AN EXAMINATION OF THE INFLUENCE OF FIRE CHIEF LEADERSHIP STYLE ON BUDGETARY DECISION-MAKING.

Doctoral Dissertation Research

Submitted to the Graduate

Faculty of Saint Leo University

In Partial Fulfillment of

The Requirements for the Degree of

The Doctorate of Business Administration

By

Larry L. Collins

December 2020

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ABSTRACT

This study validated a relationship between a fire chief's leadership style and the decision-making approach used when making fire department operating budget decisions. The study's business question concerned whether fire chief leadership style influences budget decision-making given the unique leadership requirements encountered by fire chiefs in both the emergency operating and administrative, bureaucratic environments. The scarcity of leadership-budgetary decision-making research is notable given the considerable amount of fiscal resources fire chiefs are responsible for each year in their communities across the United States. Using a participant self-administered Multifactor Leadership Questionnaire instrument developed by Bass and Avolio (2004), fire chief leadership styles were categorized into one of three groups, transformational, transactional, laissez-faire, and which served as the study's predictor variables. The study criterion variables included the five budget decision-making principles found within the Government Accounting Office capital budgeting decision-making framework (1998): principle I-integrate organizational goals into the budget decision-making process; principle II-evaluate, rank, and select projects for funding; principle III-balance budget controls and managerial flexibility; principle IV-use project management techniques to optimize project success; principle V-evaluate results and incorporate lessons learned. This study utilized a quantitative nonexperimental research design using multiple regression. This study's population was a random sampling of U.S. fire chiefs (or retired fire chiefs) who managed fire departments serving communities with a local resident population of 100,000 or more. Five research questions were developed, examined, and answered statistically utilizing multiple regression analysis. Four of the five regressions rejected the null hypothesis, accepting the alternative hypothesis instead, indicating a significant relationship between an independent variable of leadership style and a dependent variable of the Government Accounting Office budget decision-

making framework. Additional research should determine which of the three leadership styles produces the best budget outcomes. In addition, research should investigate other key local government executive leadership positions (e.g., police chiefs, planning directors, public works directors, parks and recreation directors, water department officials), which could yield similar information for each of these positions, and importantly, could also provide a base of comparison for future consideration by top local government officials and administration decision-makers when making hiring and promotional decisions.

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CHAPTER ONE: INTRODUCTION

In 2014, the total cost of fire protection in the United States was estimated to be $328.5 billion (National Fire Protection Association Research Foundation [NFPARF], 2017). Almost $42 billion, or 12.8% of the total cost, was allocated for local government fire department expenditures (NFPARF, 2017). In the larger city and county fire departments, annual operating budgets can reach hundreds of millions of dollars. As the fire department's highest-ranking executive, the local fire chief has responsibility for developing, justifying, negotiating, and managing the budget and tax dollars used to support local fire protection services. Fire chiefs set the fire protection priorities for their community by defining which fire department programs move forward for funding and which ones do not. These decisions directly impact the community's safety and security and the efficiency of the services provided (Sedlmeyer, 2017).

Executive-level leadership has a significant impact on budgetary decision making (Park, 1989; Sedlmeyer, 2017). Further, increasingly limited tax dollars have led to a growing focus on strengthening budgetary decision making at all government levels (U.S. Government Accounting Office [GAO], 1998). Minimal scholarly literature is available addressing the topic of fire chief leadership styles and their influence on budgetary decision-making. Sedlmeyer (2017) noted fire department municipal budgets between 2015-2016 consumed as much as 31% of a community's (e.g., city, town, township, village) annual general operating budget. This large consumption of local tax dollars has made fire departments in some local governments a target for budget reductions (Compton, 2012). Given the large percentage of tax dollars, as high as 31% of a community's general fund annual budget in some instances, that fire chiefs manage in proportion to a community's overall budget, and the increasing demand to focus on improved budget decision-making at all levels of government, this study proposes to expand the knowledge base in the fire service leadership field by examining the relationship between fire chief leadership

styles and budgetary decision-making. Such research may positively impact how communities select, train, and educate future fire chiefs and perhaps other city departments' executives. Furthermore, the study may help communities better meet bottom-line fiscal goals and objectives.

Bland (2013) rejected the notion that local governments should generally be run like a business. He found this impractical given the political nature of government and the differences in revenue/income sources. However, Bland (2013) also argued in support of using some targeted business practices in government to achieve higher efficiency and effectiveness when allocating limited local resources. The use of formal strategic planning initiatives, the establishment of spending goals and performance objectives, the use of metrics to measure progress and the use of systematic decision-making approaches are examples Bland (2013) cited as business practices that can be used by local governments. This study examined one such opportunity by developing a better understanding of the relationship between fire chief leadership styles and fiscal decision-making in the fire service profession.

Leadership and budgeting are widely recognized as fundamental business practices, regardless of whether they occur in the private or public sectors (Shedd, 2011). However, the environments in which they are transacted differ owing to political and managerial influences. Local governments consist of several departments to provide services to their citizens. Each department develops and recommends its budget for policy approval by elected officials. A unique aspect of the fire department budget is that the primary budgetary decision-maker is the fire chief. It is unique because fire chiefs routinely lead and make decisions in a bifurcated environment. In one instance, they are required to lead and make high stress, potentially life-threatening decisions in emergency environments that require other than routine leadership and decision-making skills (Carter, 2007). Training and many years of experience operating in these

strong command and control emergency environments have shaped their leadership and decision-making skills (Carter, 2007). Conversely, fire chiefs must also adapt to standard administrative leadership and managerial decision-making functions in the governmental bureaucratic environment. The business question addressed by this study concerns whether fire chief leadership style influences budget decision-making given the unique leadership requirements encountered in the emergency operating and administrative bureaucratic environments.

In this study, fire chief leadership style was the predictor variable. The study CVs were based on the GAO budget decision-making framework principles (1998):

- Principal I-Integrate organizational goals into the budget decision-making process;
- Principle II-Evaluate, rank, and select projects for funding;
- Principle III-Balanced budget controls and managerial flexibility;
- Principle IV-Use project management techniques to optimize project success; and
- Principle V-Evaluate results and incorporate lessons learned.

This research examined the relationship between leadership styles and operating budget decision making. Leadership participants were categorized into three groups: transformational, transactional, laissez-faire (non-leadership passive/avoidant; Duddy, 2015). In 1939, seminal research by Kurt Lewin and colleagues developed three leadership styles: democratic, autocratic, and laissez-faire (Lewin et al., 1939). Over time, new styles of leadership have emerged. Duddy (2015) explained that leadership styles have evolved over the past 40 years into 3 main categories: transformational, transactional, and laissez-faire (passive/avoidant). Virtually all discussions of leadership today include these three contemporary styles of leadership (Moschella, 2017). Therefore, this study adopted transformational, transactional, and laissez-faire (passive/avoidant) as the research's primary leadership styles.

Data derived from the self-administered Multifactor Leadership Questionnaire (MLQ) instrument developed by Bass and Avolio (2004) were utilized to classify participants in the appropriate leadership group category. Past research by Brownell and Merchant (1980) regarding leadership behavior and budgeting utilized the Leadership Behavioral Descriptive Questionnaire (LBDQ) as the survey instrument. The more contemporary MLQ, based on the work of Bass and Avolio (2000, 2004), was utilized in this study, as it includes transformational leadership, an emerging area of leadership interest in fire service management and leadership research (Alyn, 2010b).

The study CVs were derived from the GAO budget decision-making framework, including its five GAO budget principles configured for operating budgets, each defined and measured as an interval variable, with data collected using a five-point Likert scale questionnaire. Specifically, operating budgets served as the basis for the study. Operating budgets support the day-to-day operations of a governmental entity, such as needed personnel, supplies, materials, equipment, and contracts for a defined period, commonly one year (Bland, 2013; Carlee, 2008). Capital budgets, conversely, address significant cost items such as buildings, facilities, land, and vehicles, which typically have a life span of several years (Brusca & Labrador, 2016).

The decision-making framework for both operating and capital budget types are generally similar. However, the preparation process and methodology for capital budgeting decisions are different from the operating budget process. Capital budgets have a life-cycle expectation over multiple years and are developed on a rotating basis from year to year; projects not funded in one year are automatically rotated up for funding consideration the next year. This research focused exclusively on the annual operating budget preparation and decision-making process. Fire chiefs have direct control over decisions made regarding the fire department's annual operating budget.

As opposed to the capital budget, this made the operating budget the appropriate area for study regarding budgetary decision-making.

Minitab statistical software was employed to analyze the data from both survey instruments and utilized for this research (MLQ and GAO questionnaires). Multiple regression analysis was utilized to examine relationships between the predictor and criterion variables for the research study. This was the appropriate statistical test method for modeling multiple criterion variables with a predictor variable containing multiple groups (Ford, 2017).

Descriptive statistics were used to examine the mean scores and standard deviations from the predictor factors of the three leadership styles and the criterion budgetary decision-making framework variables—integration of organizational goals into the budget decision-making process; evaluate, rank and select projects for funding using an investment approach; balance budget controls and managerial flexibility when funding projects; use of project management techniques to optimize project success; evaluate results and incorporate lessons learned into the decision-making process (GAO, 1998).

A quantitative nonexperimental research design using multiple regression was utilized in this study. A nonexperimental approach is effective when statistically answering research questions that identify variables that have a significant relationship to the criterion variable or predict an outcome (Creswell, 2018). In this study, variables were measured to explain the relationship between the predictor variable of fire chief leadership style and the criterion variables of budgetary decision-making. Appropriate test assumptions were reviewed and confirmed by the Minitab software, including regression assumptions of linearity, reliability of measurement, homoscedasticity, and normality of variable distribution to eliminate error in the data results (Osborne & Waters, 2002).

Problem Background

Local governments continue to feel pressure to provide higher service levels without raising taxes (GAO, 1998; Healey, 2015). One way to do this is to ensure that the community is getting the most effective services possible for the tax dollars expended (Bland, 2013; GAO, 1998; Healey, 2015). This approach implies that the fire department, like other municipal departments, must be highly discerning when deciding what programs and services will deliver the expected level of protection at the lowest possible cost (Bland, 2013; GAO, 1998; Healey, 2015). Such fiscal decisions in the fire department must balance both community safety and firefighter safety concerns (Sedlmeyer, 2017).

Given this cost-safety conundrum, fire chiefs must make budgetary decisions within a structured business-like framework. Such an approach allows them to make balanced choices between the competing demands for cost-effective protection and community expectations regarding fire protection service levels (Sedlmeyer, 2017). However, no scholarly research has been discovered that has studied using a structured framework by fire chiefs to make budget decisions. The lack of research in this area may exist because it is challenging to classify fire chiefs uniformly for such an evaluation. This is because their fire departments vary in size, the complexity of areas protected, activity levels, and geographical locations—some in urban environments, some in suburban environments, some in rural environments, and some simultaneously in all three of these environments, all of which can require different service demands (Sedlmeyer, 2017). However, it is possible to categorize fire chiefs based upon leadership style.

Supervisors utilize budgets as an expression of their leadership style (Adler & Reid, 2008; Argyris, 1952; Brownell & Merchant, 1980; Kyj & Parker, 2008). Leadership style plays an essential part in a fire chief's effectiveness, both from command and administrative budgetary

perspectives (Alyn, 2010; Sedlmeyer, 2017). Historically, fire chiefs have been selected based on their technical knowledge, much of which is gained through experience over time, which is frequently a major consideration in defining their leadership style (Sedlmeyer, 2017). Accordingly, this study proposed to examine the relationship in budgetary decision-making based on leadership style in a sample of fire chiefs. Once clearly established, the relationship between leadership styles and their impacts on the budgetary process can serve as the basis for future research defining potential ways in which fire chief leadership styles can better match local budgeting goals and objectives for greater fiscal and service delivery efficiencies.

The Budgeting Process

In this research study, leadership style served as the predictor variable, while the decision option was the study's criterion variables, as expressed in the GAO budget decision-making principles (1998):

- Principle I-Integrate organizational goals into the budget decision-making process;
- Principle II-Evaluate, rank, and select projects for funding;
- Principle III-Balance budget controls and managerial flexibility;
- Principle IV-Use project management techniques to optimize project success;
- Principle V-Evaluate results and incorporate lessons learned.

Decision theory focuses on goal-driven behaviors considering available options when pursuing a solution to some problem or dilemma (Hansson, 2005). In this study, the GAO budget framework principles provide decision options for addressing the budget problem. Budgeting is the process of estimating revenues and expenditures for a specified period, usually one year (Brusca & Labrador, 2016; Healey, 2008). The budget itself is a financial statement that forecasts revenues and expenditures for a defined period. Managers and policymakers use it for establishing priorities when making decisions regarding goals and objectives (the goal-driven

behaviors noted above by Hansson) that typically evolve from a formal strategic planning process (Brusca & Labrador, 2016; Farahani, 1992).

An effective public sector budget, one that meets the revenue and expenditure goals and objectives of the governmental entity with maximum efficiency, has a wide-ranging development process that considers political, managerial, planning, communication, and financial dimensions (Government Finance Officers Association [GFOA], 1998). Scholars debate whether a pure and exclusive theory for budgeting exists (Neuby, 1997; Park, 1989; Rubin, 1990). Despite the theoretical debate, budgets and locally preferred methodologies for their preparation and adoption exist for public and private-sector entities. Budgets serve identical management functions in both sectors, regardless of which method is preferred and employed. Budgets assist with the planning, coordinating, and controlling resources (Bland, 2013; Brusca & Labrador, 2016).

The preferred methodologies for local budget preparation and debate (the most common include line-item budgets, responsibility-center budgets, and performance budgets, defined more fully below) serve as the framework by which the goal-driven behaviors of those making financial decisions are ultimately made (Bland, 2013; GAO, 1998; Healey, 2015). Public sector municipal budgets differ from private-sector business budgets. Brusca and Labrador (2016) and Carlee (2008) noted that municipal budgets use fund accounting.

In fund accounting, each government fund functions as its own mini-budget aimed at a specific service or project. Fund accounting segregates the dollars allocated for a defined project, purpose, or service to that purpose not to be co-mingled with dollars for other projects. For example, dollars allocated for personnel costs are used exclusively for employee costs. Once allocated by the governing body for that purpose, they cannot be used for equipment or needed materials (Bland, 2013). Conversely, businesses use cost accounting methods. In this accounting

model, the overall allocation of resources is for the manufacture of goods and services sold in consideration of profits to be made; control of expenditures and transparency is not the primary consideration, as is the case in the public sector.

The budgeting differences lie in the purposes, functions, and methods between the two accounting systems used by each sector (Brusca & Labrador, 2016; Carlee, 2008). For example, in the public sector, profit motives do not drive budget decisions, as is the case in the private sector. In the public arena, accountability, control, and transparency are the primary objectives (Brusca & Labrador, 2016; Carlee, 2008). The revenue sources for each sector, primarily taxes, fees, and grants in the public sector and sales and profits in the private sector, also play an essential part in the differences (Brusca & Labrador, 2016; Carlee, 2008; Healey, 2015). Should a business need additional revenue, it makes and sells more products, raises purchase prices, or issues more stock. Conversely, a government entity survives predominately on taxes and must make do with what is collected for a specified period. If the community runs out of revenue, services cease, as there is no way to produce more income until the arrival of the next taxing cycle when new dollars are collected (Bland, 2013; Brusca & Labrador, 2016; Carlee, 2008).

There are numerous approaches to and methodologies for municipal budgeting. In a simplistic macro sense, the three most common include line-item budgets, responsibility-center budgets, and performance budgets (Bland, 2013; Carlee, 2008; Tyer & Willand, 1997). The line-item approach is fundamentally an accounting document that keeps track of revenues and expenditures in a manner like that of keeping a personal checkbook. Responsibility-center budgets fix costs to a specific department or agency, while performance budgets attempt to align outcomes from expenditures with their inputs, revenues expended for the project, or service provided (Bland, 2013; Carlee, 2008; Tyer & Willand, 1997). Regardless of a community's budgeting method, the municipal budget, at its core, is based on the revenues received and

expenditures made. The municipal budgeting framework is based on fund accounting principles with the funding decisions made by senior managers and policymakers. Budgeting decisions reflect a collective decision on prioritizing and spending the available, and often minimal, local government funds. Further, such decisions are frequently made in an environment of competing project demands between various community special interest groups adding a political dimension to the process (Brusca & Labrador, 2016; Carlee, 2008; GAO, 1998; Healey, 2015).

Leadership and Decision-Making Considerations

Leadership is widely considered a critical element to the success of organizations (Landis, Hill, & Harvey, 2014; Society for Human Resource Management [SHRM], 2008). Given its paramilitary structure and the nature of the fire-rescue business, where life and death decisions are frequently involved and associated with highly dangerous fire combat situations for firefighters, leadership is many times a critical factor to a successful emergency outcome (Carter, 2014; Klein, 1998; Sedlmeyer, 2017). Personnel will follow a leader they respect into perilous situations (Alyn, 2010a; Carter, 2014; Sedlmeyer, 2017). Respect is earned through experience and leadership style (Alyn, 2010a; Knitter, 2017; Sedlmeyer, 2017).

Fire service leadership has evolved over the years from its paramilitary, autocratic roots. In the early years of the fire service, the leadership style was authoritarian. In the 1980s and 1990s, the authoritarian leadership philosophy evolved into a predominately transactional leadership style. The 2000s have seen a greater interest in the more contemporary transformational leadership style as a method for securing greater personal and organizational efficiency and effectiveness from fire department members (Alyn, 2010b). As the fire service profession moves forward into more contemporary leadership styles, Bass's research (1990) into the constructs of transformational, transactional, and laissez-faire leadership styles fit this research well. Therefore, this research study categorized fire chief leadership styles into three

categories. The categories, based on the leadership theory of Bass (1990), are transformational, transactional, laissez-faire (non-leadership passive/avoidant) styles. The transformational, transactional, laissez-faire leadership styles served as the study's predictor variable. Each participant's leadership style was categorized by completing the self-administered, highly validated MLQ instrument (Bass & Avolio, 2000, 2004).

Fire chiefs spend years training and gaining the experiences that help them provide the critical leadership and decision-making skills needed to confidently and safely command personnel in highly stressful fire-rescue combat situations (Burkell & Wood, 1999; Carter, 2014; Klein, 1998; Sedlmeyer, 2017). Much literature exists regarding the relationship between leadership and decision-making during critical fire service emergencies and crises (Burkell & Wood, 1999; Carter, 2014; Klein, 1998; Sedlmeyer, 2017). Kahneman and Klein (2009) extensively studied the decision-making processes used by fire ground commanders. He has concluded commanders in these high-stress, time-pressured situations rely on what Klein (1998) termed recognition-primed decisions (RPD) when deciding on a course of action for managing the emergencies commanders are expected to resolve. RPD draws on the commander's past experiences as he or she quickly analyzes the situation mentally compared to similar past situations he or she has successfully managed. The successful situation most closely matching the current emergency then becomes the starting point for managing the current challenge.

Statement of the Problem

The RPD approach to fire chief decision-making, conditioned and refined by years of personal experiences, has proven highly successful in containing and controlling high stress and time-conditioned fire-rescue emergencies (Kahneman & Klein, 2009). The scholarly literature is scarce regarding the relationship between fire chief leadership styles and budgetary decision-making in the administrative setting. Given RPD's dominance by fire chiefs, it is logical to

hypothesize that this decision-making approach may also serve as the predominant decision-making style for budget decisions.

