensuring relevance, transparency, timely entry, and the ability to predict financial health (Gamayuni, 2019). Essential to business operation is the documentation of accurate accounting and business information based on daily transactional events (Abdul-Rahamon & Adejare, 2014). The interview questions

regarding the specific role of working with the business data, type of information collected, the specific process for recording transactions, and information security were asked to understand the context in which participants view accounting information quality. Understanding the participants direct involvement with accounting information was vital to obtain information regarding the type of accounting information valuable to operators in the construction and renovation sector.

Information security. The security of accounting and other business information is paramount to ensure faithfulness in the management operation. According to McCallig, Robb, and Rohde (2019), business information is confidential and should be kept safe and secure from unauthorized access to limit misuse, theft, and data loss. During the one-on-one telephone interviews, participants were asked about the security measures implemented to secure business data stored on the AIS. Figure 20 presents a column chart with information regarding the methods used to secure business information based on the responses from the participants.

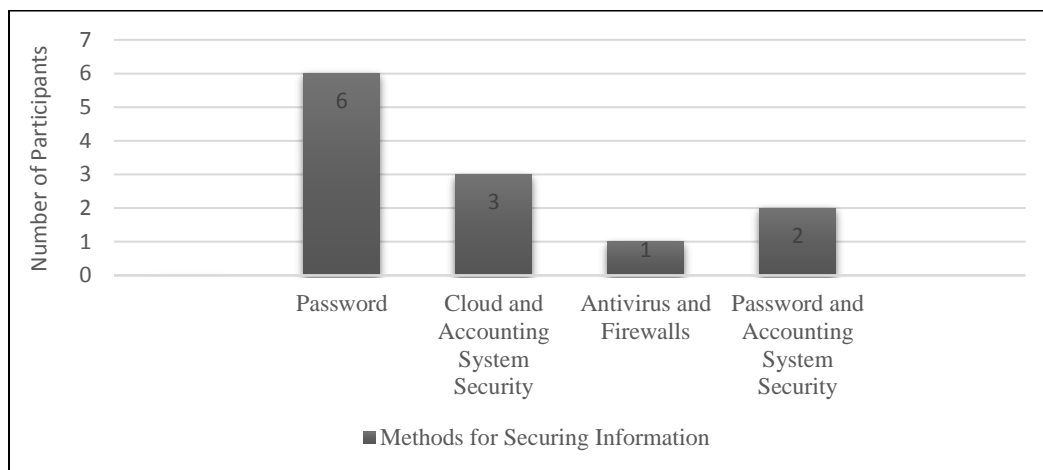


Figure 20. Methods for securing accounting and business information.

Six participants (P1, P4, P5, P6, P7, P8) used passwords to secure business data. The participants used passwords to access company computers and accounting systems. Some participants used a combination of security measures to secure business information such as (a) the cloud and accounting system security, (b) antivirus and firewalls, and (c) password and accounting system security. The question regarding information security helped to provide information regarding various methods deemed necessary to protect accounting and business information, which is an essential factor relevant to maintain data used to access financial health and make management decisions.

Role of accounting information. Hosain (2019) determined that the role of accounting information is to provide financial records that could be used to measure and sustain business operation. As a common theme in the literature review, effective record keeping allows access to real-time transactional data, which small business owners can use to understand the financial health of the company (Abdul-Rahamon & Adejare, 2014). Purswani and Anuradha (2017) indicated that accounting for construction and renovation companies require the reporting and analysis of costs assigned to specific projects and revenue is based on completed contract or percentage of completion. Therefore, understanding the role of accounting information specific to the construction and renovation sector was significant to this research study. Figure 21 shows participants' responses regarding the role of accounting information for small construction and renovation companies.

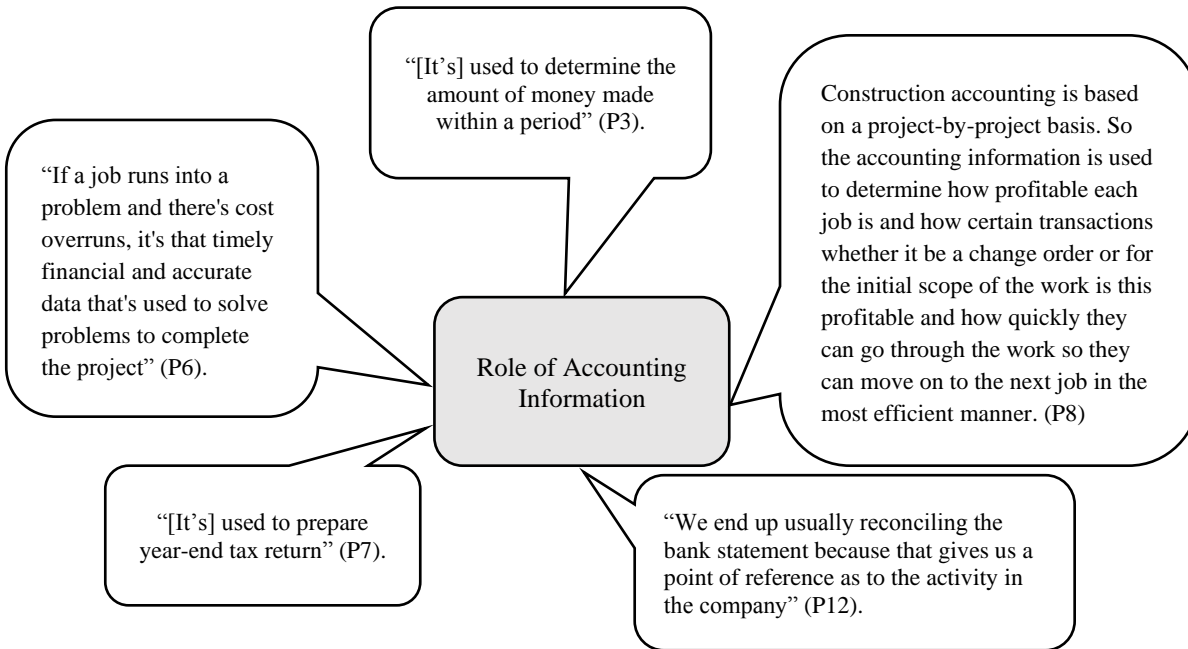


Figure 21. Participants' responses regarding the role of accounting information.

Type of business information. Hussain et al. (2018) postulated that a characteristic valuable to accounting information quality is relevance; therefore, the nature of business information gathered should align with the strategic objectives of the company. The interview respondents shared different types of business information that is collected, stored, and processed in the AIS. Table 10 provides a summary of the top 25 business information deemed essential to the construction and renovation sector as perceived by the participants in this study. The information documented must be useful and significant to sustain ongoing performance. The accurate documentation of business information allows small business owners the ability to strategize the business operation. However, using the appropriate accounting system could be beneficial to preserving the information quality needed to make financial decisions in small businesses.

Table 10

Type of Accounting and Business Information Used in the Construction and Renovation Sector

Business Information	Number of Participants	Participants
Job Costing and Expenses: <ul style="list-style-type: none"> • Labor cost • Material cost • Overhead cost • Project Cost 	12	P1–P12
Customer Information: <ul style="list-style-type: none"> • Address • Email address • Name • Phone number • Social Security number 	7	P1, P2, P4, P5, P7, P8, P11
Income <ul style="list-style-type: none"> • Receipts • Job Pricing 	12	P1–P12
Disbursements and Payments <ul style="list-style-type: none"> • Line of credit • Credit card • Checks 	12	P1–P12
Collection of Cash	8	P1, P2, P4, P5, P8, P7, P10
Profits	12	P1-P12
Purchases	10	P4, P5, P6, P7, P8, P9, P10 P11, P12
Payroll <ul style="list-style-type: none"> • Employees' pay rate • Subcontractor salary expenses • W9 	3	P3, P5, P12
Bank Statement	2	P6, P9

Computerized systems. All participants (P1-P12) emphasized the need to integrate an appropriate automated system geared toward storing and processing accounting information that is readily retrievable. A blog post by Faccenda (2019) identified technology adoption and digitization (document management) as two challenges affecting the construction industry. Purswani and Anuradha (2017) urged small construction and renovation business owners to limit paper orders, invoices, and receipts by implementing a digital solution to manage the business operation. Hosain (2019), in a survey of 803 mid and top level managers, determined that the use

of an efficient accounting system is important to monitor and evaluate organizational performance. One participant (P3) shared that the transition from traditional accounting to computerized systems created the opportunity for rigorous data analytics because management is focused on sustaining long-term business operation in a constantly changing economy and rely on real-time data to understand the financial strengths and weaknesses of the company. Software developer Oracle Netsuite advertised a cloud accounting system that manages the operation of the business and automatically advances in functionalities as the business grows without technology maintenance and upgrade costs. Lv (2017) emphasized that traditional recording and processing of transactional data required too much time and effort, and was prone to more errors and backlog. Some respondents (P1, P2, P3, P5, P6, P11, and P12) mentioned that business information is readily available using an AIS, which is used to process transactional data and prepare periodic financial statements to inform management about the financial health of the company.

The computerized systems child node produced three grandchild nodes of AIS competency, type of AIS, and contributory factors. Atham, Low, Teng, and Abdul Rahman (2018) determined that the information inputted and processed by the AIS should provide clarity about the business operation so that decisions can be made regarding organizational success. One participant (P6) mentioned that the AIS is used to track income and expenses on a project-by-project basis because small construction business owners have multiple projects working on at the same time. The following are extracts from participants' responses regarding the competency of the AIS used in the construction and renovation company.

The accounting system is used to process information that allows me to evaluate the profitability per project to see if the pricing was too low or if they could have saved money or materials. Additionally, an assessment of the numbers after project completion can tell if this is the type of project that they'd like to do more of or less of and then of course, as the payment comes in I record those payments against those projects to get a better overview of the success or failure of such project. (P7)

Participant (P12) shared how Quickbooks is used to process accounting information to prepare financial statements used to assess business performance and assist in management decision-making.