The scarcity of leadership-budgetary decision-making research is notable given the considerable amount of fiscal resources fire chiefs are responsible for each year across the United States. It is also noteworthy because this study could become a source of information that cities and counties could use when making selection and promotion decisions regarding fire service leaders. Ideally, such leaders would encompass fire chiefs who can both successfully command major emergencies and provide the leadership style and decision-making process consistent with the community's fiscal priorities (SHRM, 2008). Those fiscal priorities are the defined goals and objectives that best help a community achieve service and expenditure targets, which have the highest and most efficient returns on investment for the taxpaying public (GAO, 1998). The study can also shed light on potential areas for future training topics regarding leadership development in other areas of municipal leadership, such as police chiefs, for example (SHRM, 2008). Consequently, an investment in training and education might improve the return on investment for communities by enhancing service delivery across multiple departments, programs, and services at a more streamlined cost.

Study Purpose

The purpose of this quantitative nonexperimental study was to examine the relationship between fire chief leadership styles and fire department operating budget decision-making. Fire chief leadership styles categorized into three groups (i.e., transformational, transactional, laissez-faire [non-leadership passive/avoidant]) served as the study's predictor variable.
The criterion variables included the five budget decision-making principles found within the GAO capital budgeting decision-making framework (1998):

- Principle I-Integrate organizational goals into the budget decision-making process;

- Principle II-Evaluate, rank, and select projects for funding;
- Principle III-Balance budget controls and managerial flexibility;
- Principle IV-Use project management techniques to optimize project success; and
- Principle V-Evaluate results and incorporate lessons learned.

Operating budgets support an entity's day-to-day operations such as needed personnel, supplies, materials, equipment, and contracts for a defined period, commonly one year (Carlee, 2008). This is the portion of the fire department budget over which a fire chief has consistent decision-making influence. The cost items to be funded in the operating budget are decided upon annually by the fire chief. Conversely, capital budgets address significant cost items such as buildings, facilities, land, and vehicles, which typically have a life span of several years (Brusca & Labrador, 2016).

While the decision-making framework for both budget types is generally similar, the preparation process and methodology for capital budgeting are different from the operating budget because capital cost items have a life-cycle expectation over multiple years; decisions regarding capital funding cost items happen only every several years. Therefore, this study focused on the annual operating budget preparation and decision-making funding process.

The study was a descriptive research project, as no variables were manipulated or controlled. Fire chiefs from around the United States serving communities with populations of 100,000 or more were focused on to serve as the study population. According to the 2018 U.S. Census Bureau data, there are 314 incorporated communities with a population of over 100,000 (U.S. Census Bureau, 2018). It is reasonable to assume that each of these communities has a fire department led by a fire chief. A GPower 3 calculation was utilized to define the appropriate sample size. The study utilized a random sample approach.

Research Questions

Following is the overarching research question that guided the proposed research study:

RQ1: Does fire chief leadership style influence budgetary decision-making?

H_o 1: There is no significant relationship between fire chief leadership styles and budget decision making.

H_a 1: There is a significant relationship between fire chief leadership styles and budget decision making.

This study also addressed the following subquestions:

RQ2: What is the relationship between fire chief leadership styles and evaluation, ranking, and selection of budget projects to be funded?

H_o 2: There is no significant relationship between fire chief leadership styles and the evaluation, ranking, and selection of budget projects to be funded.

H_a2: There is a significant relationship between fire chief leadership styles and the evaluation, ranking, and selection of budget projects to be funded.

RQ3: What is the relationship between fire chief leadership styles and budget controls and managerial flexibility utilized in the budget process?

H_o 3: There is no significant relationship between fire chief leadership styles and managerial flexibility utilized in the budget process.

H_a 3: There is a significant relationship between fire chief leadership styles and managerial flexibility utilized in the budget process.

RQ4: What is the relationship between fire chief leadership styles and integrating organizational goals into the budget?

H_o 4: There is no significant relationship between fire chief leadership styles and integrating organizational goals into the budget.

H_a 4: There is a significant relationship between fire chief leadership styles and integrating organizational goals into the budget.

RQ5: What is the relationship between fire chief leadership styles and optimizing project management techniques during budget formulation?

H_o 5: There is no significant relationship between fire chief leadership styles and optimizing project management techniques during budget formulation.

H_a 5: There is a significant relationship between fire chief leadership styles and optimizing project management techniques during budget formulation.

RQ6: What is the relationship between fire chief leadership styles and budget results evaluation?

H_o 6: There is no significant relationship between fire chief leadership styles and budget results evaluation.

H_a 6: There is a significant relationship between fire chief leadership styles and budget results evaluation.

Significance of the Study

The study offers practical and theoretical importance. Practical implications from the study extend to potential changes in the way communities hire and promote fire chiefs in the future, with budget decision-making a consideration. Study findings could also form a basis for future leadership training and budgeting decision-making techniques for fire chiefs and their senior staff members. The study may also have similar implications for the selection and training of other key organizational decision-makers and department heads such as police chiefs, or at the very least, point to the need for similar research regarding these positions. Such initiatives may ultimately result in the positive effect of more efficient use of limited local budget dollars while

still maintaining, or perhaps in some cases exceeding, community expectations for provided service levels.

Theoretically, the present study expanded the scholarly literature in an under-represented research area by better understanding the relationship between fire chief leadership styles and the approach each style takes when making organizational budget decisions. The study furthered the knowledge base, contribution, and research concerning the theoretical constructs of public service leadership types and budgetary decision-making. Leadership and decision-making theory were central to this research, as was the use and application of public sector budgeting methods. This study could also open the door to future research regarding leadership and budgetary decision-making for other local government positions.

Limitations, Assumptions, Delimitations

Limitations

The specific topic under consideration for this study was narrow; prior research has been limited regarding fire chief leadership and budget decision making. Therefore, this study integrated research from business management, social science, and public safety topics (e.g., leadership, accounting, public budgeting, decision making) to help mitigate these gaps. The study also limited the sample population to fire chiefs serving communities at or above 100,000 population to seek similar sophistication in the budget preparation process among participants, thus, limiting the overall sample profile. The researcher consciously endeavored to avoid question-order bias and confirmation bias to ensure the researcher did not influence survey questions (Farnsworth, 2016; Sarniak, 2015). While the study laid a theoretical foundation regarding leadership theory, it limited the focus, discussion, and application of leadership to the transformational, transactional, and laissez-faire styles. Further, it represented the effort as a snapshot of leadership at a given point in time under defined circumstances.

This research study relied on an electronic survey instrument to collect data from participants. A standard assumption when utilizing such an instrument is that participants will answer survey questions completely and honestly (Simon & Goes, 2013). The need for full and honest answers to help avoid response bias was reinforced by assuring participants that their identities and individual responses would remain confidential and by informing them that, as volunteer participants, they could withdraw at any point in the process. Further, as an electronic instrument, respondents could answer survey questions in private (Simon & Goes, 2013). In short, participants were assured that research ethics were stringently adhered to during all phases of the project (Benov, 2013).

Electronic self-report surveys are, at times, also hampered by recall bias and social desirability bias (Aprameya, 2015; Glen, 2020). With recall bias, respondents may have forgotten information the survey is seeking to discover for a number of reasons such as past trauma, age, similar events, and personal considerations (Glen, 2020). The use of well-worded and well-thought-out questionnaires was imperative for limiting this bias, as it is virtually impossible to eliminate when using self-report survey instruments (Glen, 2020). Social desirability bias stems from the respondent's desire to answer questions in a manner that others will view favorably (Aprameya, 2015). The questionnaires utilized in the research endeavored to limit this type of bias by keeping questions simple, clear, and concise while avoiding leading questions. The surveys also used interval questions and break down concepts resulting in easily understandable components. Importantly, survey length was also kept reasonably short (Aprameya, 2015). It was also assumed that a sufficiently large enough pool of fire chiefs was willing to expend the time necessary to participate in the research. The researcher attempted to mitigate this by explaining the potential benefits to the fire service profession their participation would provide.

Delimitations

This research study examined the relationship between fire chief leadership styles and fire department operating budget decision-making. While basic non-identifying demographic information was collected about participants and their fire departments (i.e., number of total members in the fire department, community population served, form of local government [charter/statutory-strong mayor], type of budget utilized by the department/community, total annual department budget, fire chief's years of overall fire service experience, fire chief's years of experience as department fire chief, gender—this is likely to be predominately male as White males dominate upper-level command positions in the fire service, and race—which is likely to be predominately White), these data were only for the development of an overall participant profile. Importantly, the profile information, coupled with the research findings, may lead to other areas of future research. For example, data trends might lead to a research question such as, "How does gender impact leadership style and budget decision-making outcomes?" This study did not intend to analyze or otherwise explain the relationships discovered between the sample groups, nor did the study attempt to analyze or endorse the differences in local budgeting methodologies or their potential impact on leadership decision-making. The study also did not opine regarding the distribution of dollars for specific programs or projects being funded or ignored by the budget decisions of fire chiefs. The study's focus was strictly on the decision process utilized when reaching those funding conclusions.

Definition of Terms

The following are terms used in this dissertation and their definitions:

- *Active management-by-exception* occurs when leaders constantly monitor their workers' performance and keep track of their mistakes (Bass & Avolio, 2000).

- *Budgets* are financial statements that express expected revenues and expenditures for an entity during a defined period and used by decision-makers and policymakers for decision-making and accountability processes (Brusca & Labrador, 2016).
- *Budgeting* is the process of preparing a budget that sets estimates for revenues and expenses for a defined future period (Brusca & Labrador, 2016).
- *Capital budgets* are for significant cost items with extended life spans and financial resources with long-term implications, including most buildings, certain equipment, and large land acquisitions (Brusca & Labrador, 2016).
- *The contingent reward* provides followers with rewards in exchange for their efforts (Bass & Avolio, 2000).
- *Community*, as used herein, was defined as a local unit of government (i.e., city, county, township, village). Communities were defined as more than one local unit of government (Collins, 2019).
- *General Accounting Office* of U.S. government budget principals:
    - Principle I—Integrates organizational goals into the budget decision-making process;
    - Principle II—Evaluate, rank, and select projects for funding using an investment approach;
    - Principle III—Balances budget controls and managerial flexibility when funding projects;
    - Principle IV—Uses project management techniques to optimize project success;
    - Principle V—Evaluate results and incorporates lessons learned into the decision-making process (GAO, 1998).
- *Laissez-faire leadership* is a basic lack of leadership (Bass & Avolio, 2000).

- *Leadership style* is a consistent pattern of a leader's behavior (Martin, 2009).
- *Operating budgets* define revenues and expenditures for the entity's daily general operation and typically include personnel, operating supplies and materials, and certain types of equipment (Bland, 2013; Carlee, 2008).
- *Passive management-by-exception* is when leaders fail to monitor their workers' performance and do not interfere until the problem becomes serious (Bass & Avolio, 2000).
- *Transactional leadership* relies primarily on an exchange of services and rewards between leaders and their followers (Bass a& Avolio, 2000).
- *Transformational leadership* occurs when leaders raise their followers' awareness levels and inspire them to embrace a shared vision (Bass & Avolio, 2000).

Conclusion: Chapter One

As the executive leaders for their fire departments, fire chiefs are responsible for a significant portion of local government general fund budgets. This amount can be as high as 31% of the community's budget in some instances. The decisions fire chiefs make about how to spend these dollars directly impact the safety of the communities they protect. At the same time, many fire chiefs and local communities are under pressure by citizens to get the most out of the tax dollars provided; there is a general aversion to new taxes to support existing services, including fire protection. Consequently, the budget decisions fire chiefs make are under greater scrutiny, yet very little research is available on how it is such fiscal decisions are being made by these leaders.

This study helped fill this scholarly research gap by identifying influences between fire chief leadership styles and the budget decision process each style uses to expend local resources. The study grouped fire chief participants into one of three leadership styles using the MLQ instrument (Bass & Avolio, 2000), then examined how each style logically approached

expenditure decisions regarding their operating budgets. The U.S. GAO capital budgeting decision-making framework (1998), with its five primary budgeting principles configured for operating budgets (Carlee, 2008), served as the framework for evaluating this decision process. An examination of fire chief command decision-making theory was also explored as a consideration in the process since this topic weighs heavily on fire chief development and leadership.

Chapter Two more deeply examined the conceptual model underpinning the study, including the body of literature impacting key areas of the research regarding the study's predictor variable, leadership theory in general and fire chief leadership specifically. Likewise, decision-making was explored theoretically and then within the context of fire chief command leadership decision theory. Finally, the elements of the U.S. GAO capital budgeting decision-making framework (1998), including its five primary budgeting principles configured for operating budgets (Carlee, 2008) and serving as the conceptual framework for the study, were also examined.

CHAPTER TWO: LITERATURE REVIEW

This chapter examined, integrated, and extended current literature and important seminal and historical literature and research in the construct areas of general leadership theory and styles, fire service leadership styles, accounting, public budgeting methodologies, and decision making. Leadership theories and styles were defined, and characteristics established, as were necessary budget and applicable accounting theory and methods. An examination of decision-making theory in general, and fire chief command and administrative decision-making theory specifically, was also undertaken. The research questions directed the literature review, which revealed a potential relationship between the study's predictor variable (PV) and the CV. The objective was not an exhaustive review of the literature on leadership or other identified construct areas. Instead, it was a more pointed analysis of the relevant literature regarding the constructs in the defined study areas. The literature reviewed included books, dissertations, journal articles, and government reports from searches using multiple databases such as ProQuest, EBSCO Information Services, and Google Scholar. The theoretical framework for the study was established, and its relevance was explained.

Theoretical Model

Figure 1 displays the conceptual model for the research study. Leadership style constitutes the study's PV, with participants categorized into one of three groups: transformational, transactional, or laissez-faire. Group classification resulted from the data obtained from a participant self-administered MLQ instrument (Bass & Avolio, 2000). The study PV is nominal-categorical. The study CVs were derived from the U.S. GAO capital budgeting decision-making framework (1998), with its five primary budgeting principles configured for operating budgets (Carlee, 2008) and served as the conceptual framework for the study. The five CV constructs included:

- Principle I-The The integration of organizational goals into the budget decision-making process;
- Principle II-The The evaluation, ranking, and selection of projects for funding;
- Principle III-Balanced budget controls and managerial flexibility;
- Principle IV-Use of project management techniques to optimize project success; and
- Principle V-Evaluation of results and incorporation of lessons learned into the decision-making process (GAO, 1998).

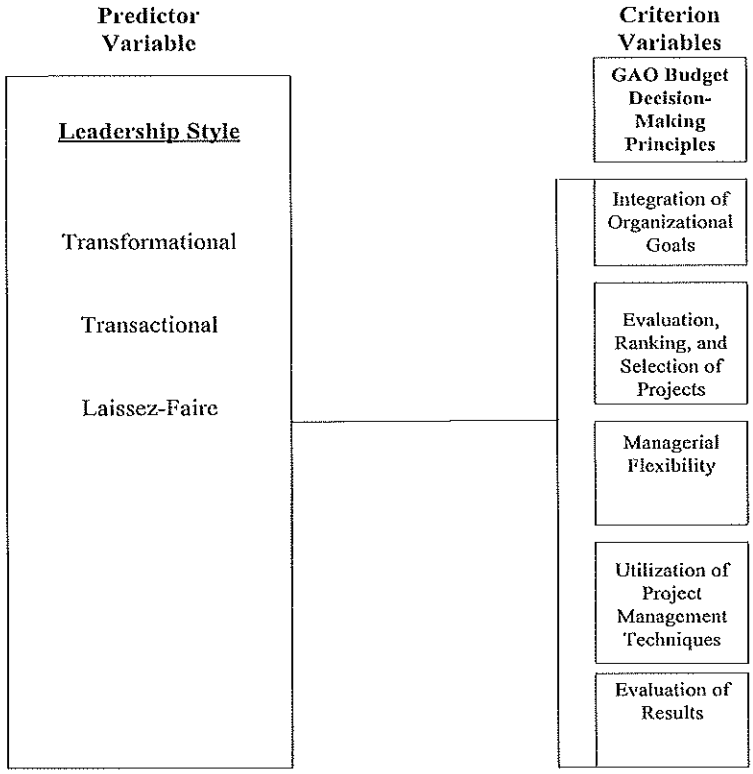

Figure 1. Conceptual framework.

Leadership

Leadership has long been considered one of the essential elements in the success of organizations (Landis et al., 2014). Citing James MacGregor Burn's (as cited in Fairholm, 2001) seminal work on the theory of leadership, Fairholm defined leadership as a relationship involving

power for a specific purpose that meets the needs, motives, and values of both the leader and the follower. Leadership is a relationship of power for a defined purpose between the leader and the follower consistent with the values, needs, and motives of both (Fairholm, 2001). Consequently, successful leaders tap into their followers' values to help elevate them from lower to higher levels of needs and moral values. This uplifting enhances their ability to achieve some self-defined level of success. Ideally, this achievement also aligns with organizational goals (Fairholm, 2001).

In highly productive and efficient organizations, inclusive, follower-oriented leadership styles have been demonstrated to provide goods and services more efficiently by providing a sense of cohesiveness, personal development, vision and direction, and alignment of organizational needs with worker needs and ambitions (Van Wart, 2003). These higher-order cultural values lead to overall higher satisfaction levels among workers, as they can contribute greater creativity and innovation to the organization (Van Wart, 2003). Through delegation and persuasion, leaders are people who convince others to act in pursuit of some specific objective or outcome (Nanjundeswaraswamy & Swamy, 2014).

Leadership has been studied and classified in numerous ways over many years. For example, there are both theories and models of leadership. Theories examine the nature and consequences of leadership; they hypothesize how leaders should act and what they should be (Bass & Stogdill, 1990; Gonzalez, 2018). Leadership models provide a framework for examining and measuring leadership elements and the interactions between them; they postulate on how to lead effectively (Bass & Stogdill, 1990; Gonzalez, 2018). Leadership theories continue to evolve, as discovered deficiencies result in the need to improve and better define the concept of leadership (Reid, 2012).

Classical Theories of Leadership

A review of the pertinent leadership literature reveals contemporary leadership theories are most applicable to this research study. However, the review also suggests classical leadership theories are also applicable to this study in varying degrees: contingency and situational theory, implicit theory, and cognitive resource leadership theory (CRT).

Contingency or situational theories propose there is no one best leadership style because each situation is different. Contingency theorists posit the leader is the focus of the leader-follower relationship; situational theorists argue the follower plays a significant role in the relationship (Kahn, Nawaz, & Kahn, 2016). Both theories suggest different leadership styles are used by leaders that best meet the present challenge or demand. Success depends on numerous variables such as leadership style, aspects of the situation, and followers' behaviors (Malos, 2012; Reid, 2012). For example, when decisions must be made quickly, without consulting others, an autocratic/authoritarian style is considered best. The democratic style is a better choice over an autocratic style, for instance, where consultation and input are the hallmarks (Malos, 2012; Reid, 2012).

Fiedler's contingency theory of leadership and CRT (Fiedler & Garcia, 1987) apply to this study. Fiedler's contingency theory worked to define how situational variables impacted leader personality and behavior. The theory proposed a two-way interaction between leader-task motivation and relationship motivation, and a measure of situational control, the leader's ability to control or influence the group. Over time, the theory was criticized for inconsistent findings and an inability to account for differences in group performance (House & Aditya, 1997).

CRT is a person by person situational interaction theory. CRT's personal variables are intelligence and experience, and the situational variable is the leader and follower stress. Research findings indicated intelligence is positively correlated under low stress, and experience

is negatively correlated with performance. Conversely, under high stress, intelligence is negatively correlated with performance, and experience is positively correlated (House & Aditya, 1997). Under this theory, when subordinates report high supervisor or job stress, intelligent people perform worse than less bright people. On the contrary, when job or supervisor stress is low, more experienced people perform worse than less experienced people. This implies in high-stress situations, a highly experienced person should rely more on experience than intelligence to be most effective (House & Aditya, 1997). Further, the CRT findings imply one cannot think in logical and analytical terms when responding to stressful emergencies. This is likely because the best response for managing the situation is prior knowledge and experience. Therefore, for firefighting or combat situations, performance is recommended over learning (House & Aditya, 1997).

Style and behavior theories acknowledge that leaders have a preferred leadership style that they feel most comfortable with, though leaders will vary that style if necessary (House & Aditya, 1997). Further, behavior theories specifically focus on the leaders' actions, not their mental qualities or internal state. Behavior theory suggests leadership can be learned through teaching and observation; in other words, leaders are made and not born (Kahn et al., 2016). Various researchers have defined three theoretical styles of leadership as democratic, autocratic, and laissez-faire.

The democratic style encourages followers to participate in decisions by contributing their ideas and opinions, even though the leader retains control over the final decision. The autocratic leadership style solicits little to no input from followers, with the leader making all decisions regarding essential tasks and processes (Malos, 2012). The laissez-faire leadership style allows the followers to make the decisions; consequently, there is no real leadership other than assuming the position (Kahn et al., 2016). Fiedler and House (1994) proposed two

additional styles of leadership that focus on leadership style. One style focuses on concern for people and the relationship between the leader and followers. The second style focuses on production and task behaviors (House & Aditya, 1997).

Leadership management theories are also known as transactional theories. Under these theories, the focus is on the role of the organization, the group, and the supervisor (Malos, 2012). The foundation underpinning these theories is a system of rewards and punishments based upon follower performance. The leader views the system as one of exchanges, wherein rewards are exchanged for meeting or exceeding defined performance expectations, and punishments are given for failure to meet expectations (Malos, 2012). Assumptions regarding the management theories suggest people work best under a defined chain of command. Management theories also assume rewards and punishment motivate followers. There is also a fundamental belief that followers are inclined to follow the leader's directives and that followers need to be monitored to ensure defined expectations are accomplished (Malos, 2012).

Relationship theories focus on the connection between leaders and followers. These theories are referred to as transformational theories (Kahn et al., 2016). The focus of the relationship theories is that leaders and followers set aside personal benefits in favor of benefits that advance the organization and its goals (Kahn et al., 2016). As such, transformational leaders are visionaries who seek to appeal to their followers by moving them to a better and higher level of universal needs and purposes (Kahn et al., 2016).

Contemporary Leadership Theories

Yammarion (as cited in Kahn et al., 2016) noted:

> The evolution of leadership theory has moved from birth traits and rights to acquired traits and styles, to situational and relationship types of leadership, to the function of

> groups and group processes and, currently, to the interaction of group members with the emphasis on personal and organizational moral improvements. (p. 3)

Occasionally referred to as process leadership theories, contemporary leadership theories argue the work of leaders is to support the well-being of followers, with an emphasis on some form of social responsibility (Kahn et al., 2016). Contemporary leadership theories include leader-member exchange (LMX) theory, implicit leadership theory, transformational leadership, and servant leadership (House & Aditya, 1997).

LMX focuses on relationships between followers and leaders. It advocates for a high degree of mutual influence and obligation between followers and leaders. The behavioral basis of the relationship between the leader and follower is mutual trust, respect, openness, and discretion in decision-making. LMX implies superiors need to be supportive and open in their communications with followers. Further, superiors must provide their followers with a substantial amount of discretion in the performance of their work and encourage mutual influence between themselves and their followers. The result is positive outcomes in follower performance and positive organizational outcomes as an additional byproduct of the mutually respectful relationship (House & Aditya, 1997).

Implicit leadership theory contends that to be successful as a leader, followers must perceive the leader as such. Regardless of the specific leadership attributes an individual possesses, this theory suggests unless others see the person as a leader, they will not be successful in leading others. Followers define the traits they accept as leadership through automatic or spontaneous recognition-based processes. The theory holds that leadership perceptions are drawn from prototypical leadership categories defined by the followers (House & Aditya, 1997).

Bass (1990) argued transformational leadership goes well beyond the exchange between leaders and followers familiar with transactional leadership to a higher level of motivation. Transformational leaders develop an inspiring vision and appeal to their followers' better nature, moving them toward higher purposes and needs in the process. Transformational leaders engage followers based on shared values, goals, and beliefs (Kahn et al., 2016). Servant leadership postulates leadership is about caring for people, not controlling them (Carter, 2007). Servant leadership is not about being the supervisor but instead is about being available for followers and building a community at work. It is leadership with a moralistic component and one that espouses relationships based on shared aspirations and values. The servant theory supports a people-first orientation regarding leadership (Carter, 2007). Weinstein (2013) theorized servant leadership was developed to fill a void in morality and trust found in other leadership forms. This void included transformational leadership; as such, he suggested, leaders may not necessarily always focus on what is best for the follower.

Leadership Styles

Leadership styles categorize and explain the forms of leadership. Leadership styles are the consistent behaviors and attitudes of the leader. In short, style explains how leaders express specific behaviors and motivate their followers (Amanchukwu, Stanley, & Ololube, 2015; House & Aditya, 1997; Kippenberger, 2002; Nanjundeswaraswamy & Swamy, 2014). Transformational and transactional leadership have been characterized as both theories and leadership styles (Gonzalez, 2018). In 1939, seminal research by Kurt Lewin and colleagues categorized leadership into three distinct styles: autocratic, where the leader makes all decisions; democratic, where group participation in decision-making is shared with a majority rules approach to making the final decision; and laissez-faire, a hands-off approach reflecting low or no level of leadership by the leader (Lewin, 1939).

Over time, new styles of leadership have emerged. Building on Burns' (1975) prior work regarding transformational and transactional leadership, Bass (1985, 1998) developed the full-range leadership model. This model structures leadership in a hierarchal fashion with lower leadership levels termed transactional and laissez-faire styles, and the higher performing level as transformational leadership (Stewart, 2006; Trottier, Van Wart, & Wang, 2008). Transactional leadership is further divided into the elements of active and passive management-by-exception (MBE-A; MBE-P) and contingent reward (CR). The MBE-A leader watches follower performance closely and takes corrective actions if production is perceived to fail to meet the required standards. The MBE-P intervenes after the fact when the rules of performance have not been achieved. The CR leader clarifies what is to be done and provides rewards when expectations are met (Stewart, 2006; Trottier et al., 2008). The laissez-faire leader avoids accepting responsibility for any follower's actions (Stewart, 2006; Trottier et al., 2008).

According to Duddy (2015), leadership styles have evolved over the past 40 years into these 3 main categories: transformational, transactional, and laissez-faire. Virtually all discussions of leadership today include these three contemporary styles of leadership (Moschella, 2017). Importantly, the fire service profession continues to demonstrate considerable interest in these three leadership styles, with an increasing interest in the transformational style for improving the efficiency and effectiveness of daily fire department non-emergent operations (Alyn, 2010b; Carter, 2007). Therefore, this study adopted these three styles as the primary leadership constructs for the research and utilized Bass's MLQ to categorize a sample population accordingly (Bass, 1990; Stewart, 2006).

Transformational leadership style. Superior leadership performance emanates from transformational leadership (Amanchukwu et al., 2015; Bass, 1990; Van Wart, 2003). Falling under both the neocharismatic and leadership style theories, transformational leadership occurs

when the leader helps employees become more aware of and interested in the organization's mission. Transformational leaders inspire and motivate group members to look beyond their self-interests to the overall good of the group or organization (Amanchukwu et al., 2015; Bass, 1990; Van Wart, 2003). Transformational leadership achieves results by inspiring and exciting employees to believe they can achieve great things with extra effort, especially when working together.

Transformative leaders call primarily upon their charism to accomplish this end. In short, they provide the vision and sense of shared mission, the pride, and the trust that generates respect and commitment by employees to be collectively successful. Transformative leaders embrace the notion that when the organization is successful, everyone in it is thriving as a result. They can also be successful by meeting employee emotional needs. Transformative leaders care for their employees on an individual level, providing them personalized attention in helping them succeed in areas essential to the individual's success. Transformative leaders also see themselves as mentors with the responsibility to help employees grow and develop. Intellectual stimulation is the third factor in transformational leadership. Transformative leaders stimulate employees by helping them see problems in new ways and as opportunities for success, not as impediments to progress. They stress a creative and rational approach to problem-solving, and they value intelligence within their employees (Bass, 1990; Stewart, 2006; Trottier et al., 2008).

The benefits of transformational leadership are uniform. Organizations led by transformative leaders do better financially. Employee performance and effectiveness improve at all organizational levels (Bass, 1990; Kyj & Parker, 2008; Usman, Usman, & Sugianto, 2016). Employee commitment and satisfaction improve. Under the transformational model, good leaders structure the organization for interaction between colleagues and do so with employees' welfare in mind. They frequently raise performance standards, take risks, challenge the status

quo and current culture while convincing others to buy into and achieve their vision for organizational greatness (Bass, 1990). The critical behaviors found in the transformational leadership model are commonly known as the four I's: (Stewart, 2006; Stone, Russell, & Patterson, 2004; Trottier et al., 2008):

- Idealized influence—the charismatic element to transformational leadership. The emphasis is on transforming the followers' values, beliefs, and attitudes in a manner like that found in the charismatic leadership style (Conger, Kanungo, & Menon, 2000). This behavior leads to the development of trust in the leader by the follower. The ability to develop a shared and inspiring vision of what can be at some future state is vital to aligning personal values with those of the organization. The development of trust and respect cannot be understated, as these elements enable followers to conform their values to those of the organization by yielding power to the leader.
- Inspirational motivation—as the method to provide meaning and challenge to employee work. The intention is to incite team spirit and pull everyone toward an inspiring future vision and a standard set of goals for the organization.
- Individualized consideration—paying attention on an individual basis to followers' needs to attain personal growth and achievement and help them align those aspirations with organizational needs and values. Delegating challenging tasks, monitoring progress, and empowering employees to succeed is critical leadership behavior in this regard.
- Intellectual stimulation—allows followers to be innovative and creative. Followers are permitted to redefine problems, so they are viewed from a different perspective. They are encouraged to question the current assumptions and methods and approach them in new ways. Creativity, not criticism, is encouraged. Mistakes are not openly criticized.

The transformational leader articulates a clear and compelling vision of the future. The transformational leader provides direction on how the vision can be attained. The transformational leader acts optimistically and confidently in pursuit of the organization's vision. The leader engenders organizational values through his or her actions. Finally, the transformational leader supports followers in the pursuit of the adopted vision (Stewart, 2006; Stone et al., 2004; Trottier et al., 2008). The transformational leader positively transforms the organization and its followers, impacting their values and long-term goals by stirring their emotions and appealing to their ethics.

Transactional leadership style. Transactional leadership emanates from the management and contingency theories of leadership. Transactional leadership motivates followers with the promise of rewards for excellent performance; the focus is less on people and their needs and more on task accomplishment and the organization (Amanchukwu et al., 2015; Gonzales, 2018; Petroff, 2015). There are three elements or dimensions to transactional leadership: CR, management-by-exception, and passive management-by-exception (Alyn, 2010; Stewart, 2006; Trottier et al., 2008).

Transactional leadership is predicated on the exchange of something mutually valuable between leaders and followers. These exchanges are transactional and have, at times, been referred to as reward and punishment exchanges (Amanchukwu et al., 2015; Bass, 1990). Employees are rewarded when they comply with management's desires or are punished by management withholding the expected reward if agreed-upon outcomes are not realized. A typical example of such a transaction is a paycheck for the follower at the end of a week's worth of satisfactory work. In this example, a transaction took place, but it falls short of the binding mutual and ongoing pursuit of higher purpose found in transformational leadership (Fairholm,

2001). Transactional leaders recognize what their followers want from them and help employees achieve success, and validate their self-interests if they do their jobs well (Wait, 2008).

Overall, organizations operating under transactional leaders are less effective than transformation-led organizations (Bass, 1990; Kyj & Parker, 2008; Usman et al., 2016). Employee job satisfaction is also lower, given a transactional leadership style (Bass, 1990; Kyj & Parker, 2008; Usman et al., 2016).). Little employee job satisfaction is especially true if the transactional leader employs passive management-by-exception. That is, the leader only intervenes when standards are not met. Conversely, active transactional leadership occurs with the same negative impact when the leader intentionally looks for deviations from the prescribed norm before taking corrective action (Bass, 1990). The underlying assumption of transactional leadership suggests people work best when there is a clearly defined chain of command and identified performance criteria. Further, transactional leadership assumes workers are motivated by rewards and punishment. Finally, transactional leadership assumes the primary goal of subordinates is to follow the instructions and commands of the leader (Malos, 2012).

Behavioral traits common to the transactional leadership style include the notion that leaders are aware of the connection between effort and reward and that leadership is responsive, but the primary focus is dealing with current issues, not those in the future. Transactional leaders rely on familiar enticements such as rewards, punishments, and restrictions to control followers. Transactional leaders motivate followers using goal setting and the promise of rewards to achieve desired levels of performance. Last, transactional leadership is dependent on the leader's power to recognize followers for their successful completion of the bargain (Babou, 2008). Importantly, transactional leadership can work in those instances where leaders can provide rewards that are coveted by employees and where problems are simple and clearly defined (Bass, 1990). Rules, regulations, and well-defined performance standards are critical in transactional

leadership environments to help facilitate a clear understanding of all parties' expectations (Malos, 2012).

Laissez-faire leadership style. Laissez-faire leadership is characterized by the abdication of leadership, with a proclivity toward avoiding decision-making altogether. The laissez-faire style is a hands-off approach to leadership. In many instances, it teeters on the verge of no leadership, leading to a self-rule leadership style (Bass, 1999). Consequently, there is no transaction between the leader and the follower. There is no vision for employees to rally around, and no exchange, feedback, or rewards provided as a mechanism for motivating followers.

In comparison to the transformational model, there is no attempt to inspire or support employees to a higher level of commitment for themselves or the organization. Further, with the laissez-faire model, the leader has no attempt to move the organization forward morally or motivationally, which is the case in the transactional and transformational leadership styles (Duddy, 2015). Laissez-faire leaders use the legitimate power of their position to get others to do what needs to be accomplished (Alyn, 2010a). Laissez-faire leadership has been demonstrated to result in coworker conflicts, role ambiguity, and role conflict; it is essentially a counterproductive leadership style (Alyn, 2010a; Babou, 2008; Bass, 1999; Carter, 2007; Malos, 2012). Laissez-faire leadership can be deadly in dangerous environments such as the military and fire-rescue services, which depend on leadership to successfully navigate hazardous operations (Campbell, Hanna, & Matthews, 2010).

Fire Service Leadership

Chief fire service executives routinely find themselves operating within a bifurcated leadership environment. Perhaps 5 to 10% of their time is spent leading in command environments at emergency scenes, depending on the size of the fire department (McChesney, 2015). Emergency scenes are pressurized, time-constrained, dangerous environments with high

stakes outcomes, up to and including life and death decisions. Fire chiefs spend most of their careers preparing to lead at this level (Carter, 2007). Experience, education, and training gained over time are critical for acquiring the knowledge and skills to successfully lead in these dangerous environments (Carter, 2007). However, fire chiefs spend most of their time every day leading in the administrative business environment (Carter, 2007; Gasaway, 2007). Another vital element comes into play regarding fire chief leadership. Fire chiefs conduct their executive business within the public sector leadership paradigm, where leadership behaviors and expectations vary from those in the private sector.

Public sector leadership, referred to by Van Wart (2003) as administrative or bureaucratic leadership, varies from private-sector leadership primarily in the lack of discretion afforded public sector leaders in their managerial decision-making latitude, hence, their opportunity for action and change (Hooijberg & Choi, 2001). Political considerations, special interest groups, labor organizations and contracts, stringent job descriptions, internal rules, regulations and policies, the inability to formally tie job performance to wages, collectively provide unique constraints on public sector leaders not commonly forced upon leaders in the private sector (Hooijberg & Choi, 2001). Therefore, risk-taking is not encouraged in the public sector where leaders are relegated to following rules; maintaining the status quo is the norm (a common transactional leadership characteristic). The consequence is that many decisions are made individually by the leader without input from the followers. This controlled leadership environment stifles innovation and change, and the possibilities such contributions might bring for higher quality and more efficient and effective services (Gill, 2009). This behavior is consistent with the transactional leadership model commonly found in the fire service (Alyn, 2010a).

However, Gill (2009) noted a gradual shift in public sector leadership away from the technical and operational roles toward more collaborative approaches. Alyn (2010b) confirmed this transition, citing an emerging shift toward the transformational leadership style within the fire service profession. Nonetheless, it is becoming more apparent that situations change frequently, and successful fire chiefs today must adapt to several leadership environments. Further, they must adjust their style fluidly if they are to be most successful in leading their organizations (Carter, 2007; Moschella, 2017).

A review of recent literature offered by Moschella (2017) indicated the majority of fire chiefs in Great Britain and Taiwan could not identify a leadership style appropriate to a given administrative environment. Also, over 50% in both locations could not identify their personal leadership style. Interestingly, better than 55% of those surveyed in each country possessed advanced degrees (Moschella, 2017). Moschella (2017) cautioned that a limiting factor to his research was the lack of inclusion of the United States fire service, where, unlike Great Britain and Taiwan, fire protection is a local government concern and not a service provided and funded on a national level. Carter (2007) believed fire chiefs primarily understand and are comfortable with their command and control leadership styles when executing their responsibilities at an emergency operation. This comfort level likely follows from years of conditioning through experience gained operating at emergency scenes (Carter, 2007).

Fire service command leadership. The origins of fire service leadership are rooted in the autocratic/authoritarian leadership style. Fire departments are considered paramilitary organizations, complete with rigid hierarchies and chain of command structures that facilitate communication and discipline in dangerous environments (Alyn, 2010a; Carter, 2007; Gasaway, 2007). The autocratic method works well on the emergency scene, where there is little time for group discussion or debate about operational decisions. As a result, it is best utilized in crises or

those situations where actions demand quick decisions that require implementation without question. It has been characterized as an extreme form of transactional leadership (Amanchukwu et al., 2015; Carter, 2007). The fire chief makes decisions while in command of the incident, and operational crews carry out the decisions as instructed. For these reasons, the autocratic style will likely continue as the leadership style of choice for use within the context of a dangerous environment for the foreseeable future (Campbell et al., 2010; Carter, 2007).