I use QuickBooks to record daily transactions, then prepare financial statements either for outside use to a bank or lending institution or investors and also internal information so that management can understand exactly how their gross profit is calculated, what their balance sheet is whether it's in a financial strength area or weakness. (P12)

Another participant (P11) used the AIS to view comparative data based on jobs completed to advice management during meetings.

We see the cost allocated to the job both on the cost of goods section and as well as any type of allocation to the administration, selling, and general expenses. So at quarterly meetings, we use this information gathered from QuickBooks to offer advice to improve the business. (P11)

All 12 of the study participants stated that QuickBooks (desktop or online version) was the type of accounting system used in the small construction and renovation company. Some participants (P1, P6, P9, P10, P11) were familiar with other AIS such as (a) Page Software 300,

(b) StarBuilder, (c) Timberline, and (d) Advanced Excel. Two participants (P5, P7) mentioned that there are accounting systems that are geared toward a respective industry, or some company management may contract with software developers to build and maintain an AIS that represents the functionalities of the business. However, all participants (P1-P12) noted that QuickBooks was the dominant AIS used by most small business owners and designated representatives because of the simplicity and customizable features to meet the needs of the business owners. Two designated representatives (P10, P11) and one business owner (P1) stated that they use an advanced Excel spreadsheet in conjunction with QuickBooks to help analyze financial information. One business owner uses a variety of computerized systems in addition to the AIS to monitor business information. The business owner provided a breakdown of systems used to document different information.

When I'm doing pricing, that's making sure that our numbers are good and we're not losing money, the advanced Excel spreadsheet provides a comprehensive overview of the numbers. It makes it easier to track our expenses and make sure I'm as accurate as possible. However, customer information is documented into QuickBooks and also Salesforce, which is our client management system where we keep all their personal information. Salesforce is also used to document the receipt of payment and invoice. Slack is another type of information system used for our in-house communication between employees, management, and subcontractors. Sauna is used as the to-do list and calendar, which basically manages all to track the progress. (P1)

Access to accounting information in real-time is essential to business performance and strategic decision-making. Participants (P8, P11) noted that construction and renovation business

owners typically have issues regarding cash flows. One participant (P8) stated that some small construction and renovation business owners are unable to determine money made from a job or money lost. Based on the cash inflows and outflows assumption, the decision to accept or reject a project is dependent on job costing and profits. Lifchutz (2019) industry data confirmed that construction and renovation professionals rely on accurate financial information on a project basis to determine the profitability of similar jobs. Access to accounting information in real-time allows construction operators to determine the need to adjust pricing, determine where to build in increments, monitor profits and losses on each job, and understand the status of projects. One participant (P6) stated that accounting information is essential for future decision-making, however, accuracy is key.

The decision to implement and use various organizational resources will vary by companies based on the ability to achieve objectives, management preferences, expertise, cost, size of the company, and the attitudes of workers (Alewine & Stone, 2017). The factors that influence the selection of AIS were explored during the interview sessions with participants. The identification of contingency factors was significant to the basis of this study because one of the constraints for implementing AIS is the relevance of the system to financial success (Al-Hawari & Nassar, 2017). Mia (2017) noted that management investment in accounting systems should provide additional support for meeting organizational objectives and strategizing operational flow for the company.

Participants (P1-P12) identified the contributory factors that influenced the choice for selecting the AIS currently used by the company. Data collection revealed that QuickBooks was the dominant program used by the small construction and renovation business owners.

Additionally, an advanced version of Microsoft Excel was used as a supporting spreadsheet to assess accounting information. All participants provided a comprehensive overview of various factors that influenced the selection of QuickBooks as the AIS used in the company to record, store, and process transactional data. Approximately 67% of the participants (P1, P2, P3, P5, P7, P9, P10, P12) stated that QuickBooks was the most prevalent AIS used in the industry and by most small business owners and their accounting managers. Regarding customizable, participants (P1, P2, P3, P5, P7, P9, P10, P12) shared that the system was diversified so that accounting professionals and business owners could modify the functionalities based on respective needs. One participant (P12) stated that when the accounting system is manipulated to support the specific functions of the company, then the system is viewed as relevant and efficient. Another participant (P10) stated that the small business owner uses approximately 50-60% of the AIS content capabilities because the system produced the information deemed important to management.

Two participants (P3, P5) shared that they used the online version of QuickBooks, which allows for data access via the cloud in real-time. Business personnel with security access to the AIS can monitor business activities such as budgets, receipts, invoicing, and payroll. Another participant (P5) determined that there were two essential factors to be considered when implementing an AIS, which were price and type of information. The participant (P5) stated that QuickBooks provides adequate features required to document, track, and assess business information for a small company. The pricing for the software is reasonable; however, could become costly with the purchase of add-on features, which could be required for a comprehensive analysis of the business performance.

Business Performance

The ability to forecast profitability requires ongoing assessment of business performance, where small business owners develop adequate knowledge about the internal and external influences that increase and decrease the viability of the company (Hofer, Eisl, & Mayr, 2015). Hyder and Lussier (2016) stated that the evaluation of a company's performance depends on a comparative analysis of what happened in contrast to what was expected to happen. Therefore, performance assessment should provide information that allows management to control the influences that manipulate the organizational functionalities to sustain operation (Hosain, 2019). Business performance was identified as a theme that emerged from the literature review and included in the initial coding structure. Figure 22 represents the second parent node, business performance, including child, grandchild, and great-grandchild nodes.

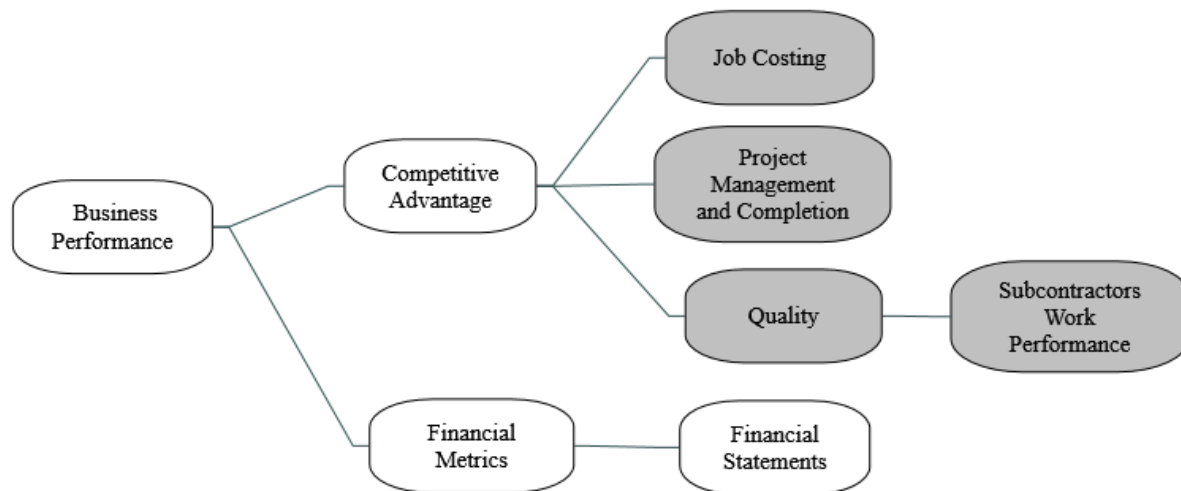


Figure 22. Business performance parent node with subordinating nodes.

The transformation of the economy requires company personnel to use organizational resources efficiently to support maintaining the business operation (Purswani & Anuradha, 2017). The use of organizational resources to increase business performance is predicated on the

adoption of the contingency theory perspective, whereas the computerized systems adopted should align with the strategic objectives of the company. The continuous desire for small business owners to acclimate, survive, achieve, and influence are some factors that stimulate the need to improve the ability to perform (Hosain, 2019). Therefore, the themes that emerged from business performance were competitive advantage and financial metrics. The four interview questions related to business performance focused on competitive advantage, AIS contribution, and financial metrics. The four questions were

- What factors do you deem essential to determine competitive advantage in the construction and renovation industry?
- Describe the features of an AIS that are relevant to assessing business performance in a competitive industry.
- How do recording, storing, and processing accounting information in a computerized AIS contribute to assessing your business performance?
- Describe the financial metrics embedded in the AIS that you use to measure business performance.

Competitive advantage. Participants in the study identified various factors that were essential to build and maintain a competitive position in the construction and renovation industry. Campbell and Park (2016) defined competitive advantage as an attribute that makes the company's offering to the public superior to the competitors. Establishing a competitive advantage is an indication of successful performance, which secures pricing, builds customer relationships, and ensures brand loyalty (Usop et al., 2018). Therefore, assessing business performance allows management to identify or develop events that could surpass competitors to

attract new and retain current customers. The competitive advantage child node produced job costing, project management and completion, and quality grandchild nodes. Additionally, the quality node emerged the subcontractors' work performance great grandchild node. The pie chart in Figure 23 provides a breakdown of the participants' responses regarding the factors necessary to determine competitive advantage.