Because of the extreme conditions found in these dangerous environments, over time, fire chiefs develop a leadership reputation within their organization and profession. Their command experience and success in this environment contribute to their leadership style and help define them as competent to those who would follow them (Campbell et al., 2010; Carter, 2007). This follower viewpoint is crucial because this sense of leadership identity inspires followers to trust the leader and his or her decisions, sometimes with their lives. Regarding leadership in the military and other dangerous contexts, including firefighting and law enforcement, Campbell et al. (2010) found unique leadership demands exist when followers encounter danger.

In addition to the standard variables involved with providing leadership to an organization day in and day out, variables such as organizational size; degree of interaction and communication within the organization and among its personnel; member personality; and goal alignment, the battlefield or emergency scene environment, and those who command there, encounter additional leadership challenges (Amanchukwu et al., 2015). These other leadership challenges can only be overcome by the trust and experience given to the commander by those being led.

Campbell et al. (2010) also discovered those who successfully led in crisis environments used collective sensemaking as the first step for bringing order to the ambiguous and chaotic situations they were responsible for managing. This sensemaking construct is critical to the

development of follower trust in the leader. Sensemaking first and foremost works to bring about a common framework and understanding of the situation's dimensions for all personnel engaged in managing the crisis. Once the incident dimensions are defined and understood, sensemaking then works to create a unifying vision and understanding of the risks and dangers responders collectively face. Finally, this sensemaking, a collective process contributed to by all members engaged in controlling the incident, serves as the basis for ongoing situational awareness and jointly orchestrated adjustments by responders to the continually evolving situation.

The mutual information sharing and ongoing communications help reduce the overall risk associated with the unknown elements of the crisis that responders deal with (Campbell et al., 2010). Commanders' ability to develop and execute the aspects of this sensemaking construct and do it well, as defined by followers, is crucial in building follower trust. The role of leader trust in high vulnerability life-threatening situational settings is especially vital to a successful conclusion (Campbell et al., 2010). Trust is defined as a follower's willingness to accept the leader's influence and actions (Campbell et al., 2010).

Leaders who demonstrate command competence secure follower trust. Competence is viewed through the lens of the follower, with the leader's prior experience and past success serving as the benchmarks. Ethics also plays a role in leader trust. Followers trust that leaders will do the right thing in all situations, especially those involving their lives. If the leader is not ethically consistent in emergency and non-emergency matters, followers will not have a high level of trust in the leader's decisions. The research is compelling: there is no substitute for experience when it comes to developing leadership in high vulnerability environments. Experience builds trust, strengthens the leader's confidence and self-control, and creates assertiveness, all of which ultimately leads to better performance in stressful situations

(Campbell et al., 2010). In some instances, such leadership can even be viewed as heroic (Morrow, 1999).

Another theory considering dangerous leadership environments like that of Campbell et al. (2010) is Morrow's (1999) heroic leader model. Morrow (1999) postulated heroism often emanates from unforeseen situations, which are potentially catastrophic, dangerous, and risky, and which might require the ultimate sacrifice from those charged with improving them. Morrow (1999) further acknowledged that the application of leadership is necessary for success in most professional endeavors. However, at the more mundane everyday administrative level, leadership pales in comparison to those who lead in the context of hazardous environments. This area includes soldiers, firefighters, police officers, rescue workers, and others in similar professions.

Morrow's (1999) heroic leader model also theorizes organizational structure plays an essential role in heroic leadership. Again, Morrow cited the bureaucratic nature of firefighting and military organizations as examples. He contended the risky nature of the services provided by these organizations drives the need for a bureaucratic organizational structure with its tight controls and clear lines of communications as critical elements in navigating crises. Morrow's (1999) model further contends heroism and leadership can merge at these exceptional levels in the non-dangerous business environment of the private sector. His research reported the discovery of private-sector leaders also displaying similar characteristics of heroic leaders (Morrow, 1999). The findings are in character, risk-taking, work orientation, and the positive direct impact they make on their organizations. Morrow (1999) asserted the heroic model's theoretical foundation is transformational leadership. A closer examination reveals traits that arguably align more closely with the contemporary servant leadership model.

Fire service administrative leadership. Apart from the emergency scene, a great deal of fire service leadership today follows the transactional style, focusing on policy, process, and

technical and operational skills, though it continues to evolve (Alyn, 2010a). Consistent with emergency scene operations, for many years, the leadership style used in the administrative fire service environment was also authoritarian (Alyn, 2010a; Carter, 2007). Reid (2012) referred to this autocratic style as an extreme form of transactional leadership. Historically, the fire chief made all the decisions by himself or herself, and they flowed down the chain of command for implementation at the appropriate organizational level. There was little to no consideration of follower needs or goals. Input from the firefighters was seldom sought.

Over time, however, the fire service profession has evolved toward the more conventional transactional leadership model. However, the fire service is continuing the evolution toward greater adoption of the transformational model for day-to-day activities (Alyn, 2010b). The shift reflects contemporary research by Alyn (2010b), Bass (1990), Carter (2007), Gill (2009), demonstrating the alignment of employee and organizational needs with more significant organizational outcomes. The change also reflects a willingness by contemporary fire service leaders to trust their followers' collective wisdom (Carter, 2007). Fire chiefs are beginning to understand that greater employee motivation results from a more inclusive leadership approach. The transformational leadership model has been proven to provide this inclusion and leads to a more significant organizational commitment by employees (Alyn, 2010a). Poor leadership is a primary cause of low morale in fire departments today (Alyn, 2010a).

Carter (2007) argued that successful fire service leadership is truly an amalgamation of several leadership styles applied at the right time to the right situation. In this sense, Carter (2007) argued for the contingent and situational leadership theories based on successful fire service leadership. Carter (2007) provided evidence supporting the need for several leadership styles for use by today's fire chiefs. Carter (2007) suggested the leadership styles should include

authoritarian, charismatic, situational, contingency, servant, transactional, and transformational leadership. He further suggested style selection and application should be based on environmental factors at the time (Carter, 2007). Carter's view aligned well with Moschella (2017), who concluded today's fire chiefs must be agile and able to apply the right style to the situation at hand. This research study developed a better understanding of Carter's and Moschella's propositions regarding the relationship between leadership styles used by fire chiefs both for command and administrative purposes. The study's emphasis was on budgetary decision-making in the administrative leadership environment. The intent was to understand better if one leadership style is more pronounced in driving the decisions made in both command and administrative situations.

Decision Making

Decision theory focuses on goal-driven behaviors in consideration of available options when pursuing a solution to some problem or dilemma (Hansson, 2005). Decisions are choices made between multiple alternatives, options, or outcomes upon which actions are based or merely a choice between two or more options (Al-Omari, 2013; Kahneman & Klein, 2009). Leadership and decision making are not mutually exclusive. Leaders' decisions have wide-ranging impacts on follower and organization performance (Russ, McNeilly, & Comer, 1996). Leaders who make decisions quickly and carefully are higher performers than those who delay, stall, or avoid making decisions (Russ et al., 1996). Effective decision-making has been cited as one of the essential skills found in successful leaders (Rehman & Waheed, 2012; Reid, 2012).

Dietrich (2010) noted decision-making style is a learned habit, with decision styles shifting depending on variables such as the number of decisions to be made, alternatives under consideration, the amount of information gathered, and the methods individuals use to interpret the collected data. Several factors can influence decision-making, which in turn, may impact

outcomes (Dietrich, 2010). These influencing factors include previous experience, cognitive biases (thinking patterns based on observations and generalizations, which, if over-relied on, can lead to errors), age, and individual differences. Also, the influence of others, level of commitment, and personal relevance regarding the decision can have an impact (Dietrich, 2010). Reid (2012) noted establishing decision-making as a learned habit is important because it implies many variables, including leadership, can influence decision-makers. Russ et al. (1996) discovered that leadership style has a greater impact on performance than decision-making style.

There are two distinct categories of decision-making theories: normative theories and descriptive theories. Normative theories focus on how decisions should be made. Descriptive theories focus on how decisions are made (Hansson, 2005). This study focused on the specific area of descriptive theory referred to as naturalistic decision making. Naturalistic decision-making is also known as intuitive or expert decision-making (Gasaway, 2007; Kahneman & Klein, 2009).

Consistent with the impact on fire chief leadership styles, decision-making is also heavily influenced by the command and control experiences encountered at the emergency scene. Klein (as cited in Carter, 2007) recognized that a logical, sequenced decision-making process is not utilized in high-stress situations such as fire-rescue emergencies. Fire chiefs lead in two distinct environments, the command/emergency environment and the administrative/bureaucratic environment. The autocratic command environment occupies the least amount of the chief's leadership time. However, it is the leadership environment fire chiefs spend the most time preparing for and the one that predominately defines their acceptance as leaders by subordinates (Campbell et al., 2010; Russ et al., 1996). This leadership focus guides one to question whether such a controlling leadership style similarly influences a decision-making style that drives non-emergent decisions in the administrative setting. A closer examination of the relationship

between fire chief leadership styles in consideration of their approach to budgetary decision-making may assist in better understanding this question. The literature suggests government budget decision-making should follow a rational, logical process with input from impacted stakeholders (Bland, 2013; GAO budget decision-making model, 1998; GFOA, 1999; National Advisory Council on State and Local Budgeting [NACSLB], 1998).

Decision style addresses how people make decisions, specifically about using information to derive meaning from it (Al-Omari, 2013). Decision-making typically follows a series of sequential steps. The classical model for this includes five stages. First, the problem is defined. Next, potential alternative solutions are located and analyzed. The best alternative solution is then selected and implemented. The results of the decision are monitored and adjusted as necessary. Finally, results from the implementation are examined, and lessons learned are fed back into step one of the decision-making model for future reference or action (Al-Omari, 2013; Gasaway, 2007).

Scott and Bruce (1995) developed a general decision-making style test to assess individual decision-making styles (DMS) and characterize how people arrive at decisions. The styles measured by the test are rational, intuitive, dependent, avoidant, and spontaneous. The rational style is characterized by those seeking information and alternatives and using logic and reasoning approaches in their decision-making. The intuitive style is defined by those using hunches, experience, and gut feelings during decision-making. The dependent style is defined by those who seek support, guidance, or suggestions from others before deciding. The avoidant style is characterized by those who avoid making decisions by withdrawing, postponing, or stepping away from them altogether. Finally, the spontaneous style is characterized by those making quick, rapid impulsive decisions (Al-Omari, 2013; Rehman & Waheed, 2012).

Importantly, Al-Omari (2013) noted most individuals exercise a dominant DMS but utilize other styles depending on the situation. Uzonwanne (2007) indicated rational decision-making leads to better decision results, while spontaneous and intuitive decision-making leads to lower quality decisions. This conclusion is an interesting observation, as Klein's research (1998), in contrast, confirmed the importance of the contributions spontaneous and intuitive DMS add to the success of incident commanders at the emergency scene.

Organizational performance is enhanced when followers have input into the budgetary decision-making process. (Kyj & Parker, 2008; Usman et al., 2016). The literature regarding fire chief leadership provided no readily available information addressing this proposition. However, private-sector budget and leadership research by Usman et al. (2016) revealed the greater the participation level of subordinates in the budgeting process, the greater the increase in performance. Participation in the budgeting process by lower-level organizational members is driven by leadership style to a large degree. In fact, to varying degrees, leaders express their leadership style through how they manage the budgeting process within their organization. (Kyj & Parker, 2008).

Usman et al. (2016) examined the leadership style/budget decision-making topic using the path-goal theory of leadership, consisting of four leadership styles: directive leadership, supportive leadership, participative leadership, and achievement-oriented leadership. These styles align with the types of leadership under consideration by this research (Usman et al., 2016).

Directive leadership is like an autocratic leadership style in that the leader makes all the decisions with no employee participation. Supportive and participative styles are closely aligned with transactional leadership, as there is participation to varying degrees. With the supportive style, leaders are willing to explain themselves and possess a friendly and approachable

demeanor with subordinates allowing participation on a limited level within the constraints of organizational policies and procedures (Usman et al., 2016).

Participative leaders allow a reasonable amount of subordinate input, but like supportive leaders, retain the right to make the final decision. Achievement-oriented leadership aligns well with the transformational style. Achievement-oriented leadership is a leadership style that allows for a high level of subordinate input and then challenges that input through goal setting and accomplishing organizational objectives. The leader works to be both inspirational and supportive of the employees on a personal and professional level. Overall, this leadership style encompasses many elements found in the transformational leadership model's four I's (Usman et al., 2016).

Importantly, the research of Usman et al. (2016) found progressive levels of improved organizational performance with each successive level of increased budget participation, as provided by the leadership styles examined. This research endeavored to determine if a similar relationship between fire chief leadership styles and budget decision-making holds true in the public sector environment.

Command Decision-Making

Considerable literature exists regarding the relationship between leadership and decision-making during critical fire service emergencies and crises (Burkell & Wood, 1999; Carter, 2014; Klein, 1998; Sedlmeyer, 2017). Kahneman and Klein (2009) extensively studied the decision-making processes used by fire ground incident commanders. He concluded that commanders in high-stress, time-pressured situations rely on what Klein (1998) termed RPD when deciding on a course of action for managing emergencies.

RPD draws on the commander's past experiences as he or she quickly analyzes the current situation compared to similar past situations he or she has successfully managed. Driven

predominately by intuition, the successful situation most closely matching the current emergency becomes the starting point for managing the immediate challenge. There is no sequential review or systematic comparison of the options during the decision-making process, an action commonly associated with classical decision-making models. Time constraints frequently dictate immediate actions. Commanders call upon intuition to quickly size up the situation. Then, they rely on mental simulation to imagine how the situation will likely evolve. The mental simulation is followed by the power of metaphor to compare the current situation to past conditions they have successfully managed. From this point, commanders make their decision and act accordingly (Klein, 1998). Kahneman and Klein (2009) noted this process falls within the realm of naturalistic decision-making, where time-pressure, high stakes, ill-defined goals, inadequate information, experienced decision-makers, dynamic conditions, team coordination, and high levels of stress all reside.

The RPD approach to fire chief command decision-making has proven highly successful in containing and controlling high-stress and time-conditioned fire-rescue emergency crises (Carter, 2014; Klein, 1998). RPD closely resembles a blend of the intuitive and spontaneous DMS, as defined by Scott and Bruce (1999). However, the RPD style may not be the best model for fire chiefs in the administrative setting, where time permits a more considered approach, such as the rational decision-making style defined by Scott and Bruce (1999).

Gasaway (2007) cautioned there are drawbacks to the RPD approach. Because of its intuitive nature, there may be credibility problems owing to the difficulty in documenting the decision process. Those who specialize in heuristics and bias decision-making (where performance models or algorithms replace expert judgment and intuition when defining good decisions) are naturally suspicious of RPD and similar techniques using intuition for this reason (Kahneman & Klein, 2009). Further, there is always the possibility that the commander's

intuition leads them to a wrong conclusion and that some complex tasks and situations may make intuition a challenge to apply (Gasaway, 2007). Finally, while Kahneman and Klein (2009) argued RPD is optimal for high-stress situations, he did not endorse the approach for more routine matters.

Public and Private-Sector Budget Theory and Practice

Scholars have debated whether a pure and exclusive theory for budgeting exists (Kahn & Hildreth, 2002; Neuby, 1997; Park, 1989; Rubin, 1990). The same applies to accounting theory (Coetsee, 2010). To a significant degree, professional standards and government regulations define acceptable budgeting methods and financial reporting practices in the United States. These standards and practices are known as Generally Accepted Accounting Principles and are prepared and established by the Financial Accounting Foundation's standard-setting boards—the Financial Accounting Standards Board and the Governmental Accounting Standards Board (Financial Accounting Foundation, n.d.).

Budgets in both the private and public sectors are essential planning tools, but they differ (Markgraf, 2018). For example, in the public sector, budgets are balanced to ensure they are not overspent. In the private sector, budgets are used to predict operating results (Markgraf, 2018). The financial target for the public budget is the maximization of services delivered to citizens. In the private sector, the financial objective is to reduce costs and maximize profits (Markgraf, 2018). Financial management in the private sector concerns itself with owners and shareholders. In the public sector, financial management works to satisfy the bureaucrats and politicians who have direct oversite of operations and the constituencies of elected officials (Markgraf, 2018). Consequently, public budgets are sophisticated, highly diverse, and wide-ranging in purpose and desired outcomes. To this end, public budgets serve to establish public policy, define program goals and objectives, define total service packages citizens can expect for their tax dollars, and

measure the effectiveness and efficiency of performance by those providing programs and services (Kahn & Hildreth, 2002).

Public budgets are simultaneously political documents, economic and fiscal documents, and accounting and administrative documents. As public documents, budgets allocate limited resources among multiple competing and conflicting interests. As economic and financial documents, public budgets serve as a basis for evaluating a jurisdiction's redistribution of revenues for stimulating economic growth, public development, and maintaining economic stability.

Accounting and administrative functions include serving as the legal document specifying a jurisdiction's limit on spending and maintaining a balanced budget (Kahn & Hildreth, 2002). As an administrative document, public budgets determine which, what types, and how public services will be provided. They also provide the means for evaluating how public services are monitored and evaluated for efficiency and effectiveness (Kahn & Hildreth, 2002). These varying and frequently conflicting demands and expectations, placed upon a single public document, may help to explain why it is so difficult to have a single agreed-upon public budgeting theory (Kahn & Hildreth, 2002).

Contemporary public budget theory has evolved over three specific periods since World War II (Leloup, 2002). The first period followed World War II and extended into the early 1970s. This period experienced the dominance of incrementalism theory. The incremental approach is characterized by stability, growth, and bottom-up micro budgeting techniques (Leloup, 2002). Incremental theory's essence is that small amounts of money are added annually to already established public budgets to keep up with inflation, desired new programs, ongoing projects, and personnel or emerging or existing needs (Bland, 2013). Little or no effort is made to define the efficacy of past program and service expenditures toward desired outcomes.

Incrementalism is still extensively used today by many communities owing to its simplicity (Bland, 2013). From a decision-making standpoint, such an approach dramatically simplifies matters as dollars, expressed as small percentage increases, are automatically allocated in equal amounts to all department budgets. The primary decision to be made is the percentage increase to be added to all budgets (Bland, 2013).

The second public budget period was from the mid-1970s through the 1990s. This period was characterized by a shift to macro-budgeting/deficit-reduction theory. The macro theory of budgeting is a high-level executive, top-down-driven budget where decisions focus on spending, revenue, deficits, and relative budget allocation shares. This reduction approach was in response to recurring deficits. Interestingly, this theoretical budget period did not experience the development of a single theory to replace incrementalism. At the federal government level, this period was also characterized by the passage of legislation designed to constrain spending through the imposition of various spending limits (deficit-reduction) and make public budgeting more transparent for the public (Leloup, 2002).

The third and most current budget theory period is still emerging, beginning from 2000 onward. This period recognizes the deficit budget days have passed and budget surpluses, if only minimally, are beginning to exist again. A single theory for this period has not yet emerged. However, several areas of importance that a new theory must address are becoming known and are likely to better define any new theory. For example, Leloup (2002) noted if budget surpluses continue, questions will need to be answered, such as how budgetary behavior and norms will change as a result. For example, will macro or micro budgeting theory still play important roles? Will the deficit-oriented theories and practices give way to more rational output-oriented public budgeting methods such as planning programming budgeting (PPB), management by objective, or zero-based budgeting (ZBB)? Will there be more citizen involvement in the public budget

process? How will politics and the legislative process play into the budget process at all levels of government? (Leloup, 2002).

As previously noted, despite the theoretical debate, budgets and locally preferred methodologies for their preparation and adoption exist for both public- and private-sector entities. Budgets serve identical management functions in both sectors, regardless of which preparation and management approach is preferred and employed. Budgets assist with planning, coordinating, and controlling resources (Bland, 2013; Brusca & Labrador, 2016; Rubin, 1990). The primary difference between the two sectors is the private sector focuses on profitability (Raghunandan, Ramgulam, & Raghunandan-Mohammed, 2012). Raghunandan et al. (2012) emphasized three primary approaches to budget development, and the selected strategy is driven heavily by leadership style.

The three methods are imposed budgets (top-down), participative (bottom-up) budgets, and negotiated budgets. Imposed budgets reflect the autocratic style of leadership. Top management makes all budget decisions, and lower levels of the organization are responsible for implementation and management. Participative budgets reflect a more democratic leadership style and are akin to the transactional leadership style, although the leader still makes the final decision. Lower levels of management are actively engaged and empowered in the participative budget process. The negotiated approach embraces elements of both the imposed and participative styles of budget development. Further, the negotiated style most closely resembles the transformational leadership style during its preparation, with responsibility for development and implementation shared. Of the three approaches, the negotiated model is the most prevalent in the public sector (Raghunandan et al., 2012).

Fire department budgets are public budgets. Wallace (2018) argued fire department budgets are more difficult to prepare and manage than those in the private sector and other

government sectors. The dynamic nature of the emergency services provided, the inability to generate profits, or break even when charging for services, such as emergency medical services (EMS), is a primary reason for this (Wallace, 2018). For example, EMS medical transport charges are based on negotiated private health care provider insurance rates and fixed government Medicaid and Medicare guidelines and rules. Regardless of the real cost of providing these services, a fire department is forced to accept the insurance company's covered amount. In many cases, this amount is considerably less than the actual cost to provide the service.

Therefore, Wallace (2018) suggested developing and applying a strategic framework for fire department budget preparation and management of expenditures. This approach includes the fire chief extensively proving his or her case to elected officials for the requested dollar amounts, as an incremental approach by itself may prove insufficient. While the past year's budget allocation might be a good starting point, Wallace (2018) suggested fire chiefs obtain realistic cost estimates for critical budget areas at the beginning of each new budget year, which then serves as the foundation and justification for the dollars requested. These estimates should be in tune with developed strategic plans and goals for department service delivery for the coming budget year and be benchmarked against other fire departments in critical areas. The essential benchmark areas should include personnel, equipment, materials, services, and contracts, and capital equipment costs, as an incremental approach by itself may prove insufficient. The benchmarking exercise should also reflect similar-sized fire departments that are doing and funding the same or comparable projects or equipment. The benchmark departments should also be striving to achieve similar service and performance goals and objectives (Wallace, 2018).

Wallace (2018) further advocated a quarterly spending target approach that gradually increases spending for items over the entire budget year. This strategy helps balance spending, so

fire departments do not exceed their budgets, which is illegal in most states (Bland, 2013). Wallace's (1999) approach is generally consistent with the critical elements of the theoretical model used by this research study, the GAO budget decision-making framework, which includes: the integration of organizational goals into the budget decision-making process; the evaluation, ranking, and selection of projects for funding using an investment approach; the use of balanced budget controls and managerial flexibility when funding projects; the use of project management techniques to optimize project success; and the evaluation of results and incorporation of lessons learned back into the decision-making process.

GAO Budget Decision-Making Framework

The GAO budget decision-making model (1998) provides a logical approach to public budgeting. The GAO budget framework (1998) provides decision options for addressing the budget. The model's application is predicated on establishing and using an organizational plan that defines mission, vision, values, structure, strengths, and weakness, which creates a broad direction for an organization. Stakeholder input (e.g., elected officials, governmental administrators, employees and their representatives, citizen groups, business leaders) regarding needs, priorities, expectations, and concerns are a critical part of the budget planning process (NACSLB, 1998). Once the organizational plan is established, the model relies on linkages between plan elements and the model's five factors or principles to develop an adequate public budget. The five factors or model principles are:

- Principle I-The integration of organizational goals into the budget decision-making process;
- Principle II-The evaluation, ranking and selection of projects for funding using an investment approach;
- Principle III-Balanced budget controls and managerial flexibility when funding projects;

- Principle IV-Use of project management techniques to optimize project success; and
- Principle V-Evaluation of results and incorporation of lessons learned into the decision-making process (GAO budget decision-making model, 1998).

Organizational goals are established after a comprehensive needs assessment or operational plan has been completed. In this way, organizational goals can be aligned with the organization's defined mission and stakeholder considerations to guide decision making. The goals should be results-oriented or evidence-based (GAO budget decision-making model, 1998; Pew-MacArthur, 2016). Gaps between current needs and available resources and capabilities for their completion are delineated. The gap analysis should include an assessment of existing programs and services and their success and effectiveness to determine if they are still needed (GAO budget decision-making model, 1998). Alternatives for providing the defined programs and services are then established and considered. For example, the sharing of resources or services between one or more communities might be considered to help keep costs low, improve the overall quality of the service, or both (GAO budget decision-making model, 1998).

Evaluation, ranking, and selection of projects for funding should incorporate a decision-making approach that selects projects for funding that will return the most significant benefit for the dollars invested with the least amount of risk encountered. This is much like an investment decision-making approach that seeks the best return on investment for the lowest amount of risk exposure (GAO budget decision-making model, 1998). A cost-benefit analysis should be utilized to determine whether the program or service costs and risks outweigh the expected benefits and to ensure the investment creates a strategic fit with the organization's goals (GAO budget decision-making model, 1998; Pew-MacArthur, 2016).

Kahn and Hildreth (2002) argued public budgets should be developed based on portfolio theory. Portfolio theory (Markowitz, 1959) requires a defined expected return for each project,

program, or service funded. Kahn and Hildreth (2002) contended expected return is critical to public budgeting because there is no real rationale for allocating funds without it. Utilizing the portfolio approach helps decision-makers arrive at funding solutions that will best serve the organization, as there are typically more requests than resources to fund them (Kahn & Hildreth, 2002). The portfolios (budgets) are activities (i.e., services, programs, or projects), alone or in combination, arranged in packages or combinations of packages for evaluation. Viewed in this manner, packages that alone may not merit the defined level of return may well get funded due to the dominance of the packages' combined effects. Specifically, the risk is sufficiently low, and there is a high expectation of the desired returns when the packages are combined (Kahn & Hildreth, 2002). A method for rank-ordering the portfolios is established based upon predetermined criteria taken from analysis of past budgets and their returns on investment, both in fiscal terms and strategic organizational goal attainment (GAO budget decision-making model, 1998).

Redburn and Posner (2015) advocated the portfolio approach even be adopted for the U.S federal government budget process. Given the duplication within myriad federal government programs, their argument contends much better budget decisions are made when like programs and projects are packaged for review and funded based on potential return and risk encountered rather than based on incremental dollar allocations. Likewise, this portfolio approach appears to be a logical approach for local government budgets, as defined by the GAO model (1998).

The incorporation of balanced budget controls and managerial flexibility during the funding phase for projects, programs, and service packages is the third principle in the GAO model. A reasonable budget involves more than the concept of line-item expenditure controls. A reasonable budget also consists of providing managers with flexibility and incentives during implementation, leading to improved program efficiency and effectiveness (NACSLB, 1998).

For large programs and projects, this includes the ability to fund projects in affordable segments over time. A flexible approach calls for a long-term strategic methodology to budgeting and consideration about whether specific program or project returns are worth the investment over time. Finally, the flexible approach recognizes that innovative funding methods may be necessary (GAO budget decision-making model, 1998). The use of analytics, such as cost-benefit analysis, can provide budget decision-makers with useful information about project and program risks, cost estimates, performance measures, and expected outcomes (Pew-MacArthur, 2016). Further, the analytics can then help senior administrators and policymakers balance any risk associated with providing managers greater decision flexibility, including innovative funding approaches. Ideally, the analytics are prepared and examined before final budget authorization (Pew-MacArthur, 2016).

Project management techniques to optimize project, program, and service delivery success involve using a project management approach. The project management approach requires a project or service program plan to be established, complete with goals, objectives, timelines, and completion schedules. Further, it requires that project and program budgets be allocated in segments or phases as progress toward completion is made. Project management techniques require close monitoring of identified benchmarks since they can significantly impact the project's bottom line if not kept on schedule (GAO budget decision-making model, 1998). Equally important is the manager's experience (s) overseeing the project or service program (GAO budget decision-making model, 1998). Managers must have the knowledge and expertise necessary to ensure targets are met fiscally and on time. If the lead manager is not well versed in the defined area of expertise, a cross-functional team approach is recommended to optimize success. The cross-functional approach requires managers and personnel from other areas of the

organization to assist by filling in knowledge or experience gaps (GAO budget decision-making model, 1998).

Evaluation of results and incorporation of lessons learned into the decision-making process for future consideration and improved outcomes represent the model's final step. This principle involves evaluating results in comparison to stated goals and objectives. It also calls for the evaluation of the decision-making process. Findings are evaluated, and positive results for improving the process and future outcomes are refined and fed back into the system in anticipation of greater future efficiency and effectiveness. In this sense, the entire process becomes a closed-loop model for continuous improvement, as it is a system under a constant state of examination and refinement. Further, it is a system that follows closely the classical five-step rational decision-making model (Al-Omari, 2013; Gasaway, 2007; Scott & Bruce, 1999).

Summary and Conclusion: Chapter 2

This research study examined the relationship between fire chief leadership styles and fire department operational budget decision-making. This examination required an understanding of the literature generally applicable to leadership theory, leadership styles, decision-making theory, and budgeting theory and practices. Such analysis also required specific knowledge of how these topics relate to local governments, their budgeting processes, their fire departments, their fire chiefs, and a framework to evaluate the relationships between the critical study elements.

Leadership theory lays the foundation for the discussion on leadership styles. Applicable contemporary and classical theories were reviewed. Theories examine the nature and consequences of leadership; they postulate how leaders should act and what they should be. Leadership styles categorize and explain leadership forms, as reflected in the leader's consistent behaviors and attitudes, how leaders express specific behaviors and motivate followers

(Amanchukwu et al., 2015; House & Aditya, 1997; Kippenberger, 2002; Nanjundeswaraswamy & Swamy, 2014).

Leaders are decision-makers. Their decisions significantly impact the success of the organizations and personnel they lead (Reid, 2012). A review of pertinent literature (Carter, 2007; Gasaway, 2007; Klein, 1998; Moschella, 2017) revealed fire chiefs operate in unique and complicated dual leadership and decision-making environments. This complexity demands that they call upon numerous leadership and DMS and theories to be successful (Carter, 2007; Moschella, 2017). In one environment, the command and control environment, they are called upon to lead and manage in high-stress, time-pressured situations where lives are on the line, and risk-taking is the norm. In the other setting, the administrative or bureaucratic environment, they are asked to lead and make decisions in a highly politicized environment that does not encourage risk-taking (Carter, 2007; Gasaway, 2007; Klein, 1998; Moschella, 2017).

The command environment is autocratic by necessity (Campbell et al., 2010; Carter, 2007). These dynamic, high-risk decision-making emergency environments demand the utilization of elements commonly associated with the autocratic leadership style: quick decisions, based on intuition about similar past experiences, and done so without the benefit of consultation with others or a classical step-by-step analytical approach to options for resolving the matter at hand. A course of action is decided upon, orders are given down the chain of command, and followers execute them without question and within the scope of their training and experience (Malos, 2012; Reid, 2012).

Situational and contingency theories posit that various leadership styles are selected from the immediate environment's needs. Given the dynamics and uncertainties of an emergency scene, it is reasonable to suspect that situational or contingency leadership theories are in play, at least subtlety and briefly during these operations' early phases. However, one can logically

assume this is likely only while the fire chief begins to size up and make sense of the full scope of the immediate situation. Once the operational scope is defined, the fire chief makes the conscious decision to fully engage the autocratic leadership style to bring the urgent situation under control.

Situational and contingency theories posit a variety of leadership styles are selected from the immediate environment's needs. However, in the case of the emergency or crisis environments, the autocratic style has been used and will likely continue to be used as the first choice and best option for resolving crises by fire chiefs given its past success—it is decisive, fast, and efficient (Amanchukwu et al., 2015; Carter, 2007, 2009). Given the benefits of autocratic characteristics during emergencies, the situational/contingency approaches appear better suited to the fire service administrative environment where there is time to make reasoned choices and decisions about the best leadership style for the situation at hand (Malos, 2012; Reid, 2012; Scott & Bruce, 1999).

The literature also suggested additional leadership theories and styles may also be drawn upon when leading in the crisis environment, though they are likely only indirectly, briefly, and subtly involved. These include implicit, transactional, and CRT (House & Aditya, 1997). Like the situational and contingent leadership theories noted above, applying the implicit, transactional, and cognitive resource theories within the crisis management context may offer rich opportunities for future leadership research. Implicit leadership theory appears to be subtly at work during crisis leadership situations, as transactional and CRT does.

As offered by Carter (2007), Carter (2014), and other crisis leadership researchers, Campbell et al. (2010), Russ et al. (1996), Klein (1998), Sedlmeyer (2017), leaders demonstrate their abilities, and thereby gain the trust and respect of their followers, by measuring up to their followers' prototypical expectations of how leaders should be acting and performing based upon

the instant state of affairs; a requirement explicitly expressed in the implicit theory of leadership (House & Aditya, 1997).

Characteristics of transactional leadership theory (and style) are also exhibited in command environments (Alyn, 2010a; Carter, 2007). The focus of transactional leadership theory is the accomplishment of a specific goal(s), communicated to followers by the leader through a formal chain of command, along with understood performance outcomes/expectations that the followers have been trained and prepared to execute (Alyn, 2010b; Carter, 2007). This step outlines the fundamental operational paradigm utilized by fire departments to control emergencies (Carter, 2017), but which is directly executed within the context of an autocratic leadership framework. This supports Amanchukwu et al.'s (2015) position, contending that an autocratic leadership style is a severe form of transactional leadership. Alyn (2010b) observed transactional leadership is common in the fire service but predominately in administrative, organizational settings where policies, processes, and technical skills and rewards for accomplishing agreed-upon expectations are easily measured and recognized, particularly as they impact employee motivation.

CRT also appears applicable in the command and control leadership environment. CRT works to associate intelligence and experience with leader-follower stress levels (House & Aditya, 1997). CRT proposes that in high-stress situations such as emergencies, a highly experienced person should rely more on experience than pure education and intelligence to be most effective as a leader in these environments (House & Aditya, 1997).

Much of the theory underpinning CRT appears consistent with Klein's (1998) RPD research findings. RPD postulates that leaders of crises such as fire ground or battlefield commanders call upon their experience and intuition to quickly size up the situation, mental simulation to imagine how the situation will likely evolve, and the power of metaphor to help

them compare the current situation to past situations they have successfully managed. So informed, commanders then make their decision and act accordingly (Klein, 1998). Not unlike the unique leadership demands encountered during crises, decision-making is likewise altered by the time constraints and intense situational pressures that are far removed from the rational review and selection of the perceived best decision options commonly utilized in the administrative environment (Gasaway, 2007; Kahneman & Klein, 2009). Kahneman and Klein (2009) clearly stated RPD is optimal for high-stress situations but is not an optimal model for more routine matters.

As noted previously, the autocratic command environment occupies the least amount of the chief's leadership time but is the one fire chiefs spend the most time preparing for and the one that predominately defines their acceptance as leaders by subordinates (Campbell et al., 2010; Russ et al., 1996). Conversely, fire chiefs spend most of their time leading and making decisions in the administrative environment, which calls for a more reasoned and considered leadership and decision-making approach (Klein, 1998, 2009). Carter (2007) believed successful fire service leadership is truly an amalgamation of several leadership styles applied at the right time to the right situation. Carter (2007) supported the need for several leadership styles for use by today's fire chiefs, including authoritarian, charismatic, situational, contingency, servant, transactional, and transformational as all being appropriate, together or alone, given certain environmental factors at a given time. Moschella (2017) supported this view, concluding that today's fire chiefs must be agile and able to apply the right leadership and decision-making style to the situation at hand, whether in the command or administrative setting. Moschella (2017) further indicated many fire chiefs could not identify the appropriate leadership style for a given situation or specifically explain their dominant leadership style.

Using Bass's (1996) full-range leadership theory as a framework for classifying fire chief leadership styles, this research study developed a better understanding of Carter's and Moschella's propositions regarding the relationship between leadership and DMS used by fire chiefs both for command and administrative purposes (with emphasis on administrative budgetary decision-making) and further, to better understand if one leadership style is more pronounced in driving the decisions being made in both environments.

The public sector leadership environment adds variables and challenges to the decision-making equation that differs from the typical private-sector business environment (Javidan & Waldman, 2003; Kellis & Bing, 2013; Markgraf, 2018). While both public- and private-sector environments face the same challenges of achieving organizational, operational, and financial goals through people, the public sector environment has unique constraints (e.g., political, bureaucratic, special interest groups) that stifle risk-taking actions that might lead to innovative operations and savings (Andersen, 2010; Javidan & Waldman, 2003). Risk-taking reflects leadership actions that fire chiefs thrive on under command and control circumstances and the most comfortable environment leading in and making decisions (Campbell et al., 2010; Carter, 2007; Russ et al., 1996). Consequently, these constraints appear to have forced some fire chiefs to take a predominately transactional or even autocratic leadership approach in the administrative environment, where policies, practices, and technical requirements provided a safe course (Alyn, 2010a).

As fire departments and their communities battle to better manage scarce fiscal resources, greater emphasis is now being placed on the transformational style of leadership in the fire service regarding administrative matters to achieve higher and more purposeful results from firefighters (Alyn, 2010b; Carter, 2007; Compton, 2012). Yet, despite these efforts, a logical question remains: do fire chiefs transition seamlessly between the autocratic leadership style

required for success at the emergency scene to the rational, more inclusive leadership approaches needed for success in the administrative environment? More specifically, does such a dominant and controlling command leadership style similarly influence a decision-making style that drives non-emergent decisions in the administrative setting? A closer examination of the relationship between fire chief leadership styles grouped into the three types based on Bass's (1996) full-range leadership model, in consideration of their approach to budgetary decision-making, may assist in better understanding the answer to this question.

The literature suggests government budget decision-making should follow a rational, logical process with input from impacted stakeholders (Bland, 2013; GAO budget decision-making model, 1998; GFOA, 1999; NACSLB, 1998). Budgets and budget decisions are one of the most important leadership functions fire chiefs are charged with because of the potential impact they can have on the safety of the community and the firefighters (Sedlmeyer, 2017). Wallace (2018) provided a suggested roadmap for fire chief budget decision making. It is closely aligned with the GAO budget decision-making model (1998). The GAO budget decision-making model (1998) provides a recognized business-like five-step rational decision-making approach for evaluating the relationship between fire chief leadership styles and fire department operational budget decisions. The next chapter examines how this relational proposition was tested and analyzed statistically with a defined sample population.