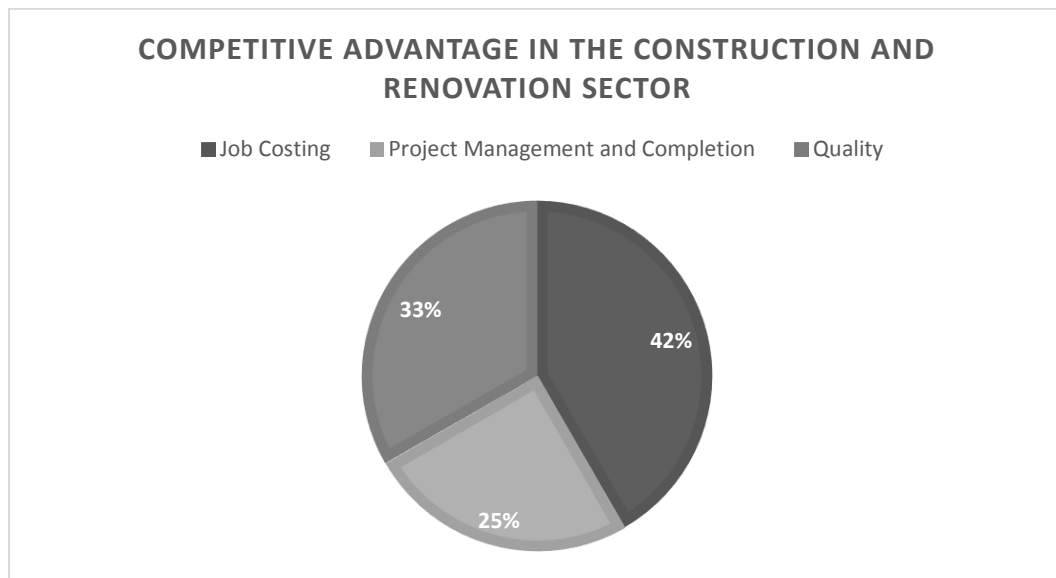


Figure 23. Competitive advantage in the construction and renovation sector.

The IBISWorld 2019 construction industry data indicated (a) effective cost, (b) good project management, (c) contracts with key markets, (d) good reputation, (e) highly skilled workforce, and (f) conforming to government regulations as success factors to build competitive advantage (Lifchutz, 2019). Approximately 42% of the respondents (P4, P6, P7, P9, P11) indicated that job costing was deemed necessary to determine competitive advantage. The 2019 data compiled by Lifchutz indicated that 28.2% of total revenue accounted for cost of materials and supplies, and wage payments to subcontractors accounted for 24.8% of total revenue. Respondents shared that job costing included cost for labor, materials and supplies cost,

overhead cost, client billing, and workers pay rate. One participant (P7) referenced pricing as a significant factor to job costing to ensure a profitable job.

How the job is going to be costing you, and if there's a competitive advantage, I think sometimes it would be pricing. How you obtained your material if you can buy in large quantity for a better price or the relationship with subcontractors so labor cost is controlled. (P7)

The review of data indicated that quality is another factor significant to competitive advantage. The National Association of Home Builders (2020) noted that quality is dependent on the extensive economic analysis and research on market trends that provide insight into the building and development area to ensure value, communication, professionalism, design, final output, and reviews to meet the expectations of clients. The great grandchild node of subcontractors work performance was based on the quality of employee work (skill level) and knowledge about the work. Approximately 33% of the participants (P1, P8, P10, P12) deemed quality essential to determine competitive advantage. One participant shared conflicting viewpoints regarding quality and price based on customer expectations:

I think it's either the two of value or a customer that's driven by price. So when it comes to value, you have the customer that cares about the quality of the work, and you have customers that care about your communication and your professionalism. But then you have customers who don't care about any of that stuff and they just simply want to get the person that's going to give them the best price. When it comes to the best price, I'm not saying that the person lacks some of that other stuff. The reason why I say that is with us, I personally think that our numbers are pretty fair, but sometimes we've lost jobs

because the customer felt like we weren't charging enough. But you have some customers who literally only care about certain things. They want to either feel (a) I don't want to spend too much money, so you either fit my budget or (b) I'm looking for value, and that value might be seen as this person is charging a lot more money, so they're offering a lot more value. And that's not always the case. (P1)

The quality grandchild node produced the great grandchild node of subcontractors work performance. According to Abu Bakar et al. (2016), skilled and knowledgeable workers in the speciality trade subsector is important to the construction and renovation sector to ensure a strong turnaround. Likewise, the National Association of Home Builders (2020) website provided information that supports construction and renovation operators advancement in education to improve expertise and networking, which is required to gain an edge in the industry. Participants in this study indicated that the success of a project is dependent on the quality work performed by the subcontractors, which surpass the expectations of clients. One participant (P12) shared that quality work is dependent on the expertise of the workers hired, therefore, employing the right subcontractors and the ability to pay them competitively is significant to sustain the business.

Additionally, the data revealed that 28% of the respondents (P2, P3, P5) identified project management and completion as a significant factor in attaining competitive advantage. Essential to building competitive advantage is maintaining a schedule for job activities that details the completion period for each phase of the project. Participant (P5) stated the following regarding job completion.

Job profitability requires the expertise of management and subcontractors to complete a job in less than the projected time. For example, if a job would run a month-long the subcontracts should find ways to work more efficiently and complete the job in three weeks instead of four weeks and that's their competitive advantage. On the other hand, if the job runs say five weeks based on their experience and know-how they would either go back and determine why it took five weeks, sometimes it can be due to unforeseen issues, and through their expertise, they can go back and bill for that; however, if it's due to a lack of knowledge of the people working on the job, the company would have to cover those additional costs. (P5)

Participants in the focus groups (P5, P6, P7, P8, P11) were asked to share their knowledge and experience regarding the features of the AIS relevant to assess business performance in a competitive industry. Mixed responses were obtained as one respondent (P5) shared the inability of the accounting system without add-ons to perform such a task.

I do not think QuickBooks online does the best possible job. You would need to get some add-ons to be able to assess competitive factors and the industry standards the business owner is working on or constantly trying to improve. With the add-on, comparative analysis can be made based on industry standards. So, I would indicate that my employer's industry is construction, and the information will be provided for comparison. Although in QuickBooks online, you can compare cost of goods sold as a percentage of income, I don't think the software alone offers enough of those features. But there are add-ons and stronger reporting apps that you can add on and that's another great thing

about QuickBooks. You do not have to purchase the complete solution. There are apps to layer on to get what you need. (P5)

Additionally, some participants (P6, P7, P11) mentioned the need for the data inputted in the system to be accurate so that precise statements can be generated and used to assess the financial health of the company. Participant (P11) noted that the reporting features in QuickBooks allowed management to assess the business performance; however, the information entered must be correct so that the reports reflect the actual financial position of the company. A review of the accounting manual received from one of the research participants showed that the company used the QuickBooks reporting feature to access all the data of each job to determine profit, loss, or adjustments needed to work in progress.

Financial metrics. Karadag (2017) described financial metrics as quantifiable data used to assess the specific performance attributes essential to organizational performance. Participants noted that financial statements such as the (a) income statement, (b) balance sheet, and (c) statement of cash flows are fundamental reports used to assess business performance. One participant (P5) noted that financial statements are presented to the small business owner once per quarter, and depending on the health of the company or status of a project, the information is assessed by a forecasting software to provide key business insights.

Management relies on financial measurements to evaluate business performance, which provide sufficient knowledge to forecast operations in a volatile market (Bebbington & Larrinaga, 2014). According to Mankin and Jewell (2014), financial ratios are a common form of measurement to determine the financial health and sustainability of the company. Financial ratios test the line items of financial statements to uncover insights regarding liquidity and efficiency,

solvency, and profitability (Karadag, 2017). Although no governing body regulates the formation of financial ratios, internal and external users of accounting information use these metrics to analytically and logically assess business performance and make strategic decisions viable to the sustainability of the company (Mankin & Jewell, 2014). Therefore, exploring the financial metrics embedded in the AIS was necessary to understand the significance of the system to support assessing business performance.

Data collection from this research revealed that some small construction and renovation business owners are more interested in profitability (profits) and cost allocation measurements. The word cloud in Figure 24 reflects the most frequently used words during the interviews in response to the financial metrics question.



Figure 24. Most frequently used words regarding financial metrics.

The assessment of profitability and cost allocation in the construction and renovation sector is completed on a project-by-project basis. One participant (P3) noted that accurately inputting accounting information in the AIS makes assessing profitability and itemizing cost allocations much easier because the machine is doing the work rapidly. Recordkeeping stored on a computerized system allows business owners and designated representatives to look at the

information and use it as a guide to determine projects that can be efficiently completed. Another participant (P5) stated that having the data in a computerized system allows management to easily review margins and key performance indicators to determine how the company looks when compared against other successful construction companies. Although AIS allows small business owners to view financial information easily and in real-time, participant (P9) response provided further insights essential to understanding the functionality of the selected accounting system and the need for a supplementary spreadsheet or add-on applications.

I haven't seen that many metrics in the systems that I've used. Normally the software is capable of determining the percentage of expense to income. However, to use the accounting system to do forecasting, the business owner would need to purchase an add-on called Fathom to do more company projections of future revenue and expenses that generates comprehensive performance reports. However, I normally use advanced Excel to establish metrics that make sense to the construction company owner. So I would pull numbers from the accounting information system and put them into a spreadsheet with figures from the previous years to conduct a comparative analysis. (P9)

Although the responses regarding AIS relevance to business performance provided mixed reactions, some participants (P3, P7, P10, P12) shared a variety of measurements used to assess business performance. Some financial metrics used to determine small construction and renovation business financial performance included:

- Debt to equity
- Gross margin
- Line item as a percentage of revenue

- Percentage of completion
- Profit margin

Strategic Decision-Making

Small business owners seek to sustain the company operation by maintaining the competitive advantage and positioning the company to achieve strategic objectives (Turner & Endres, 2017). Survival is key as economic pressures of competitors, technology advancements, innovation, and globalization continue to challenge the prosperity of small companies (Taneja, Pryor, & Hayek, 2019). Therefore, requiring the need for complex decisions that influence the long-term operation of the business. Mia (2017) emphasized that rigorous analysis of the company activities using the assessment data obtained from accurate accounting information is vital to the small business decision-making process. The information must be relevant, transparent, consistent, comparable, and reveal insights to sustain business operation (Balagobei, 2019). Figure 25 highlights the strategic decision-making parent node and the business strategy child node.