CHAPTER 3: METHODOLOGY

The purpose of this quantitative nonexperimental study was to examine the relationship between fire chief leadership styles and fire department operating budget decision-making. Fire chief leadership styles categorized into three groups (i.e., transformational, transactional, and laissez-faire) served as the study's predictor variables. The U.S. GAO capital budgeting decision-making framework (1998) served as the study's CVs.

Fire chiefs operate within dual leadership environments. In one instance, they work in crisis environments where they intend to bring order and control to chaos, at times, in life-threatening situations. These emergencies frequently demand an autocratic leadership style, and an unorthodox decision-making style employed for the sake of time, operational clarity, and unified communications, and they demand a willingness to take risks, as all the information needed for well-informed decisions is seldom available (Amanchukwu et al., 2015; Carter, 2007; Gasaway, 2007; Klein, 1998). Conversely, fire chiefs also operate in the bureaucratic, administrative leadership environment where politics and budgets drive operational decisions and where a more rational decision-making approach is considered the best method (Hooijberg & Choi, 2001; Van Wart, 2003). Thus, some fire chiefs may find themselves relying on the more comfortable and familiar autocratic leadership style, as opposed to a more inclusive style, while operating in the administrative environment where a more inclusive, considered, and rational approach has been proven to be the best method for increasing an organization's operational efficiency and effectiveness (Hooijberg & Choi, 2001; Van Wart, 2003). Alyn (2010b) suggested that some fire chiefs have been slow to adopt more contemporary leadership styles, relying instead on the autocratic and transactional styles they are most comfortable with for both environments in which they operate. This research intended to better understand the relationship between fire chief leadership styles and their operational budget decision-making decisions. The

study findings could also inform community decision-makers regarding future training in leadership and budget decision-making techniques for fire chiefs and their senior staff members, leading to more efficient use of limited budget dollars while still maintaining community expectations for the provided levels of fire protection.

Chapter 3 outlines the study's research design and justification for the research approach. Further, the chapter considers the issues of external and internal validity and ethical considerations. The study's research questions, hypotheses, population, sample, and instrumentation, along with data collection and analysis, are also addressed. The chapter closes with a summary.

Research Design

This research study used a quantitative nonexperimental research design with multiple regression. A nonexperimental, correlational approach is useful when statistically answering research questions that identify variables that have a significant noncausal relationship to the criterion variable or predict an outcome (Creswell, 2018). In such studies, the independent variables are manipulated or observed. When researchers only observe an independent variable, it is termed a PV (Bastian, 2016). This study focused on how the independent (predictor) variable of fire chief leadership styles predict the dependent (criterion) variables of operational budget decisions. Neither an experimental nor quasi-experimental research design was appropriate for this study because it would be impractical to manipulate the PV, leadership style transformational, transactional, and laissez-faire (Creswell, 2018).

Qualitative studies strive to answer research questions probing how and why. However, qualitative methods are not appropriate for examining relationships among variables (Creswell, 2018). Consequently, a qualitative study design was not suitable for this research. A mixed-methods research approach was also not appropriate for this study. Researchers use a mixed-

methods approach when a qualitative or quantitative method alone is insufficient for addressing a research problem (Creswell, 2018). Because this study focused on hypothesis testing regarding recognized theories, there was no need to assess the problem qualitatively.

Research Questions and Hypotheses

Following is the overarching research question that guided this research study:

RQ1: Does fire chief leadership style influence budgetary decision-making?

H_0 1: There is no significant relationship between fire chief leadership styles and budget decision making.

H_a 1: There is a significant relationship between fire chief leadership styles and budget decision making.

This study also addressed the following subquestions:

RQ2: What is the relationship between fire chief leadership styles and evaluation, ranking, and selection of budget projects to be funded?

H_0 2: There is no significant relationship between fire chief leadership styles and the evaluation, ranking, and selection of budget projects to be funded.

H_a 2: There is a significant relationship between fire chief leadership styles and the evaluation, ranking, and selection of budget projects to be funded.

RQ3: What is the relationship between fire chief leadership styles and budget controls and managerial flexibility utilized in the budget process?

H_0 3: There is no significant relationship between fire chief leadership styles and managerial flexibility utilized in the budget process.

H_a 3: There is a significant relationship between fire chief leadership styles and managerial flexibility utilized in the budget process.

RQ4: What is the relationship between fire chief leadership styles and integrating organizational goals into the budget?

H_o 4: There is no significant relationship between fire chief leadership styles and integrating organizational goals into the budget.

H_a 4: There is a significant relationship between fire chief leadership styles and integrating organizational goals into the budget.

RQ5: What is the relationship between fire chief leadership styles and optimizing project management techniques during budget formulation?

H_o 5: There is no significant relationship between fire chief leadership styles and optimizing project management techniques during budget formulation.

H_a 5: There is a significant relationship between fire chief leadership styles and optimizing project management techniques during budget formulation.

RQ6: What is the relationship between fire chief leadership styles and budget results evaluation?

H_o 6: There is no significant relationship between fire chief leadership styles and budget results evaluation.

H_a 6: There is a significant relationship between fire chief leadership styles and budget results evaluation.

Population and Sample

This study's population was U.S. fire chiefs who manage fire departments serving communities with local community populations of 100,000 or more. The 2018 U.S. Census Bureau data indicate there are 314 incorporated communities with a population of over 100,000 (U.S. Census Bureau, 2018). Sampling is a process that permits the generalization of research findings across the wider population (Uprichard, 2013). An essential difference between

probability and nonprobability sampling is the prospect that every object in a given population has an equal chance of being selected for inclusion.

Probability sampling uses random techniques to create a sample population. Probability sampling is superior for minimizing selection bias and making statistical inferences across the population (Uprichard, 2013). Non-probably sampling techniques employ non-random techniques such as researcher judgment or convenience sampling to create a sample population (Uprichard, 2013). This study utilized a random sample approach for selecting research subjects. While a large research sample size is desirable from a validity viewpoint (Schenker & Rumrill, 2004), the size of an adequate research sample should be only large enough to provide an absolute chance of probability for detecting a true effect if one exists.

The true "effect size" is referred to as power or statistical significance. The "effect" is the difference between groups under consideration and is also an important determinant when deciding sample size. The smaller the differences sought, the larger the required sample. Failure to properly consider these elements when defining sample size can result in wasted time and resources. Power analysis is the term applied to determining the appropriate sample size for a research study (Dell, Holleran, & Ramakrishnan, 2002). Three or four factors must be known to calculate the appropriate sample size, according to Dell et al. (2002). One factor is effect size (f_2), the differences between the two groups. Cohen (1977, 1978) specified three sizes for regression analysis: small = 0.02, medium = 0.15, and large = 0.35. Next, a population standard deviation (if the data are continuous) is necessary. The desired experimental power required to secure the theorized effect should be established; it is most often arbitrarily applied at 0.8 or 0.9; 80-90% (Dell et al., 2002). Finally, the significance level must be established: $p < .05$ is frequently utilized (Dell et al., 2002).

An a priori analysis is used by researchers to define whether a sample size is of enough power to reject the null hypothesis and to detect an effect when using multiple regression (Foster, 2017). A G*Power 3 calculation is one such tool for analyzing statistical power. The researcher utilized G*Power3 statistical software to confirm the probability approach and define the appropriate sample size for this study (Faul, Erdfelder, Buchner, & Lang, 2009). Results revealed a sample size of $N = 77$, considering a medium effect size ($f = .15$) with $\alpha = .05$ to achieve a power of .80 (Cohen, 1992; Ferguson, 2009) and increasing the power to .90 results in a required sample size of $N = 99$ participants. Consequently, a sample size of between 77 and 99 participants was considered appropriate for the study, as illustrated in Figure 2.

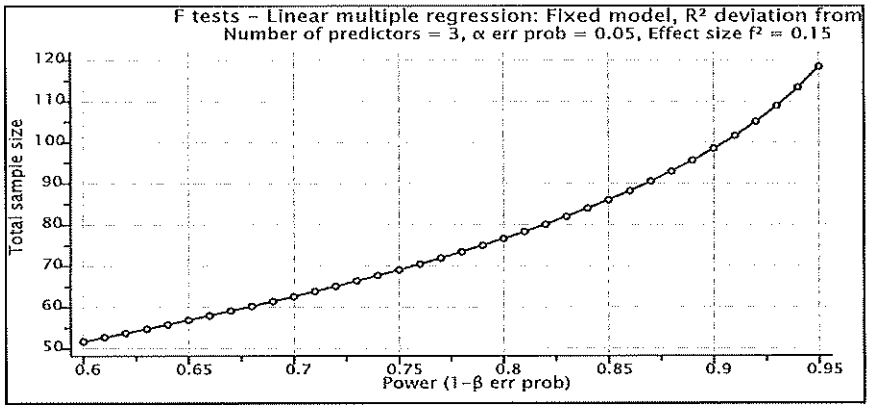

Figure 2. Power as a function of sample size.

Subject Selection and Methods

This research project used an internet-based survey instrument to distribute survey questionnaires to study participants and retrieve the survey data. Specifically, the study used the SurveyMonkey instrument. SurveyMonkey is a highly utilized survey tool due to its affordability, accessibility, and design options (Bastian, 2016). Other strengths include SurveyMonkey's design flexibility, including accommodation of Likert-type survey questions.

The survey response data are also easily transferred to various statistical software packages, including Minitab, which this research utilized (Waclawski, 2012).

The instrument consisted of two separate surveys addressing the research questions and study hypotheses in addition to the necessary background and demographic information regarding the population sample. Potential participants selected randomly (using Microsoft Office Excel software's random generation function) from an email list of present and past (retired) fire chiefs serving a population of 100,000 or more residents received an email invitation explaining the purpose and projected benefits of the research. Fire chiefs serving local populations below 100,000 residents were excluded, as their budgets are typically inconsistent in scope and complexity to those found in the targeted larger fire departments .

In keeping with commonly accepted ethical research standards, participants were provided a link to an informed consent form, providing them with detailed information regarding the research. The consent document informed potential subjects that participation was strictly voluntary and that no one from the university except the researcher would have access to their responses and information. The consent form also informed potential participants that their identity and any information they provided for the research would stay confidential for five years and then be destroyed. The researcher has secured the data and used only assigned participant numbers to ensure confidentiality (Benov, 2013). Also, there was no remuneration or reimbursement of any sort provided for those participating in the process.

Study participants also received a copy of the university's institutional review board (IRB) approval. Appropriate details regarding the survey purpose, participation, ethics, perceived benefits, and data security were also shared with potential participants to secure their willingness to participate in the study voluntarily. The latter elements of the survey questions requested demographic background information regarding the participants for descriptive purposes. Once a

participant agreed to the consent form, they proceeded to the MLQ and GAO budget decision-making surveys.

Ethics

Researchers conducting studies utilizing human subjects have a moral and legal responsibility to protect research participants (Salganik, 2017; Sarniak, 2015). The *Belmont Report* (1979) defined three principles that epitomize ethical conduct for research involving human participants. First, there must be respect for the person by maintaining their anonymity and, if subjects are of diminished autonomy, the researcher must afford such subjects additional protections (Salganik, 2017; Sarniak, 2015). Research participants receive respect through three primary means: informed consent, comprehension, and voluntariness. The term informed means research participants receive information about the proposed research in a form they can easily understand and comprehend. It further means that participants volunteer to participate once they know the consequences of doing so (Salganik, 2017; Sarniak, 2015).

The second element of the *Belmont Report* calls for beneficence (Salganik, 2017; Sarniak, 2015). The principle of beneficence focuses on research that maximizes benefits to participants and society. Accomplishing such maximization begins by focusing on participants' health and well-being while concurrently examining ways and alternative research methods to reduce risk to participants. Experiments should not harm but should maximize research benefits while minimizing harm (Salganik, 2017; Sarniak, 2015). The third element called for in the *Belmont Report* is justice. Specifically, justice arises when the research ensures that no one group in society bears an undue benefit while another group bears a disproportionate burden due to the study (Salganik, 2017; Sarniak, 2015).

This research project was reviewed and approved by the IRB at Saint Leo University before any data were collected. Further, and consistent with the provisions and principles in the

Belmont Report (1979), this study required a signed consent form by participants. This occurred after first explaining the purpose and benefits of the research, assuring participant anonymity, and informing participants regarding relevant details surrounding the research methods being used. Finally, participants received assurance that the university had issued IRB approval for the study (Benov, 2013). The study's author considered any potential ethical issues from the research and concluded there was minimal to no risk of harm for study participants. However, and consistent with the commonly accepted principles of research ethics as noted above, participation was voluntary, and a participant could remove himself or herself at any time from the study, for any reason, without explanation (Benov, 2013).

Instrumentation and Data Collection

This study proposed a quantitative inquiry into the relationship between fire chief leadership styles and operating budget decision-making by fire chiefs. The study's primary objective was to address the literature gap by exploring leadership styles in relation to fire chief operating budget decisions. While considerable research exists regarding fire chief leadership styles (Alyn, 2010a; Amanchukwu et al., 2015; Carter, 2007; Gasaway, 2007; Moschella, 2017) and fire chief decision-making approaches (Campbell et al., 2010; Gasaway, 2007; Kahneman & Klein, 2009; Russ et al., 1996), research revealed only scant information in the literature regarding the relationship between leadership style and budget decisions made by fire chiefs (Sedlmeyer, 2017).

Multifactor Leadership Questionnaire

Fire chief group classification resulted from a participant self-administered MLQ 5X-short version instrument developed by Bass and Avolio (2004). Past research by Brownell and Merchant (1980) regarding leadership behavior and budgeting utilized the LBDQ as the primary survey instrument. The more contemporary MLQ 5X-short instrument, based on the work of

Bass and Avolio (2004), was utilized in this study, as it includes transformational leadership, an emerging area of leadership interest in fire service management and leadership research (Alyn, 2010b). The theory supporting transformational leadership asserts that both transformational and transactional leadership styles are applicable in a multitude of settings. Areas of confirmed observation include the military, hospitals, industry, educational institutions, and places of worship (Bastian, 2016; Rowold, 2005).

The MLQ 5X, based on the transformational leadership theories developed by Bass and Avolio (2004), was based on Burns' earlier works (1978). The basis of the leadership theory upon which the MLQ was created is that leaders have specific characteristics that influence their followers. Transformational leadership has four characteristics: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass, 1999). Also, there are three moral aspects to transformational leadership: the moral character of the leader, ethical values related to a leader's vision and articulation, and ethical social choices (Rowold, 2005). Conversely, transactional leadership involves reinforcing actions such as praise and reward on the leader's part. Bass's argument (1999), and the underlying foundation of the MLQ, posited the most influential leaders exhibit both transformational and transactional behaviors and characteristics.

Specifically, the MLQ 5X-short is a 45-item questionnaire designed to measure leadership characteristics through self-evaluation, categorizing leadership styles into three groups: transformational leadership, transactional leadership, and laissez-faire leadership. The survey uses a five-point Likert-type scale (0-*not at all* to 4-*frequently, if not always*). The survey takes approximately 15 minutes to complete (Bastian, 2016; Rowold, 2005). There are five transformational, three transactional, one laissez-faire, and three outcome scales within the MLQ (Rowold, 2005).

The nine leadership factors include five identified as transformational leadership factors: builds trust (idealized attributes), acts with integrity (idealized behaviors), encourages others (inspirational motivation), encourages innovative thinking (intellectual stimulation), and coaches and develops people (individualized consideration). The three transactional leadership factors include passive/avoidant rewards achievement (CR), monitors deviations and mistakes (management-by-exception: active), fights fires (management-by-exception: passive) The one non-leadership factor, laissez-faire, avoids involvement. The three leadership outcomes are: generates extra effort, is productive (effectiveness), and generates satisfaction (MindSpring, 2019).

Together, these outcome scales form the full range of leadership, a comprehensive model developed by Avolio and Bass (Rowold, 2005). Based on the scoring of the 45 items, the survey provides a means to determine if individuals have a high, average, or low level of behavior and impact concerning each of the nine leadership factors (Rowold, 2005). Table 1 provides a categorization of the three leadership styles and the corresponding questions in the MLQ that measure them (Bastian, 2016, p. 68).

Table 1

Leadership Styles and corresponding Items on the MLQ

Leadership Style		Question Numbers
Transformational leadership style	Idealized influence (attitude)	Q10, Q18, Q21, Q25
	Idealized influence (behavior)	Q6, Q14, Q23, Q34
	Inspirational motivation	Q9, Q13, Q26, Q36
	Intellectual stimulation	Q2, Q8, Q30, Q32
	Individual consideration	Q15, Q19, Q29, Q31
Transactional leadership style	CR	Q1, Q11, Q16, Q35
	Management-by-exception (active)	Q4, Q22, Q24, Q27
Laissez-faire leadership style	Laissez-faire leadership	Q5, Q7, Q28, Q33
	Management-by-exception (passive)	Q3, Q12, Q17, Q20

Note. Not at all = 0, Once in a while = 1, Sometimes = 2, Fairly often = 3, Frequently, if not always = 4.

MLQ Validity and Reliability

Lani (2019) indicated that the MLQ is highly reliable and valid, having been heavily researched and validated. He noted the MLQ has been used in thousands of research studies, doctoral dissertations, and has been positively tested for construct outcomes for transformational leadership. Further, construct validity has been explained through factor analysis (Lani, 2019). The reliability scores for the MLQ have also ranged from moderate to good (Lani, 2019). Brown and Trevino (2002) conducted a reliability analysis on the nine leadership factors in the MLQ. Cronbach's alpha showed the questionnaire to reach acceptable reliability, $\alpha = 0.76$. Rowold's (2005) research, while converting the MLQ into the German language, found similar results for the instrument's validity and reliability. Rowold (2005) noted that several of his analyses provided support for high construct and convergent validity. Further, he indicated that three independent methods were applied and yielded good reliabilities for the MLQ-5X. In sum, he found the MLQ-5X to be a valid and reliable tool for assessing leaders' behavior (Rowold, 2019).

GAO Budget Decision-Making Survey Questionnaire

The criterion variables for this research study were the GAO budget decision-making framework, including its five GAO budget principles/groups configured for operating budgets, each measured as an interval variable with data collected using a five-point Likert scale questionnaire (Simon & Goes, 2013; Sullivan & Artino, 2013). Computing a mean score for the five GAO principals' responses generated a composite score for budget decision-making; a Cronbach's alpha test was conducted to confirm that the scale components were satisfactorily intercorrelated and that the groups/items measured the underlying variable (Sullivan & Artino, 2013). Specifically, fire department operating budgets served as the basis for the study. The research discovered no survey instrument within the literature for this purpose.

Consequently, to reduce measurement error, a survey instrument consisting of a valid and reliable questionnaire was developed as part of the research project (Radhakrishna, 2007). Guided by Radhakrishna's (2007) and Krosnick's and Presser's (2010) suggestions for the design and development of survey questionnaires, an instrument to measure budget decision-making within the study's context was developed (see Appendix A), and a field test and pilot study were conducted to confirm its validity and reliability. The field test helped define the instrument's content validity and involved a panel of subject matter experts from academia and the fire service, who evaluated the instrument's questions on four specific points, as recommended by Radhakrishna (2007, pp. 2-3). The four points were:

- Is the question being asked valid? Will it measure what it is supposed to measure?
- Does the question represent the content?
- Is the question comprehensive enough to collect all the information needed to address the purpose and study goals?
- Does the instrument look like a questionnaire?