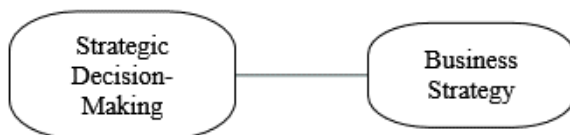


Figure 25. Strategic decision-making parent node with subordinating node.

Based on research findings, Turner and Endres (2017) determined that effective strategic decision-making has a significant impact on increasing performance, success, and prosperity of small companies. Therefore, implementing viable business strategies that are influenced by relevant business assessment data could help small business owners achieve specific business goals and strategize new directions for the company. Participants (P1, P7, P11, P12) emphasized

the need to use AIS that processes transactional data in real-time and accurately so that reviews can be done about the financial health of the business. Three interviews questions were asked regarding strategic decision-making:

- What types of strategic decisions are made using accounting information?
- How do recording, storing, and processing accounting information in a computerized AIS support the strategic decision-making process of the company?
- Describe the features of AIS that are relevant to strategic decision-making in a volatile market.

All participants (P1-P12) revealed that assessing business health helps to determine various factors significant to long-term operation. Some participants' responses to strategic decisions made using accounting information are depicted in Figure 26.

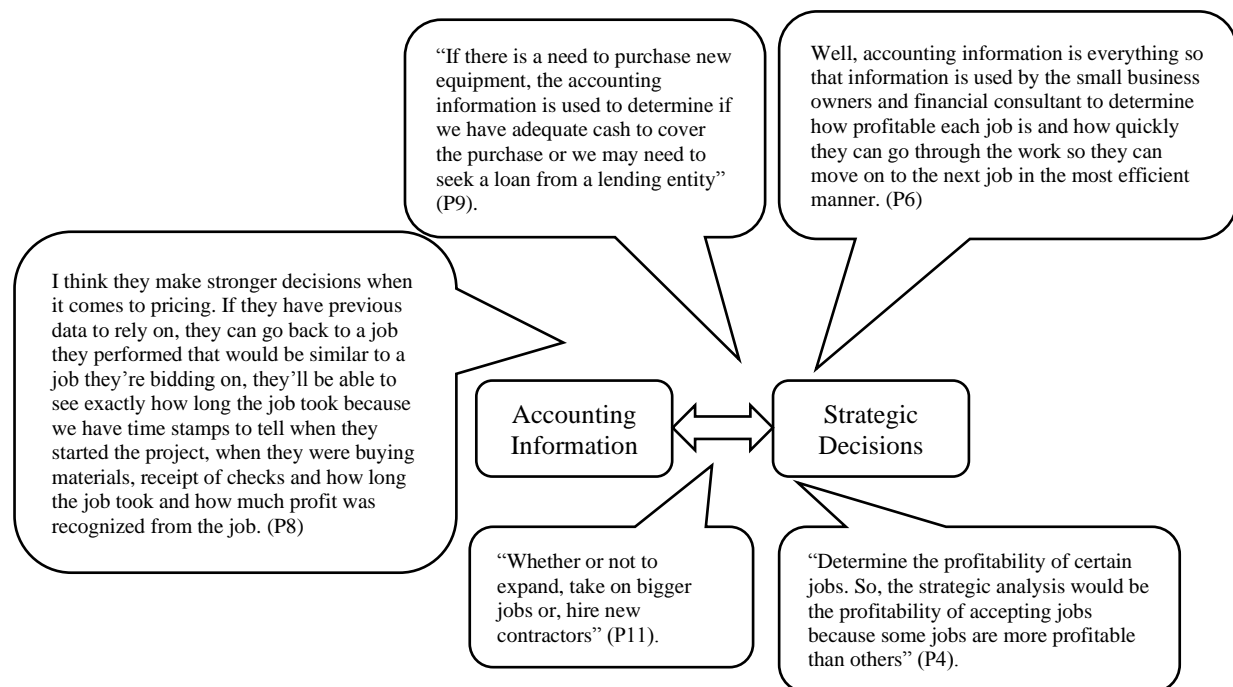


Figure 26. Participants' responses to strategic decisions made using accounting information.

The implementation of relevant decisions is dependent on the type and quality of information recorded, stored, and processed. Participants indicated that having the data readily available is important so that all decisions are based on accurate financial information. However, one participant (P6) emphasized the prominent phrase *garbage in, garbage out* in reference to inputting the type of business data relevant to assess the business. The participant's response was:

Well, the accounting system is only as effective as the information that is put in, so construction company owners will rely on the expertise of their employees to properly record transactions. If the transactions aren't properly recorded, say some were missing, data entered in the wrong period, some numbers were doubled up, then the accounting system is only as good as the people that are using it. (P6)

Another participant (P12) noted that maintaining transactional data in the AIS allows small business owners and designated representatives to access that data at any time to support the decision-making process. Therefore, decisions are not made on what management thought happened or how much they thought was made but based on exact data that is readily available to make stronger forward decisions.

Participants mentioned that the use of AIS should generate useful information so that the appropriate decisions can be made. One participant (P8) stated that if the appropriate accounts and details are created in the AIS and the financial reports contain accurate information regarding the overhead costs, cost of goods sold, and job costing then the information obtained from the system should help the small business owner evaluate how the company is doing and, if required, implement business strategies that are current with industry trends, reviews, and

customer preferences. Throughout the interview process, while responding to the use of AIS to support strategic decision-making, participants emphasized the need for proper reporting of all the data acquired from each project so that the business owners can know how each job contributed to profitability or if money was lost, what adjustments could be made to increase profits. Figure 27 highlights various contributory factors of the AIS that were deemed valuable to support strategic decision-making while operating in a constantly changing economy as perceived by the participants.

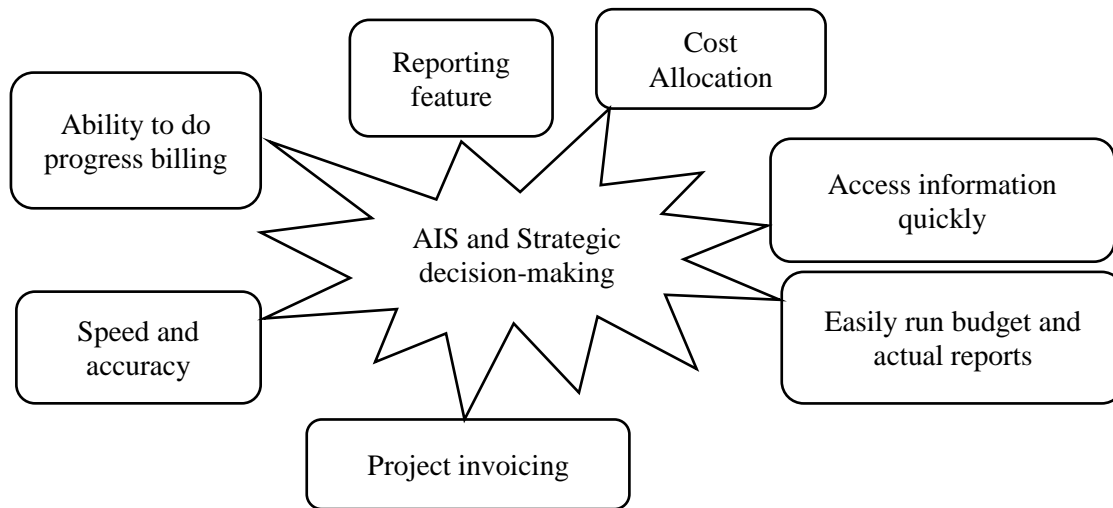


Figure 27. Participants' responses regarding AIS contribution to strategic decision-making.

Financial Gains

Continuous operation of a business is strongly dependent on the regulation of cash used to fund daily activities or invested for long-term objectives (Turner & Endres, 2017). Additionally, Malikov, Manson, and Coakley (2018) stated that long-term successful business operation is maintained through tracking revenues and expenses. Vital to the increase in revenues is company management ensuring valued customer relationships are maintained to secure consistent flow of income (Denizci & Shi, 2019). Maintaining low cost (expenses) is an ongoing

issue that continues to affect company monetary growth (Maya & Purwanegara, 2016). The outcome of revenue greater than expenses results in profits for the company. Therefore, increasing profits has a significant impact on sustaining small business operations. Hence, the need to use organizational resources efficiently to support sustaining financial gains.

According to Aduamoah et al. (2017), technology software developers have developed various computerized accounting systems equipped with the capability to generate financial reports used to determine future economic gains. These financial reports, when processed in the AIS, produces quantitative and qualitative business data that can be used to evaluate the financial health of a company. Small business growth is dependent on management's ability to interpret these financial analyses to understand the future direction of the company operating in a volatile market. Zimakova, Kovalevskaja, Kovalenko, Mashirov, and Bykanova (2016) stated that comprehensive projected financial statements are relevant documents needed to ensure efficient financial forecasting for future gains. The development of detailed projected financial statements can allow management to predict future effects on company accounts (assets, liabilities, and equity), estimate financial gains, and determine effective strategies to regulate cash flows (Zimakova et al., 2016). Therefore, the access to real-time information allows for comparative analysis against actual events and future plans so that adjustments can be made to strategize the business operation.

Figure 28 shows the coding structure for the parent node financial gains, taken from the final coding structure, and the subordinating child node. The final coding formation enhanced the initial structure formulating the primary child of AIS effectiveness. The effectiveness of using an

AIS to support predicting financial gains provided a basis for evaluating how AIS was used to support forecasting profitability, which is the focal point of this research study.



Figure 28. Financial gains parent node with subordinating node.

Two interview questions were developed to address the financial gains parent node and AIS effectiveness subordinating node. The questions were asked during the one-on-one telephone interviews and the online focus group sessions. The two interview questions were:

- What factors are evaluated to estimate long-term financial gains?
- Describe the effectiveness of the accounting system to forecast profitability.

Predicting financial gains. Approximately 42% of the participants (P4, P6, P7, P9, P11) stated cost management (reducing debts) was an essential factor to estimate long-term financial gains. Data provided by the 2019 Small Business Administration suggested that the goal of small business owners regarding profits should be to increase revenues and decrease cost (labor, material, and overhead). The IBISWorld construction data report showed that 53% of revenue was used to cover cost of materials and supplies, and labor cost (Lifchutz, 2019). A blog post by Faccenda (2019) noted that smarter choices regarding the use of small business funds is essential to cut cost and suggested that technology integration saves money and contribute to advancing the business. Some participants' responses regarding long-term financial gains are displayed in Figure 29.

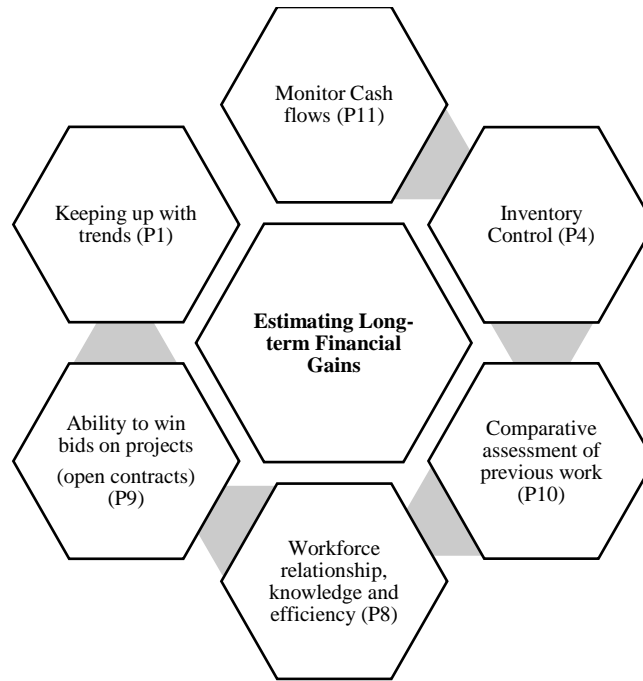


Figure 29. Factors evaluated to estimate long-term financial gains.

The participant (P9) noted that in the construction and renovation sector, securing projects is essential to determine the inflow of work, which is required to generate revenue. However, during the building and reconstruction process, there are certain costs that are incurred, such as material cost, labor cost, and overhead expenses that must be monitored and controlled. Therefore, efficient budgeting, inventory control, comparative analysis of previous work, and maintaining relationships with suppliers were deemed essential to cost management. Additionally, participants (P4, P8) inferred that retaining a workforce that understand the work environment and have the ability to complete projects that align with industry trends and customer preferences was another significant factor required to estimate long-term financial gains. All participants (P1-P12) emphasized that monitoring cash flows and keeping track of income and expenses were essential accounting activities that have a significant impact on estimating long-term financial gains.

AIS effectiveness. Salehi, Dashtbayaz, Bahrami, and Teymoori (2015) determined that effective implementation of AIS positively associated with profitability. In contrast, Cordova, Inga, and Yaguache (2017) presented that there were no differences regarding economic and financial profitability between small, medium enterprises that used and did not use accounting software. Approximately 75% of the participants (P1, P2, P4, P6, P7, P8, P9, P11, P12) in this research study regarded the AIS as effective in the construction and renovation sector based on speed, accuracy, and access to information. One participant (P4) discussed the significance of the AIS to access business information inputted in the system.

The accounting system is important because all the information is available in one place. However, accuracy is important. The accounting information must reflect the truth about the company so that owners can know exactly how the business is doing. Also, being able to access that data anytime and from anywhere with the cloud is amazing so I can make whatever business decisions, and I know how much money I am making. (P4)

Participant (P11) conferred AIS effectiveness based on the ability of the system to categorize financial data by contracts, which is necessary to determine profitability of similar projects using historical values.

QuickBooks helps with regulating and keeping track of all the business information. You can set up for each job its own account number. So anytime the business owners pay a bill, he can allocate that respective bill to that respective job. So it is like a general ledger reflecting the transactional events relating to a particular job, which is essential for monitoring detailed information. (P11)

Another participant (P7) discussed AIS effectiveness based on access to financial statements, which are significant to evaluate the performance of the company in a period.

Using an AIS, you can have access to two very important financial statements that contain information regarding profits and the overall financial health of the company. The income statement shows you how much money came in from sales of goods and services and the associated expenses to determine profits (gross and net) for a period. The most important financial statement is the balance sheet, which shows company assets, liabilities, and owner's capital. When the AIS process these financial statements, the business owner can determine profitability or not. (P7)

One participant (P9) mentioned that the transactional data entered in the AIS formulates financial information that is used to prepare 5-year trends of profit and loss, future budgets, and cash flows to forecast profitability. However, some participants (P3, P6) deemed the AIS only as effective as the information entered into the system. These participants emphasized that users of the AIS must input accounting information accurately so that financial reports will communicate the true position of the business.

Probably, my best answer is *garbage in, garbage out*. If the information entered into the system is useful and entered correctly and it's reasonably accurate, then the business owner is going to know based on the past jobs the different things that come up with a project, the budget for each job, and how that worked out, which gives him the tools for going forward. There is this old saying, *those who forget history are doomed to repeat it*. So if you keep track of the accounting information for projects, correct the mistakes that you made before, then the information from the accounting system can give you a clue

about how to make things work better. So the AIS is a tool that provides the past metrics so that improvements can be made for the future. (P6)

One participant (P5) rated AIS effectiveness by assigning the rating number of 4 on a scale of 1-10, with 10 being the highest and 1 being the lowest. The participant's response was:

If I relied solely on QuickBooks online, I would have to rate it a 4, because I'd have to do a lot of the financial, comparative analysis work myself, which requires the use of an advanced Excel spreadsheet. If the business owner is unable to purchase the add-on application. Therefore, the software itself does not have the forecasting capability, so I have to use additional technological systems or sometimes go back to traditional accounting methods (paper, pen, and calculator) to complete that task and present to the business owner. Although I've worked with larger corporations and was required to do some things manually. However, if I'm able to rate it based on my ability to layer on an app because it has that functionality, I would probably say 8 because with the forecasting add-on I can play with the numbers very easily, run comprehensive reports, generate forecasting charts and diagrams used to show profitability after the completion of a project and quarterly updates regarding the financial health of the company. So I think having that ability to use an app that will integrate with the data that's already available is really helpful. (P5)

Participants determine that some accounting systems require add-ons to fully function and provide comprehensive analytical data needed to support forecasting profitability. The additional purchase of an add-on app can be costly, which requires further assessment to determine the contributory factors of the purchase. Some accounting professionals create an

advanced Excel spreadsheet or use traditional accounting methods to perform future estimates. Participant (P12) provided an overview of the requirement of an add-on feature to perform forecasting capabilities in the AIS.

QuickBooks cannot look at trends for 3 years and help with a forecast based on how the business has previously trended. However, there are add-ons and apps available to strengthen the software, which is nice because QuickBooks has an ecosystem. But with the add-on app, which is Fathom, you have the ability to use the prior years' data to help you come up with the forecast for the future, assuming it would trend as the previous years. QuickBooks I don't think does a fantastic job because it's not very forward-looking. So to do profitability forecasting, I'll pull the financial reports from QuickBooks online and input the data into a spreadsheet with predesigned financial formulas and use that financial assessment data to determine the future strategies and positionings of the company. (P12)

Unexpected Finding

The unexpected finding for this study was the perceived notion that the AIS does not competently provide forward-looking data needed to strategize the business operation without the integration of add-on applications or the use of an advanced Excel spreadsheet. Although speed, accuracy, and access to accounting and business information were deemed essential to the effectiveness of the AIS, line item computation did not provide substantial information to assess the financial health of the company. The effectiveness of the AIS without an add-on feature tailored to forecasting profitability received mixed responses; however, participants explained that an advanced Excel spreadsheet was used for predicting financial gains.

Small business owners who were able to purchase the forecasting application, such as Fathom, could receive a comprehensive analysis of the business performance using comparative data. The add-on app provided detail financial reports with statistical data based on past financial statements, industry trends, and competitors' analysis to help small business owners and designated representatives understand the financial position of the company. Small business owners and designated representatives without the application added on to the AIS used an advanced Excel spreadsheet that was customized with relevant data required to assess business performance and predict financial gains.

Data Triangulation

Data triangulation is a qualitative research strategy that strengthens validity through collecting information using multiple methods or from various data sources to provide an extensive comprehension of the phenomena studied in the natural context (Abdalla et al., 2018). The focal perspective for data triangulation is that multiple sources corroborate the research findings (Yin, 2018). Yin stated that the use of multiple data sources in case study research strengthens the *chain of evidence* and *construct validity* by providing evidence from various sources regarding the same phenomenon. Therefore, individual data sources are not recommended as sufficient evidence when conducting case study research (Cooper & Schindler, 2014).

The data sources for this research were one-on-one telephone interviews, online focus groups, and external documentation (industry data, accounting and practitioner journals). Twelve one-on-one telephone interviews were conducted with participants who met the inclusion criteria. Participants shared contributory factors that alluded to small business owners' choice in

selecting an AIS, which aligns with the CTMA conceptual framework that guided this research study. Two online focus group sessions were conducted with a total of five participants (two participants in the first session and three participants in the second session). The focus groups allowed for collecting data in a group setting with little influence by the researcher to enable data triangulation (Yin, 2018). The participants in the focus group had similar professional experience in accounting, which Yin emphasized that participants in the focus group should have commonalities. Participants in the focus group commented on the importance of accounting information quality as an essential factor to understand small business operations in a volatile market. The focus group and one-on-one interview participants shared similar perspectives regarding the strategic decision-making, business performance, and financial gains parent nodes and subordinating nodes.