Simon and White (2013) suggested a validation rubric (VREP) for use by expert panels to support review consistency in the areas of item/question clarity, wordiness, negative wording, overlapping responses, balance, use of jargon, appropriateness, use of technical language, relationship to the problem, application of praxis, and the list of possible responses. The suggested rubric is copyrighted. The researcher requested and received written permission from the authors for its utilization in this study (see Appendix H). Following question validation, the researcher conducted a pilot test with five subjects, who were not included in the sample population, to establish instrument reliability (Does the survey consistently measure what it is designed to measure?). The test-retest approach was employed to confirm positive questionnaire changes. The results were analyzed using Minitab statistical software. A correlation matrix was

generated for the data, and a reliability coefficient (alpha) was established with .07 or higher signifying acceptable reliability limits (Radhakrishna, 2007).

Data Analysis

The statistical software package Minitab was employed to analyze the data from both survey instruments utilized for this research (MLQ and GAO decision-making questionnaires). Multiple regression analysis was used to examine relationships between the predictor (independent variable) and criterion (dependent variable) variables for this study.

Descriptive statistics were applied to examine the mean scores and standard deviations from the predictor factors of the three leadership styles and the criterion budgetary decision-making framework variable: integration of organizational goals into the budget decision-making process; evaluate, rank and select projects for funding using an investment approach; balance budget controls and managerial flexibility when funding projects; use of project management techniques to optimize project success; evaluate results and incorporate lessons learned into the decision-making process (GAO, 1998).

In this study, variables were measured to explain the relationship between the PV of fire chief leadership style and the criterion variables, budgetary decision-making. Appropriate test assumptions were reviewed and confirmed by the Minitab software, including regression assumptions of linearity, reliability of measurement, homoscedasticity, and normality of variable distribution to eliminate error in the data results (Osborne & Waters, 2002).

Methodological Assumptions

The use of multiple regression as a primary statistical test requires that key assumptions be met. These include the requirement of a linear relationship between the PV and criterion variables and that there is no multicollinearity; the predictor variables are not highly correlated with one another. The residuals should be normally distributed; the individual data points should

be independent of each other. Next, there is homoscedasticity; the variance in the residuals (amount of error) is constant. The values of the residuals must be independent and uncorrelated, and outliers should not significantly influence the data (Laerd Statistics, 2018).

Linearity confirms the relationship between the dependent variable (DV) and independent variables (IV) when multiple regression is utilized. If the relationship is not linear, the results underestimate the relationship, resulting in type II errors for the IV (Osborne & Waters, 2002). This research utilized scatterplots of the variables and standardized residuals to allow for visual examination for linearity. This is the standard method for such analysis (Osborne & Waters, 2002). The statistical software Minitab created the required scatterplots.

Regression analysis also assumes a normal distribution of the variables under consideration. Otherwise, there is a distortion of the relationship and significant tests (Osborne & Waters, 2002). Osborne and Waters (2002) cited several methods for use when testing for normal distribution, including a visual inspection of data plots, skew, kurtosis, and P-P plots. Further, outliers can be identified through visual inspection of histograms or frequency distributions or by converting data to z-scores. Minitab is capable of producing these reports and was employed for this purpose as part of the research study.

The normality of variable distribution assumes there will be no error in measuring variables when multiple regression analysis is performed. Osborne and Waters (2002) have recommended that Cronbach's alpha is the appropriate and standard test for this assumption.

Homoscedasticity implies the variance of errors is similar across all levels of the independent variable. A small amount of heteroscedasticity has minimal effect on significance tests. However, substantial heteroscedasticity levels can lead to severe distortion of findings and significantly increase the possibility of a type I error (Osborne & Waters, 2002). Visual

examination of plot residuals is the recommended test for heteroscedasticity and was, therefore, used for this research study (Osborne & Waters, 2002).

Multicollinearity is also an assumption that should be checked when multiple regression analysis is employed. The assumption is that there is no multicollinearity, which occurs when the independent variables are highly correlated. High levels of correlation impact the independence of each variable. The researcher created a Pearson's correlation matrix to examine the bivariate correlations among all independent variables; the correlation coefficients should be less than .80 (Lani, 2019a).

Chapter Three: Conclusion and Summary

Chapter 3 details the quantitative research methodology proposed for this research project. Specifically, the study suggests and supports multiple regression analysis as the statistical tool for inquiry into the research questions and hypotheses: the primary question is the relationship between fire chief leadership styles and operating budget decision-making by fire chiefs. The study PV, fire chief leadership style, and the criterion variables, budgetary decision-making, are both defined. The chapter also identifies and explains the statistical assumptions for the utilization of multiple regression analyses.

Two separate Likert-type survey instruments were used for the research: the MLQ and GAO budget decision-making questionnaires. The MLQ is established as well-validated and considered reliable. The GAO decision-making survey required validation, and its reliability was established. Therefore, the study undertook the validation and reliability process and outlined the specifics of how it accomplished such, doing so according to well-defined academic procedures. The chapter defined the study population and sample size as determined by a G*Power 3 calculation ($N = 77$ to 99). Fire chiefs leading fire departments serving local community populations of 100,000 or more constituted the study's population. Research ethics were defined

and examined within the framework of the *Belmont Report*'s (1979) three primary principles and are then formally embraced by the study.

CHAPTER 4: RESULTS

The purpose of this quantitative nonexperimental study was to examine the relationship between fire chief leadership styles and fire department operating budget decision-making. Fire chief leadership styles categorized into three groups (i.e., transformational, transactional, laissez-faire) served as the predictor variables for the study. The U.S. GAO capital budgeting decision-making framework (1998) served as the criterion variables for the study. Multiple regression analysis was used to examine relationships between the predictor (independent variable) and criterion (DV) variables for this study.

The overarching research question that guided the study was: Does fire chief leadership style influence budgetary decision-making? The study also addressed five subquestions relative to the primary research question.

Chapter 4 outlines the study's data analysis and results from the research. The sample demographics are defined, and the descriptive findings regarding the sample population are also examined. Likewise, findings regarding the study's research questions and hypotheses are addressed. The chapter closes with a summary.

Demographic Data

The sample population for this study was U.S. fire chiefs and retired fire chiefs, who managed fire departments serving communities with a local population of 100,000 or more. An a priori analysis was used to define sample size; results revealed a recommended sample size of $N = 77$. There were 137 surveys randomly distributed. Microsoft Excel software was utilized to generate a random population sample. Using SurveyMonkey, the study remained open for 60 days and generated a sample size of $N = 42$ participants. Because the target sample ($N = 77$) was not accomplished, the findings may not be generalized across a broader population. Table 2 highlights the key characteristics of the demographic of the sample. The majority of respondents

were males (90.4%), of which a majority were White (66.7%). The majority of respondents (50%) used a "line-item" type of budget process in their community, with an average operating budget of 137 million dollars compared to their average capital budget of 39 million dollars.

Of the respondent fire departments, 50% (21) were located in communities managed by city managers. The majority of the participants (78.6%) indicated that fire suppression was the primary service provided (Figure 1.). The average number of personnel in their department was 973, ranging from a minimum of 124 to a maximum of 4000. The average number of fire and EMS stations was 39, ranging from a minimum of 6 to a maximum of 106. On average, department fire chiefs had 44.1 years of overall experience in the fire service profession. The average number of years in the fire chief position was 10.2 years, ranging from a minimum of 1 to a maximum of 46 years. Educationally, the majority of fire chief respondents had a master's degree (22).

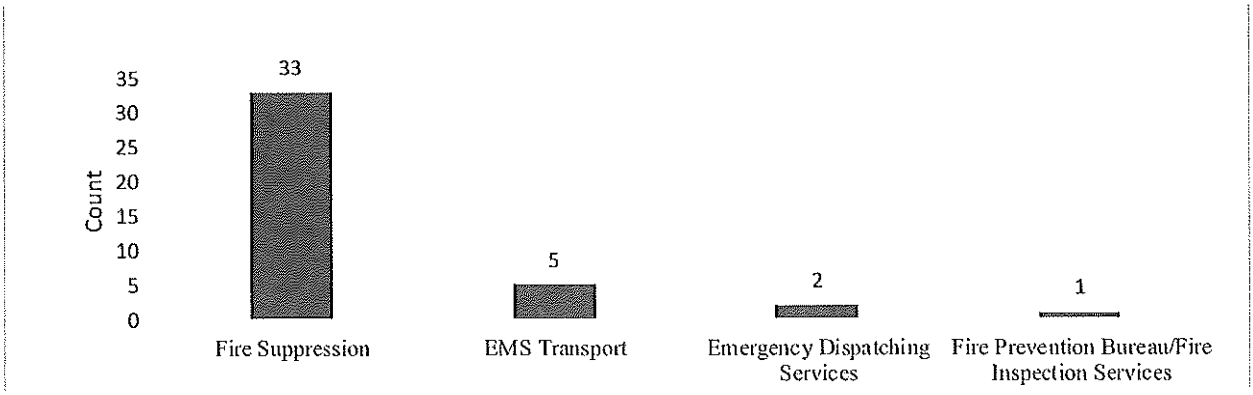

Figure 2. Services provided by department.

Table 2

Demographic Characteristics of Sample

		Frequency	Percent	Cumulative Percent
Gender	Male	38	90	90
	Female	4	9	10
	Total	42	100	100
Race	White	28	6	67
	Black	10	24	90
	Hispanic	3	7	98
	Prefer not to answer	1	2	
	Total	42	100	100
Education	Associate degree	3	7	7
	Bachelor's degree	11	26	33
	Master's degree	22	52	85
	Doctorate degree	3	7	92
	Some college	3	7	
	Total	42	100	100
Type budget used	Line-item	21	50	50
	Performance	6	14	64
	Planning/program	5	12	76
	Zero-based	4	10	86
	Target-based	3	7	93
	Balanced scorecard	1	2	95
	Outcome budgeting	1	2	98
	No answer	1	2	
	Total	42	100	100
Form of gov. structure	City manager/charter	21	50	50
	Strong mayor/statutory	16	38	88
	Fire district	4	10	98
	No answer	1	2	
	Total	42	100	100

Descriptive Statistics

Table 3 illustrates the descriptive statistics on the combined questions that comprise the 3 independent variables. Descriptive statistics for each independent variable question in the survey can be found in Appendix D.

Table 3

Independent Variables Descriptive Statistics

Variable	*N*	*M*	*SD*	Minimum	Median	Maximum
Transformational	42	3.38	0.33	2.5	3.3	3.9
Transactional	42	2.32	0.55	1.3	2.3	4.0
Laissez-faire	42	0.62	0.39	0.0	0.5	1.4

Table 4 illustrates the descriptive statistics on the combined questions that comprise the five DVs. Descriptive statistics for each DV question in the survey can be found in Appendix E.

Table 4

Variable	*N*	*M*	*SD*	Minimum	Median	Maximum
Evaluation	42	2.98	0.69	1.0	3.0	4.0
Managerial	42	3.23	0.66	2.0	3.5	4.0
Integration	42	3.17	0.59	1.3	3.3	4.0
Optimization	42	2.98	0.61	1.5	3.0	4.0
Budget	42	3.30	0.55	2.5	3.0	4.0

Dependent Variables Descriptive Statistics

Statistical Reliability

Cronbach's alpha coefficient was used as a measure of reliability. Cronbach's alpha tests to see if multiple-question Likert scale surveys are reliable. Cronbach's alpha measures reliability or internal consistency. Reliability is how well an instrument test measures what it is intended to measure. High reliability (> 0.70) demonstrates that the instrument measures the intended dependent variable. Conversely, low reliability means it measures something else.

Cronbach's alpha tells if the test the researcher has designed is accurately measuring the variable of interest. This study yielded a Cronbach's alpha = 0.89, which indicates a high measure of reliability.

The summary statistic for the 5 dependent variables using Cronbach's alpha = 86.4%. The summary statistic for the 3 independent variables using Cronbach's alpha = 81.2%. Tables 11 and 12 respectively show the Cronbach alpha for each individual question, both for independent and dependent variables, labeled as omitted item statistics, and found in Appendices B and C, respectively.

Regression Analysis

Five multiple regressions were conducted to examine the relationship between fire chief leadership style and operating budget decision-making. Leadership styles (i.e., transformational, transaction, and laissez-faire) served as the PVs, while the five principals of the GAO budget decision-making model (the integration of organizational goals into the budget decision-making process; the evaluation, ranking and selection of projects for funding using an investment approach; balanced budget controls and managerial flexibility when funding projects; use of project management techniques to optimize project success, and; evaluation of results and incorporation of lessons learned into the decision-making process) served as the study criterion variables. The assumptions of normality, linearity, homoscedasticity, and error independence were examined after the regression analysis and were found to be adequate.

The variation inflation factor (VIF) measures how much the variance of an estimated regression coefficient increases if the predictors are correlated. If the variance of the coefficients increases, the model will not be as reliable. An acceptable range is when VIF $\leq$ 10, and if a VIF is > 10, then there is evidence of multicollinearity.

The regression analysis utilized the following analytical framework:

- p-value to determine the statistical significance level,
- multiple linear regression to determine if there is a significant relationship, and
- Pearson correlation to measure the strength of the relationship.

P-Value

When conducting a hypothesis test in statistics, the p-value is a statistic that can be utilized to determine the significance level of the results. A small p-value (typically ≤ 0.05) indicates strong evidence against the null hypothesis, so the null hypothesis is rejected. A large p-value (> 0.05) indicates weak evidence against the null hypothesis. Therefore, the null hypothesis is not rejected.

Multiple Linear Regression

Multiple linear regression (MLR) is a statistical technique using several independent variables to predict the outcome of a response variable(s). The goal of MLR is to model the linear relationship between the independent variables and the response (dependent) variable. MLR is expressed as a formula: $yi = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + ... + \beta_p x_{ip} + \epsilon$, where, for $i = n$ observations:

yi = DV

xi = independent variables

β_0 = y-intercept (constant term)

β_p = slope coefficients for each explanatory variable

ϵ = the model's error term (also known as the residuals)

Assumptions for a simple linear regression model are:

- The mean of the response, E (Yi), at each value of the predictor, xi, is a linear function of the xi.
- The errors, ε_i, are independent.

- The errors, ε_i, at each value of the predictor, x_i are normally distributed.
- The errors, ε_i, at each value of the predictor, x_i have equal variances (denoted σ^2).

The coefficient of determination (R^2) is a statistical metric used to measure how much of the variation in outcome can be explained by the variation in the independent variables. R^2 always increases as more predictors are added to the MLR model even though the predictors may not be related to the outcome variable. Therefore, by itself, R^2 cannot be used to identify which predictors should be included in a model and which should be excluded. R^2 can only be between 0 and 1, where 0 indicates the outcome cannot be predicted by any of the independent variables, and 1 indicates the outcome can be predicted without error from the independent variables.

The results of a regression analysis yield an analysis of variance (ANOVA). The ANOVA is a statistical method used to test differences between two or more means. The output from an ANOVA is arranged in a table, listing the sources of variation, their degrees of freedom, the total sum of squares, and the mean squares. The ANOVA table also includes the F-statistics and p-values, which are used to determine whether the independent variables are significantly related to the response variable. The components of an ANOVA table include:

- Source: indicates the source of variation, either from the factor, the interaction, or the error. The total is a sum of all the sources.
- *df*: degrees of freedom ($n - 1$) from each source.
- *SS*: sum of squares between groups (factor) and the sum of squares within groups (error).
- *MS*: mean squares are found by dividing the sum of squares by the degrees of freedom.
- F: calculated by dividing the factor *MS* by the error *MS*; one can compare this ratio against a critical F found in a table, or one can use the p-value to determine whether a factor is significant.

- *P*: use to determine whether a factor is significant; typically compared against an alpha value of 0.05. If the *p*-value is lower than 0.05, then the factor is significant. The alpha value for this study is set at 0.05.

Pearson Correlation Analysis

Pearson product correlation coefficients were calculated and used to test the strength of the relationship among the study variables. The Pearson correlation method is a method to use for numerical variables; it assigns a value between −1 and 1, where 0 is no correlation, 1 is a totally positive correlation, and −1 is a totally negative correlation. This is interpreted as follows: a correlation value, or *r* value, of 0.7 between two variables would indicate a significant and positive relationship exists between the two. A positive correlation signifies if variable A goes up, then B will likewise go up, whereas if the value of the correlation is negative, then if A increases, B decreases. Values for *r* that are < 0.25 are considered low. Values ranging between 0.25 – 0 .50 are considered to be moderate. A strong correlation range is between > 0.50-0.75. A high correlation is > 0.75.

The Pearson correlation coefficient was used in this analysis to examine the strength and direction of the linear relationship between two continuous variables. The correlation coefficient can range in value from −1 to +1. The larger the absolute value of the coefficient, the stronger the relationship between the variables. An absolute value of 1 indicates a perfect linear relationship. A correlation close to 0 indicates no linear relationship between the variables. The sign of the coefficient indicates the direction of the relationship. If both variables tend to increase or decrease together, the coefficient is positive, and the line that represents the correlation slopes upward. If one variable tends to increase as the other decreases, the coefficient is negative, and the line that represents the correlation slopes downward.

Table 5 provides the Pearson product correlation between the three leadership styles and the five criterion variables. The *p*-value for each is also listed below the Pearson correlation.

Table 5

Pearson Product Correlation Between the Three Leadership Styles and Five Criterion Variables

	Evaluation	Managerial	Integration	Optimization	Budget
Transformational	0.323	0.303	0.506	0.430	0.336
	0.037	0.051	0.001	0.004	0.029
Transactional	0.457	0.152	0.353	0.324	0.290
	0.002	0.335	0.022	0.036	0.062
Laissez-faire	−0.096	−0.027	−0.340	−0.108	−0.122
	0.544	0.867	0.028	0.496	0.440

Note. Cell contents = Pearson correlation followed by *p*-value.

Research Questions and Hypotheses Examined

This study tested one primary research question and five research subquestions concerning the relationship of fire chief leadership styles to fire department operating budget decision making. Following are the results for each research question and hypotheses.

Research Question and Hypothesis-Evaluation of Projects for Funding

RQ2: What is the relationship between fire chief leadership styles and evaluation, ranking, and selection of budget projects to be funded?

H_0 2: There is no significant relationship between fire chief leadership styles and the evaluation, ranking, and selection of budget projects to be funded. The null hypothesis was rejected.

H_a 2: There is a significant relationship between fire chief leadership styles and the evaluation, ranking, and selection of budget projects to be funded. The alternative hypothesis was accepted.

Table 6 displays the multiple regression ANOVA table with the evaluation of projects as the DV and the IV of leadership styles. The overall regression model for transactional leadership was significant, $F_{(1,38)} = 6.11$, p-value = 0.02, $R^2 = 0.31$.

Appendix G (Tables 15-19) displays the ANOVA models containing R^2 for all regressions analyzed in this chapter.