Additionally, data were collected and triangulated from websites of prominent accounting software developers and external documentation found in industry reports and accounting and small business journals. The 2019 IBISWorld industry report for construction in the U.S. was used to obtain industry data relevant to the context of this research study (Lifchut, 2019). One small business owner (P1) shared an accounting manual that was reviewed to understand the policies and requirements for securing, accessing, entering, and retrieving accounting information from the AIS. The triangulation method guided the construct of the coding structure to include additional nodes (parent, child, grandchildren, and great grandchild) with the themes that emerged from the data analysis. All data sources used in this research study provided in-depth information to understand better how AIS is used to support forecasting profitability. The

inclusion of multiple data sources as evidence to explore the phenomenon studied strengthens the content validity of qualitative case study research (Yin, 2018).

Summary

Small businesses in the U.S. provide job opportunities to approximately 47.5% of the private workforce (Small Business Administration, 2018). However, maintaining long-term operations for small businesses is a going concern that affects the economic stability of a country (Bruwer & Smit, 2015). More specifically, the construction and renovation sector had the highest business failure rate in the first and fifth years of startup (Shahhossein et al., 2018). These entities contribute to the structural development of a country. However, Shahhossein et al. postulated that small construction and renovation business owners experience major challenges with budget overruns, project management, and scheduling. The implementation of an AIS to document, store, and process accounting information might be necessary to sustain small business operation (Al-dmour et al., 2017; Balagobei, 2019; Esparza-Aguilar et al., 2016; Prasad & Green, 2015; Purswani & Anuradha, 2017).

The central research question that guided this research study was, How do some small construction and renovation business owners in the Northeastern United States use AIS to support forecasting profitability? The dominant themes after data analysis were: accounting information quality, strategic decision-making, business performance, and financial gains. The review of data collected provided insights regarding the perceived effectiveness of AIS to support forecasting profitability. Accounting information quality is dependent on the relevance and clarity provided, so that small business owners understand the financial operation of the business. Small business owners rely on job costing and revenue information to determine

estimates for future projects and regulate cash flows. The participants revealed that the AIS could only provide useful financial reports if the accounting information was accurately entered into the system. New insights were uncovered regarding the inability of the prominent AIS used by small construction and renovation business owners. Participants shared that the forecasting feature is not embedded as part of the software, therefore, requiring additional purchases of add-ons or the use of an advanced Excel spreadsheet to do computational work for long-term projections. Chapter 5 will provide a comprehensive overview of this research study, which includes (a) an evaluation of the research question, (b) description of the research purpose, (c) contribution to the business problem, and (d) recommendations for future research.

CHAPTER 5. DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

Introduction

The purpose of Chapter 5 is to assess all aspects of the research question and the findings and to corroborate how the research study achieved the stated purpose through adding to the body of knowledge regarding the business problem based on the results reported in Chapter 4. This qualitative single-case research study is significant to provide insights regarding the use of AIS to help small business owners predict financial gains, which is necessary to sustain the business operation. The review of literature uncovered themes (accounting information quality, business performance, strategic decision-making, and financial gains) that were explored through one-on-one telephone interviews and two online focus group sessions. Chapter 4 focused on the data collection results and data analysis regarding the use of AIS to support forecasting profitability in small construction and renovation companies. The implication of the findings relating to how and why the research could benefit scholarly and practitioner works and develop the body of knowledge was determined. Chapter 5 starts with an evaluation of the research question, then an analysis of the fulfillment of the research purpose, followed by contributions to the business problem. Recommendations for further research and developed conclusions will conclude this chapter.

Evaluation of Research Question

The qualitative single-case study methodological design sought to contribute to the body of knowledge regarding the use of AIS to support forecasting profitability by seeking insights to the research question. The data collected was obtained from participants based on their experiences and knowledge regarding the central themes relating to forecasting profitability

(Yin, 2018). Figure 30 depicts the phenomenon of forecasting profitability in small construction and renovation companies leading to the research question that connects to the final parent codes and subordinate themes. Contributions from this research study may include adding additional knowledge to understand the use of AIS to support forecasting profitability for small business owners who need to maintain long-term business operations.

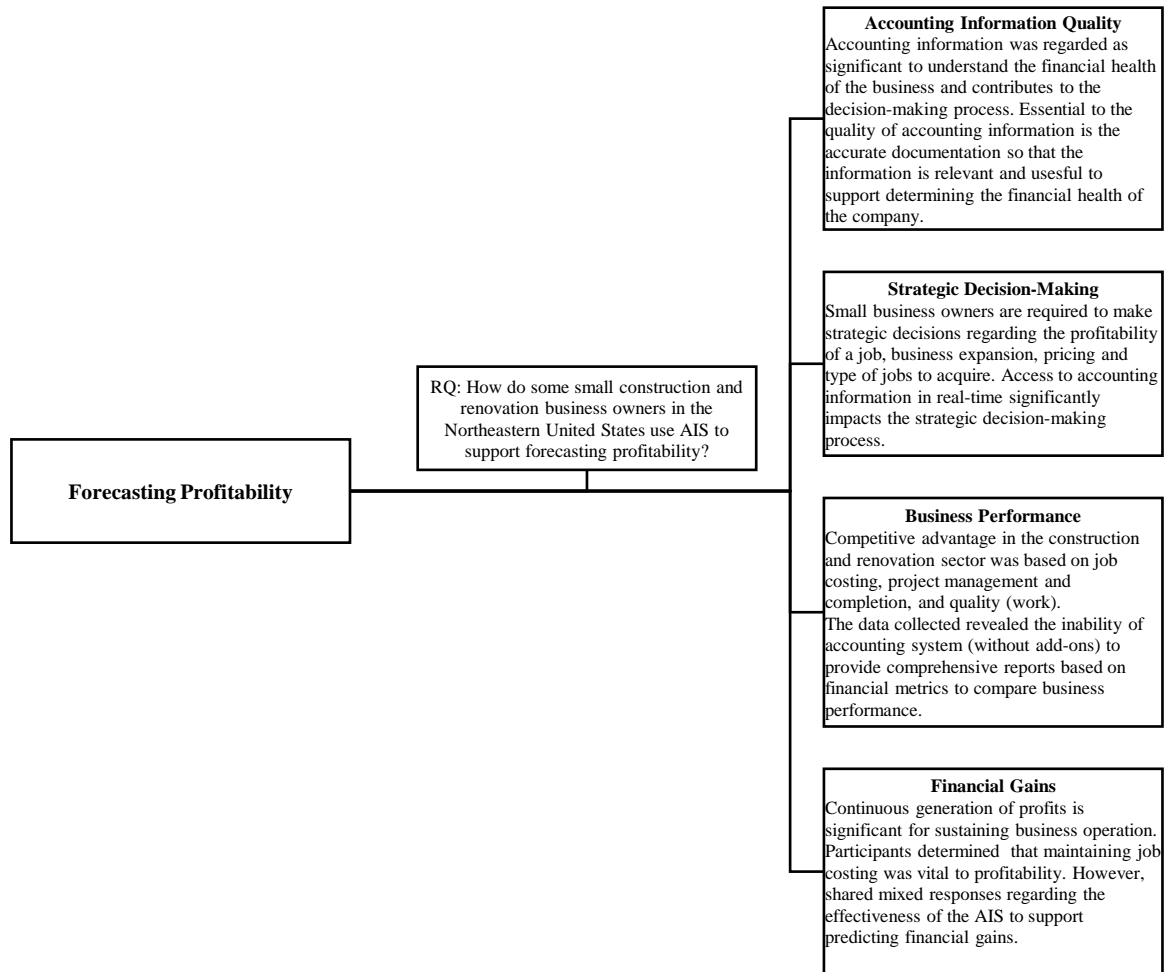


Figure 30. Forecasting profitability phenomenon with final parent codes and central themes.

Formulating the research question that guides the study is considered the initial step in the research process. The research question should be based on existing literature and the

purpose of the study (Yin, 2018). According to Cooper and Schindler (2014), the research question is an answerable inquiry seeking responses to a specific problem. The literature review regarding small construction and renovation business failure rates along with AIS (accounting systems) and forecasting profitability stimulated the development of the research question for this study.

The research question that guided this study was how do some small construction and renovation business owners in the Northeastern United States use AIS to support forecasting profitability? The Bureau of Labor Statistics (2018) documented that companies within the construction and renovation sector had the highest failure rates in the first and fifth years of operation. The use of a computerized AIS to document and process accounting information significantly impact organization performance (Al-dmour et al., 2017; Allah et al., 2013; Bruwer & Smit, 2015; Cordova et al., 2017; Prasad & Green, 2015). However, scant literature was available that addressed how to use the AIS to support maintaining and predicting financial gains, which is necessary to sustain long-term business operations. Findings from the collection of data revealed mixed responses regarding the effectiveness of the AIS to support forecasting profitability.

Accounting information quality is appreciated when useful information is available to inform management about the financial stability of the company (Aladejebi & Oladimeji, 2019). Within the construction and renovation sector, accounting and business information such as (a) job costing and expenses, (b) customer information, (c) income, (d) disbursements and payments, (e) collection of cash, (f) profits, (g) payroll, and (h) bank statement were deemed relevant to the operation of the business. Company management relies on accounting information to determine

the profitability of a job, which includes job costing, assessment of previous projects, and bidding estimates to win a project. All participants (P1-P12) noted that the use of a computerized accounting system was significant for documenting, storing, and processing the accounting information to provide financial statements that are assessed to determine the financial health of the business. The participants confirmed that speed, accuracy, and access to accounting information in real-time was a major advantage for implementing an efficient AIS.

Although some participants (P1, P6, P9, P10, P11) had experience using other accounting systems (Page Software 300, StarBuilder), QuickBooks was noted as the prominent AIS used by small construction and renovation business owners and their designated representatives. One participant (P9) expressed that the accounting system could be customized to reflect the type of transactional events recognized by the company. Therefore, the data entered in the accounting system, when processed, should inform management based on their specified requirements. All participants indicated that the AIS was efficient at providing financial information in real-time, which is an essential factor when operating in a volatile market. However, some participants (P1, P10, P12) used an advanced Excel spreadsheet to perform higher-order computations for projected growth analysis. Three participants (P5, P8, P11) used the add-on forecasting feature (QuickBooks Fathom) to obtain comprehensive financial information required for forecasting profitability. The AIS was deemed reasonably priced; however, the inclusion of add-ons could increase the cost. Participants noted that having access to accounting, financial, and business information allowed management to assess business performance and make strategic decisions at any time.

Several participants (P1, P7, P11, P12) determined that the AIS was used to access accounting information relevant for strategic decision-making. Some participants (P6, P9) cautioned that although accounting systems are considered essential for documenting, storing, and processing transactional data the output is only as valuable as the information entered. The prominent saying expressed was *garbage in, garbage out*. Participants shared that strategic decisions relevant to the construction and renovation sector were based on a project-by-project basis. Before bidding on a job, the small business owners and designated representatives must determine the profitability of the job by assessing job costing in comparison to similar jobs performed. Participants (P6, P8, P9, P11) noted that having access to accounting information in the AIS allows assessment such as line item as a percentage of revenue, which is used to determine if the business owner should bid on a job.

Aligned with strategic decision-making is business performance, which shows the financial health of the company through a comprehensive review of the financial statements. Participants indicated that maintaining the competitive advantage in the construction and renovation sector was dependent on job costing, quality, and project management and completion. Some participants (P1, P3, P5, P10) stated that providing low estimates for material cost and labor cost could guarantee winning a bid on a project. However, ensuring that those estimates result in the actual job costing for the project is significant in making profits on that project. Participants expressed that aligned with job costing is quality. Quality is based on the type of work performed and the knowledge of subcontractors to produce a finished product that meets or exceeds customers' expectations. One participant (P9) noted that construction operators are knowledgeable about the design trends, building codes and laws, and all that is required in

the sector. The issue is maintaining job cost, which is dependent on an in-depth review of past jobs to determine the feasibility of the current project. Based on the comprehensive knowledge and expertise of construction operators, managing and completing projects by specified deadlines enhance the competitive advantage. Therefore, participants (P4, P6, P9, P10, P12) noted that having accurate transactional data stored in the AIS, when processed on a project-by-project basis, could help small business owners measure the viability of projects to ensure low or actual cost estimates, construction operators can deliver quality work, and the project will be completed as scheduled.

One method used in assessing business performance is through the computation of financial metrics such as ratios to determine liquidity, solvency, and profitability. Some participants (P4, P6, P7, P9, P11) indicated that profitability and cost allocation are the most significant financial determinants that address forecasting profitability in the construction and renovation sector. Participants expressed that having access to 3 to 5 years of comparative accounting and financial data is critical to increasing continuous profits, which is required to ensure business survival. Although some participants viewed the AIS significant to document, store, and process transactional data, other participants (P3, P5) noted the inability of the accounting system, without add-ons, to perform comprehensive financial analysis relevant to predict continuous financial gains. The supporting advanced Excel spreadsheet is designed to perform financial assessments of the economic health of the company by integrating different ratios such as debt to equity, gross margin, and profit margin. Participants (P3, P6, P8, P9) noted that the AIS, without add-ons, can assess financial information using the line item as a percentage of revenue and percentage of completion assessment ratios.

One participant (P5) who used the AIS with the forecasting add-on (QuickBooks Fathom) indicated that the system was efficient because of the comprehensive financial reporting capabilities. The participant was able to view assessment graphics and tables with detailed comparative data relevant to determine the profitability of jobs, provides industry trends with a comparison of how the company is operating in relation to competitors, and in-depth information necessary to predict financial gains. However, some participants expressed that accurate documentation of accounting information entered into the AIS at the initial stage is key for producing useful financial statements. The financial statements inputted in the AIS add-on app or advanced spreadsheet can be evaluated to determine the economic health of the company and provide profitability forecasts necessary to sustain the long-term business operation.

Fulfillment of Research Purpose

The purpose of this qualitative single-case study was to explore the contributory factors that determine how AIS is used to support forecasting profitability by small construction and renovation business owners in the Northeastern United States. The conclusions drawn from this research study have uncovered two scholarly theoretical implications and two practitioner implications. Scholarly theoretical implications refer to the contribution to the existing body of knowledge by filling gaps in the current research area (Cooper & Schindler, 2014). Cooper and Schindler referred to practitioner implications as the aim to explain a business problem based on the practitioners' viewpoints by providing management with ideas and knowledge to help further establish strategies for their company.

Scholarly Theoretical Reason 1

This research was developed to build on the area of forecasting profitability using the functionalities of accounting information systems (AIS) in small business (Al-dmour et al., 2017; Bruwer & Smit, 2015; Esparza-Aguilar et al., 2016; Prasad & Green, 2015). Jackson, Plumlee, and Rountree (2018) expressed the need for management to focus on forward-looking accounting information, which is necessary for business survival in a volatile market. This study revealed that small business owners whose companies have been in operation for more than 5 years used the AIS to document, store, and process accounting information for easy access to financial statements, then used add-ons or developed an advanced Excel spreadsheet to conduct forecasting computations. Participants shared mixed responses regarding AIS to effectively support forecasting profitability because the embedded financial metrics performed calculations on the line items as a percentage of revenue and completion rates. The AIS did not have the functionality to complete an extensive analysis and presentation of 3 to 5 years financial reports without the add-on applications. Hosain (2019) revealed that accounting knowledge and recordkeeping performance were key factors that determined the effective use of the AIS to increase organizational performance. Participants in the study commented that accurate documentation of transactional data in the initial stage was relevant to the quality of accounting information outputted by the accounting system. Therefore, speed, accuracy, and easy access to information in real-time were regarded as the most valuable features of the AIS to contribute to profitability forecasts.

Scholarly Theoretical Reason 2

This research explored and built on the contingency theory of management accounting (CTMA) to determine the contributory factors that influence small business owners, who are in operation for more than 5 years, decision to select the current AIS used in the company (Leite et al., 2016). Although mixed responses were shared regarding the use of AIS to support forecasting profitability, participants revealed that (a) customization, (b) efficiency, (c) prominent system, (d) access to real-time financial data, and (e) price were some contributory factors that influenced selecting the AIS used in the company. One participant (P6) shared that there are accounting systems specific to the construction and renovation industry, such as StarBuilder. However, because of prominence, customizable, and efficiency QuickBooks was determined as the software capable with add-on applications to perform forecasting operations, which is significant to the survival of a business in an unpredictable market. Respondents in this study who purchased and used the add-on forecasting application determined that the AIS was capable and competent in providing comprehensive and comparative financial data based on 3- or 5-years operations, which was used in addition to industry reports, and project history to predict financial gains. The participants who did not purchase the add-on application used an advanced Excel spreadsheet equipped with the functionalities to perform rigorous financial calculations on past transactions to develop a forward-looking strategy geared toward profitability forecasting.

Practitioner Reason 1

From a practitioner's perspective, this study provided further insights concerning the use of AIS to support forecasting profitability by small business owners who are in operation for

more than 5 years. This research is relevant to small business owners who need to build and maintain profitability to sustain the business operation. According to Mia (2017), the implementation and effective use of organizational resources could increase company performance and build a competitive advantage in an unpredictable market. Bettner (2018) stated that developing forward-looking initiatives are essential to a continually changing business environment. According to Fagbemi and Olaoye (2016), effective use of an AIS could help improve profitability in small businesses. Participants (P5, P6, P7, P8, P9, P10, P12) revealed that efficient use of the AIS is dependent on the relevance, usefulness, and accuracy of the accounting information entered in the AIS. Therefore, investing in a workforce that is knowledgeable and competent in their respective jobs is essential for meeting organizational objectives. Likewise, small business owners should use an accounting system capable of performing financial assessments relevant to understanding the economic status of the company. One participant (P2) noted that if the AIS is unable to perform the required financial assessment to evaluate business performance, there should be supporting applications that add to the required functionality based on the desires of the users. Some participants who did not invest in the add-on application used advanced Excel; however, the AIS provided the financial statements and some line item assessments, which were used to develop the comprehensive projected financial statements in the spreadsheet.

Practitioner Reason 2

The efficient use of the AIS is dependent on the accuracy of accounting information inputted in the system. According to Aladejebi and Oladimeji (2019), one major issue that affects small business profitability is inadequate or inaccurate recordkeeping of accounting, business,

and financial information that is necessary to determine short and long-term operations. Abdul-Rahamon and Adejare (2014) emphasized the need for knowledgeable personnel in accounting to monitor the recordkeeping process and ensure accurate documentation of transactional data. Participants (P1, P5, P6, P8, P9) emphasized that documentation of accurate accounting information is relevant for interpreting the financial stability of the company. The information entered in the AIS should allow management to develop projected analyses used to strategize the business operation for survival despite economic disruptions.

Contribution to Business Problem

The specific business problem is that some small construction and renovation business owners underuse AIS to support forecasting profitability, which influences the sustainability of these entities. There are 30.2 million small businesses in the U.S. that employ 47.3% of the workforce, which contributed to the U.S. annual growth rate of 3.4% (U.S. Small Business Administration, 2019). However, Hyder and Lussier (2016) documented that sustaining small business operation is a going concern as the limited or inefficient use of organizational resources results in closed operation. The Bureau of Labor Statistics (2018) documented that 20% of small start-up companies failed operation within the first year and 49.8% in the fifth year. More specifically, the Bureau of Labor Statistics documented that small companies in the construction and renovation sector have the highest failure rates in the first and fifth years of operation. Research findings indicated that these factors influenced small construction and renovation business failure (a) poor budgeting, (b) incomplete experts knowledge, (c) poor judgment, (d) underuse of accounting systems, (e) scheduling issues, and (f) financial concerns (Abu Bakar et al., 2016; Cullen & Parker, 2015; Griffin, 2018; Shahhossein et al., 2018). The efficient use of

AIS that is established to meet organizational objectives had a significant positive relationship with increase small business performance (Al-dmour et al., 2017; Balagobei, 2019; Esparza-Aguilar et al., 2016; Prasad & Green, 2015; Purswani & Anuradha, 2017). Putra (2019) stated that small business owners underuse accounting technology resources necessary to assess organizational performance and strategize the business operation, ensuring continuous profits. Although scholars have identified factors that caused small businesses failure and determined that the implementation of an AIS increase organizational performance, limited information is available regarding how successful small companies use the AIS to sustain the business operation. Therefore, a need for research existed to explore how some small business owners use AIS to support forecasting profitability.

Interpretation of the research findings for this study confirmed the viewpoints expressed by Bruwer and Smit (2015), Esparza-Aguilar et al. (2016), Prasad and Green (2015), and Mia (2017). The participants (P1-P12) revealed that the AIS used to document, store, and process accounting and business information is a valuable organizational resource relevant to small business performance. However, accurate documentation of accounting information is key to inform management about the operation of the company. Participants shared that the AIS is used to provide line item analysis on the financial statements, which is necessary to understand the health of the company and evaluate financial performance on a project-by-project basis. However, to obtain a comprehensive comparative analysis for profitability forecasts, some participants stated that an add-on application is required, or the use of an advanced Excel spreadsheet developed with performance assessment formulas. All participants agreed that the

ability to forecast profitability requires the efficient use of a capable AIS or supplement to ensure sustaining small business operations in a volatile market.

Recommendations for Further Research

The results of this research study identified a need for further research derived from the unexpected findings regarding the limitation of the AIS, without add-on apps, to provide comprehensive, forward-looking data required to predict profitability competently. This study was qualitative, and all 12 participants used QuickBooks as the accounting system (either online or the desktop version) in the construction and renovation sector. A quantitative study could be conducted to generate numerical data and generalize results from a larger sample population. A comparative study could be done that focused on small business owners who use AIS and those that do not use AIS to provide a better understanding of the effectiveness to support forecasting profitability.

This study was confined to small construction and renovation business owners operating in the Northeastern United States and had been using AIS for a minimum of 5 years. Factors eliminated from this study were small companies in operation for fewer than 5 years, companies in other industries and locations, and small business owners or designated representatives who did not use AIS or used AIS for less than 5 years. A similar research study could explore other industries that small business owners operate in, such as restaurant, retail, technical services, health care, public administrations, or other sectors and focus on a different geographical region.

Conclusions

This qualitative research study contributed insights from a practitioner perspective regarding how AIS is used by small business owners, who have been in operation for more than

5 years, to support forecasting profitability. Additionally, this study added to the body of scholastic knowledge by providing further insights about forecasting profitability (Mia, 2017; Muhindo et al., 2014; Patel, 2015; Salehi et al., 2015), AIS and small business performance (Al-dmour et al., 2017; Esparza-Aguilar et al., 2016), and the contingency theory of management accounting (Al-Eqab & Ismail, 2011; Chenhall, 2003; Leite et al., 2016; Otley, 2016).

Small business owners may use the research findings to understand how to use a computerized AIS to support continuous financial gains. Additionally, practitioners may benefit from this study by realizing that the documentation of accurate accounting information in the AIS provides financial statements that are assessed to determine the financial health of the company and significant to the decision-making process. Practitioners can analyze comprehensive, comparative financial statements, which are essential to predicting profitability. Forecasting profitability provides a forward-looking evaluation into the projected financial health of the company and supports strategizing business operations to maintain competitive advantage and ensures survival in a volatile market.

The research findings indicated that small business owners and designated representatives in operation for more than 5 years use the AIS to document, store, and process accounting information that is useful and relevant to understand the company operations. However, essential to documenting accounting information is ensuring accuracy. The financial reports provided by the AIS are assessed to determine profitability on a project-by-project basis. A major insight shared by some participants was the need to include an add-on application or use of a supplemental advanced Excel spreadsheet to perform forecasting functions.

This research study contributed value to the academic community by successfully answering the research question and fulfilled the research objective by documenting findings regarding how AIS is used by small business owners to support forecasting profitability. This research provided a foundation for further study in the areas of AIS and forecasting profitability.

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APPENDIX A. INTERVIEW PROTOCOL

Script before the interview:

I appreciate your willingness to participate in this one-on-one telephone interview. As previously mentioned, the purpose of the study is to explore the contributory factors that influence how small construction and renovation business owners in the Northeastern United States use Accounting Information Systems (AIS) to support forecasting profitability. Your participation could identify the value-adding factors AIS contribute to management decision-making significant to predict financial gains and sustainability in small businesses.

Audio Recording. Your participation in this interview is voluntary, and you can choose not to answer any question with which you feel uncomfortable. Kindly note, the interview will be audio recorded. Do you have any objections to the recording of this session? Yes_____ No_____

Start recording interview session:

Do you have any questions or require clarification of terminologies before we begin the interview?

If *yes*, questions and clarifications will be addressed, if *no* we will proceed with the interview questions.

Research Question: How do some small construction and renovation business use AIS to support forecasting profitability?

Interview Questions	Background	CTMA	Core competency	Accounting Information	Strategic decision-making	Access business performance	Predicting financial gains
How long have you been working in the construction and renovation industry?	X						
Describe your role and responsibility working in your current position	X						
What is your current role working with the business data?	X						
What type of Accounting Information System have you worked with to record business data?	X						
What computerized AIS do you currently use?	X						
How many years have you been using a computerized AIS?	X						
Contributory Factors							
What contributory factors influenced your choice to select the AIS currently used in the company?		X					

Accounting Information Quality							
What type of information is collected, stored, and processed in the AIS?			X	X			
Tell me about the specific process for recording transactional data			X	X			
What security measures are in place to protect business data stored on the AIS?			X				
Strategic Decision-Making							
What types of strategic decisions are made using accounting information?					X		
How do recording, storing, and processing accounting information in a computerized AIS support the strategic decision-making process of the company?					X		
Business Performance							
What factors do you deem essential to determine competitive advantage in the construction and renovation industry?						X	
How do recording, storing, and processing accounting information in a computerized AIS contribute to assessing your business performance?						X	
Describe the financial metrics embedded in the AIS that you use to measure business performance.						X	
Financial Gains							
What factors are evaluated to estimate long-term financial gains?							X
Describe the effectiveness of the accounting system to forecast profitability							X

Ending the interview

Before concluding the interview session, do you have any additional information to share regarding how AIS is used to support forecasting profitability in the construction and renovation sector?

I want to thank you for your participation by contributing valuable information to this study. The data collected from all participants will be coded, analyzed, and the results reported in chapter 4 of my dissertation. After the final review and approval, if you are interested, I could share my findings with you.

APPENDIX B. FOCUS GROUP INTERVIEW PROTOCOL

Script before the Focus Group Interview:

I appreciate your willingness to participate in this group interview. As previously mentioned, the purpose of the study is to explore the contributory factors that influence how small construction and renovation business owners in the Northeastern United States use Accounting Information Systems (AIS) to support forecasting profitability. Your participation could identify the value-adding factors AIS contribute to management decision-making significant to predict profitability and sustainability in small businesses. The online focus group interview will last approximately 60 minutes.

Your participation in this group interview is voluntary, and you can choose not to answer any question with which you feel uncomfortable. Kindly note, the group interview will be audio recorded. Do you have any objections to the recording of this session? Yes_____ No_____

Format for the Group Interview

I will ask the question and the group participants will respond simultaneously. After all members respond to the question, time will be allotted for additional responses.

Do you have any questions or require clarification of terminologies before we begin the group interview?

If *yes*, questions and clarifications will be addressed, if *no* we will proceed.

Research Question: How do some small construction and renovation business use AIS to support forecasting profitability?

Interview Questions	Background	CTMA	Core competency	Accounting Information	Strategic decision-making	Access business performance	Predicting financial gains
How long have you been working in the construction and renovation industry?	X						
Describe your role and responsibility working in your current position	X						
Describe your accounting knowledge.	X						
Specify the type of AIS that you have used in the past	X						
What type of AIS are you currently working with to record business data?	X						
Describe your time and experience using a computerized AIS	X						
Contributory Factors							

How do contributory factors influence small business owners' choice of a computerized AIS?		X					
Accounting Information Quality							
What type of information is collected, stored, and processed in the AIS?			X	X			
Tell me about the specific process for recording transactional data			X	X			
Describe the significance to access accounting information in real-time to small companies operating in the construction and renovation industry				X			
Strategic Decision-Making							
Describe the features of an AIS that is relevant to strategic decision-making in a volatile market?					X		
Business Performance							
What factors do you deem essential to determine competitive advantage in the construction and renovation industry?						X	
Describe the features of an AIS that are relevant to assessing business performance in a competitive industry?						X	
Describe the financial metrics embedded in the AIS that you use to measure business performance.						X	
Financial Gains							
What factors are evaluated to estimate long-term financial gains?							X
Describe the effectiveness of the accounting system to forecast profitability							X