Table 6

ANOVA—Evaluation of Projects for funding

Source	*df*	Adj *SS*	Adj *MS*	*F*-Value	*P*-Value
Regression	3	4.50	1.50	3.80	0.02**
Transformational	1	0.28	0.28	0.70	0.41
Transactional	1	2.41	2.41	6.11	0.02**
Laissez-faire	1	0.01	0.01	0.02	0.89
Error	38	14.98	0.39		
Total	41	19.48			

Note. *significant @ 90% ** significant @ 95% *** significant @99%.

The Pearson correlation between evaluation and transactional resulted in $r = 0.46$, $p = 0.02$. This indicated a moderate positive relationship between the leadership style of transactional with the evaluation process.

Figure F1, located in Appendix F, shows the residuals (errors) from the regression analysis, demonstrating that the errors are normally distributed and independent.

Research Question and Hypothesis-Managerial Flexibility

RQ3: What is the relationship between fire chief leadership styles and budget controls and managerial flexibility utilized in the budget process?

H_0 3: There is no significant relationship between fire chief leadership styles and managerial flexibility utilized in the budget process. The null hypothesis was rejected.

H_a 3: There is a significant relationship between fire chief leadership styles and managerial flexibility utilized in the budget process. The alternative hypothesis was accepted.

The Pearson correlation between managerial and transformational resulted in $r = 0.30$, p-value = 0.051. This indicated a moderate positive relationship between the leadership style of transformational leadership and managerial flexibility.

Table 7 displays the multiple regression ANOVA table with managerial flexibility as the DV and the IV leadership styles. The overall regression model for transformational leadership was significant $F_{(1,38)} = 3.50$, p-value = 0.07, $R^2 = 0.23$.

Table 7

ANOVA—Managerial Flexibility

Source	*df*	Adj *SS*	Adj *MS*	*F*-Value	*P*-Value
Regression	3	1.92	0.64	1.50	0.23
Transformation	1	1.49	1.49	3.50	0.07**
Transactional	1	0.00	0.00	0.00	0.97
Laissez-faire	1	0.24	0.24	0.57	0.46
Error	38	16.18	0.43		
Total	41	18.10			

Note. *significant @ 90% ** significant @ 95% *** significant @99%.

Figure F2, located in Appendix F, shows the residuals (errors) from the regression analysis, demonstrating that the errors are normally distributed and independent.

Research Question and Hypothesis—Integration of Organizational Goals

RQ 4: What is the relationship between fire chief leadership styles and integrating organizational goals into the budget?

H_0 4: There is no significant relationship between fire chief leadership styles and integrating organizational goals into the budget. The null hypothesis was rejected.

H_a 4: There is a significant relationship between fire chief leadership styles and integrating organizational goals into the budget. The alternative hypothesis was accepted. The Pearson correlation between the integration of organizational goals and the transformational leadership style resulted in $r = 0.506$, p-value = 0.001. This indicated a strong positive relationship between the transformational leadership style and the integration of goals into the budget process.

Table 8 displays the multiple regression ANOVA table with integration of organizational goals into the budget as the DV and the IV of leadership styles. The overall regression model for transformational leadership was significant $F_{(1,38)} = 3.99$, p-value = 0.05, $R^2 = 0.41$.

Table 8

ANOVA—Integration of Organizational Goals into Budget Process

Source	*df*	Adj *SS*	Adj *MS*	*F*-Value	*P*-Value
Regression	3	4.41	1.47	5.64	0.00***
Transformational	1	1.04	1.04	3.99	0.05**
Transactional	1	0.50	0.50	1.90	0.18
Laisser-faire	1	0.39	0.39	1.49	0.23
Error	38	9.92	0.26		
Total	41	14.33			

Note. *significant @ 90% ** significant @ 95% *** significant @99%.

Figure F3, located in Appendix F, shows the residuals (errors) from the regression analysis, demonstrating that the errors are normally distributed and independent.

Research Question and Hypothesis—Optimization of Project Success Using Project Management Techniques

RQ 5: What is the relationship between fire chief leadership styles and optimization of project management techniques during budget formulation?

H_0 5: There is no significant relationship between fire chief leadership styles and the optimization of project management techniques during budget formulation. The null hypothesis was rejected.

H_a 5: There is a significant relationship between fire chief leadership styles and the optimization of project management techniques during budget formulation. The alternative hypothesis was accepted.

The Pearson correlation between optimization of project management techniques and transformational leadership resulted in $r = 0.430$, p-value = 0.004. This indicates a moderate positive relationship between the transformational leadership style and budget optimization using project management techniques as part of the process.

Table 9 displays the ANOVA table results from the multiple regression with optimization of project success using project management techniques as the DV and the IV of leadership styles. The overall regression model for transformational leadership was significant, $F_{(1,38)} = 4.77$, p-value = 0.04, $R^2 = 0.38$.

Table 9

ANOVA—Optimization of Project Success using Project Management Techniques

Source	*df*	Adj *SS*	Adj *MS*	*F*-Value	*P*-Value
Regression	3	3.31	1.10	3.45	0.03**
Transformational	1	1.53	1.53	4.77	0.04**
Transactional	1	0.32	0.32	1.01	0.32
Laisser-faire	1	0.06	0.06	0.17	0.68
Error	38	12.16	0.32		
Total	41	15.48			

Note. * significant @ 90% ** significant @ 95% *** significant @ 99%.

Figure F4, located in Appendix F, shows the residuals (errors) from the regression analysis, demonstrating that the errors are normally distributed and independent.

Research Question and Hypothesis—Budget Results Evaluation

RQ6: What is the relationship between fire chief leadership styles and budget results evaluation?

H_0 6: There is no significant relationship between fire chief leadership styles and budget results evaluation. Failed to reject null hypotheses. There is insufficient evidence that a specific leadership style relates to the budget evaluation process.

H_a 6: There is a significant relationship between fire chief leadership styles and budget results evaluation.

Table 10 displays the ANOVA table results from the multiple regression with budget results evaluation as the DV and the IV of leadership styles. The overall regression model showed no significance with any leadership style and yielded $R^2 = 0.17$.

Table 10

ANOVA-Budget Results Evaluation

Source	*df*	Adj *SS*	Adj *MS*	*F*-Value	*P*-Value
Regression	3	1.76	0.59	2.07	0.12
Transformational	1	0.53	0.53	1.88	0.18
Transactional	1	0.33	0.33	1.17	0.29
Laisser-faire	1	0.00	0.00	0.00	0.98
Error	38	10.77	0.28		
Total	41	12.53			

Note. *significant @ 90% ** significant @ 95% *** significant @99%.

Figure F5, located in Appendix F, shows the residuals (errors) from the regression analysis, demonstrating that the errors are normally distributed and independent.

Conclusion

All five research questions were examined and answered statistically utilizing multiple regression analysis. Four of the five regressions rejected the null hypothesis, accepting the alternative hypothesis instead, indicating a significant relationship between an independent variable of leadership style and a DV of the GAO budget decision-making framework. These were evaluation of projects for funding (significantly related to the transactional leadership style), managerial flexibility, integration of organizational goals, and project success optimization using project management techniques, all significantly related to the transformational leadership style. In only one case was the null hypothesis not rejected, budget results evaluation, as none of the three leadership styles (IVs) impacted this DV. Chapter 5 examines closer and discusses the potential implications of the relationships, research

limitations, implications regarding the research study, and recommendations for additional research on the topic.

CHAPTER FIVE: DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Discussion

This chapter summarizes the previous chapters related to the research problem, research purpose, research questions, hypotheses, research methodology, and, finally, discusses the results of the study findings. It then provides the conclusions, limitations, implications for practice, and recommendations for future research resulting from the study.

Chapter 1 Summary

Chapter 1 introduced the research problem, the study's purpose, the research questions and hypotheses that the study addressed, and the study's significance.

Leadership style plays an essential part in a fire chief's effectiveness, both from command and administrative, budgetary perspectives (Alyn, 2010; Sedlmeyer, 2017). Supervisors utilize budgets as an expression of their leadership style (Adler & Reid, 2008; Argyris, 1952; Brownell & Merchant, 1980; Kyj & Parker, 2008). Consequently, the study examined the relationship between budgetary decision-making based on leadership style in a sample of fire chiefs. The relationship between leadership styles and their impacts on the budgetary process can serve as the basis for future research defining potential ways in which fire chief leadership styles can better match local budgeting goals and objectives for greater fiscal and service delivery efficiencies.

Local governments continue to feel pressure to provide higher service levels without raising taxes (GAO, 1998; Healey, 2015). One way to do this is to ensure that the community is getting the most effective services possible for the tax dollars expended (Bland, 2013; GAO, 1998; Healey, 2015). Fire departments consume a large portion of a local community's operating budget. However, no scholarly research has been discovered that has studied the use of a

structured framework by fire chiefs to make budget decisions and whether the approach utilized ultimately adds to the efficient and effective use of scarce financial resources.

Study purpose. This study's primary purpose was to examine the relationship between fire chief leadership styles and fire department operating budget decision-making. Fire chief leadership styles were categorized into three groups (i.e., transformational, transactional, and laissez-faire), which served as the study's PVs. The criterion variables were the five budget decision-making principles found within the GAO capital budgeting decision-making framework: principle I-integrate organizational goals into the budget decision-making process; principle II-evaluate, rank, and select projects for funding; principle III-balance budget controls and managerial flexibility; principle IV-use project management techniques to optimize project success; and Principle V-evaluate results and incorporate lessons learned (GAO, 1998).

Research questions and hypotheses. The present research addressed the overarching research question.

RQ1: Does fire chief leadership style influence budgetary decision-making?

H_0 1: There is no significant relationship between fire chief leadership styles and budget decision making.

H_a 1: There is a significant relationship between fire chief leadership styles and budget decision making.

This study also addressed the following subquestions:

RQ2: What is the relationship between fire chief leadership styles and evaluation, ranking, and selection of budget projects to be funded?

H_0 2: There is no significant relationship between fire chief leadership styles and the evaluation, ranking, and selection of budget projects to be funded.

H_a2: There is a significant relationship between fire chief leadership styles and the evaluation, ranking, and selection of budget projects to be funded.

RQ3: What is the relationship between fire chief leadership styles and budget controls and managerial flexibility utilized in the budget process?

H_o 3: There is no significant relationship between fire chief leadership styles and managerial flexibility utilized in the budget process.

H_a 3: There is a significant relationship between fire chief leadership styles and managerial flexibility utilized in the budget process.

RQ4: What is the relationship between fire chief leadership styles and integrating organizational goals into the budget?

H_o 4: There is no significant relationship between fire chief leadership styles and integrating organizational goals into the budget.

H_a 4: There is a significant relationship between fire chief leadership styles and integrating organizational goals into the budget.

RQ5: What is the relationship between fire chief leadership styles and optimizing project management techniques during budget formulation?

H_o 5: There is no significant relationship between fire chief leadership styles and optimizing project management techniques during budget formulation.

H_a 5: There is a significant relationship between fire chief leadership styles and optimizing project management techniques during budget formulation.

RQ6: What is the relationship between fire chief leadership styles and budget results evaluation?

H_o 6: There is no significant relationship between fire chief leadership styles and budget results evaluation.

H_a 6: There is a significant relationship between fire chief leadership styles and budget results evaluation.

Significance of the research. The study offers both practical and theoretical importance. Practical implications from the study extend to potential changes in the way communities hire and promote fire chiefs in the future, with budget decision-making a consideration. Study findings could also form a basis for future leadership training and budgeting decision-making techniques for fire chiefs and their senior staff members.

Chapter 2 Summary

Chapter 2 of the research study provided a review of the relevant literature and theories. It defined the conceptual model for the study. This included the body of literature impacting key areas of the research regarding the study's predictor variable, leadership theory in general, and fire chief leadership specifically. Additionally, decision-making was examined theoretically and within the context of fire chief command leadership decision theory. The elements of the U.S. GAO capital budgeting decision-making framework (1998), including its five primary budgeting principles (Carlee, 2008), and serving as the conceptual framework for the study, were also examined.

While numerous leadership theories were examined, three specific leadership styles were ultimately defined as the research's predictor variables. Building on Duddy's research (2015), citing that leadership styles have evolved over the past 40 years into these 3 primary categories: transformational, transactional, and laissez-faire, these three styles were adopted as the predictor variables for the present study. Research has indicated the fire service profession continues to demonstrate considerable interest in these three leadership styles, with an increasing interest in the transformational style for improving the efficiency and effectiveness of daily fire department non-emergent operations (Alyn, 2010b; Carter, 2007). Consequently, this study adopted these

three styles as the primary leadership constructs for the research and utilized Bass's MLQ to categorize a sample population accordingly (Bass, 1990; Stewart, 2006).

Decision-making theories were also examined. It was discovered that leadership and decision making are not mutually exclusive. Effective decision-making has been cited as one of the essential skills found in successful leaders (Rehman & Waheed, 2012; Reid, 2012).

Regarding budgetary decision-making, it was further discovered that organizational performance is enhanced when followers have input into the budgetary decision-making process (Kyj & Parker, 2008; Usman et al., 2016). The literature regarding fire chief leadership provides no readily available information addressing this proposition. However, private-sector budget and leadership research by Usman et al. (2016) revealed the greater the participation level of subordinates in the budgeting process, the greater the increase in performance.

Kahneman and Klein (2009) developed a decision-making model used by personnel managing in high-stress situations, including fire chiefs working as incident commanders at emergency scenes. He concluded commanders in high-stress, time-pressured situations rely on what Klein (1998) terms RPD when deciding on a course of action for managing emergencies.

RPD draws on the commander's past experiences as he or she quickly analyzes the current situation compared to similar past situations they have successfully managed. Driven predominately by intuition, the successful situation most closely matching the current emergency becomes the starting point for managing the immediate challenge. The RPD approach to fire chief command decision-making has proven highly successful for containing and controlling high-stress and time-conditioned fire-rescue emergency crises (Carter, 2014; Klein, 1998). RPD closely resembles a blend of the intuitive and spontaneous DMS, as defined by Scott and Bruce (1999). However, it is suggested that the RPD style may not be the best model for use by fire

chiefs in the administrative setting, where time permits a more considered approach, such as the rational decision-making style defined by Scott and Bruce (1999).

In summary, using Bass's (1996) full-range leadership theory as a framework for classifying fire chief leadership styles, this research study labored to develop a better understanding of Carter's and Moschella's propositions regarding the relationship between leadership and DMS used by fire chiefs both for command and administrative purposes (with emphasis on administrative, budgetary decision-making) and further, to better understand if one leadership style is more pronounced in driving the decisions being made in both environments.

Chapter 3 Summary

Chapter 3 detailed the quantitative research methodology proposed for this research project. Specifically, the study selected multiple regression analysis as the statistical tool for inquiry into the research questions and hypotheses: the primary question is the relationship between fire chief leadership styles and operating budget decision-making by fire chiefs. The study PV, fire chief leadership style, and the criterion variables, budgetary decision-making, were both defined, and Chapter 3 also identified and explained the statistical assumptions for the utilization of multiple regression analyses.

Two separate Likert-type survey instruments were utilized for the research: The MLQ and GAO budget decision-making questionnaires. The MLQ is established as well-validated and considered reliable. The proposed GAO decision-making survey required validation, and its reliability was established using a recognized expert review process. Therefore, the study undertook the validation and reliability process and specifics of how it planned to accomplish such, doing so according to well-defined academic procedures. Chapter 3 also defined the study population and sample size as determined using a G*Power 3 calculation ($N = 77$ to 99). Current or retired fire chiefs leading fire departments serving local community populations of 100,000 or

more constituted the study's population. SurveyMonkey was used as the collection mechanism for the data gathered from the survey instruments; 137 surveys were distributed with 42 returned (31%). Research ethics were defined and examined within the framework of the *Belmont Report* (1979).

Chapter 4 Summary

In Chapter 4, all five research questions were examined and answered statistically utilizing multiple regression analysis. Four of the five regressions rejected the null hypothesis, accepting the alternative hypothesis instead, indicating a significant relationship between the PV of leadership style (i.e., transformational, transactional, laissez-faire) and a CV, the GAO budget decision-making framework. The framework included evaluating projects for funding (significantly related to the transactional style of leadership), managerial flexibility, integration of organizational goals, and optimization of project success using project management techniques—all three were significantly related to the transformational leadership style. In only one case, the null hypothesis was accepted (budget results evaluation) as none of the three leadership styles (PVs) showed a significant relationship to this particular CV.

Conclusions

Descriptive Statistics

The descriptive statistics regarding leadership style (PV) indicated the majority of responding fire chiefs from the sample population categorized themselves into the transformational style category ($N = 42$) $M = 3.38$. This was followed by the transactional style ($N = 42$) $M = 2.32$. The laissez-faire style lagged considerably behind the other two styles ($N = 42$) $M = 0.62$. This supports research by Alyn (2010b) and Carter (2007) indicating the fire service profession has a growing interest in these three leadership styles, with the most interest in the transformational style. This is primarily due to its potential to improve the efficiency and

effectiveness of daily fire department non-emergency operations. It further indicates a transition away from the traditional autocratic leadership style heavily relied upon by past fire service leaders for all situations, emergency management and administrative, to an approach more in line with contemporary styles that allow for greater employee input, consideration, and better results (Alyn, 2010; Carter, 2007; Compton, 2012).

The descriptive statistics regarding the criterion variables in the GAO budget decision-making model indicated the majority of responding fire chiefs from the sample population utilized the framework when making budget decisions, but to varying degrees. The majority evaluated budget results from the prior year and incorporated lessons learned into the current year's beginning budget process ($N = 42$) $M = 3.30$. This was followed by balanced budget controls and managerial flexibility ($N = 42$) $M = 3.23$. Next was integrating organizational goals into the budget decision-making process ($N = 42$) $M = 3.17$. The evaluation, ranking, and selection of projects to be funded ($N = 42$) and project management techniques to optimize project success ($N = 42$) both resulted in $M = 2.98$. The findings here support the proposition that fire chiefs in the sample population are using a rational, logical approach to budget decision-making and that they are not utilizing the RPD process they frequently use at an incident scene to arrive at their budget conclusions.

Research Questions

The overarching research question that guided the study was: Does fire chief leadership style influence budgetary decision-making? The study also addressed five subquestions associated with the primary research question. The analysis of the five subquestions and their hypotheses demonstrated that, overall, the fire chief leadership style significantly impacts the fire department operating budget decision making.

Regarding the research question addressing whether there is a relationship between fire chief leadership styles and their evaluation, ranking, and selection of budget projects to be funded, the study concluded that a significant relationship does exist within the study population, particularly with transactional leaders.

Regarding the research questions addressing a relationship between fire chief leadership styles and budget controls and managerial flexibility utilized in the budget process, the integration of organizational goals into the budget, and the optimization of project management techniques utilized during budget formulation, the study concluded a significant relationship exists within the study population regarding all three areas, particularly with transformational leaders.

Regarding the research question addressing a relationship between fire chief leadership style and the evaluation of budget results from the prior year when preparing the budget for a new fiscal year, no significant relationship was found. Interestingly, the descriptive statistics revealed the majority of fire chiefs in the sample evaluated budget results from the prior year and incorporated lessons learned into the current year's beginning budget process ($N = 42$) $M = 3.30$.

Interpretation of Results and Findings

This research study's area of emphasis was on budgetary decision-making in the fire chief administrative leadership environment. The intent was to better understand if one leadership style is more prevalent in driving the decisions made in both command and administrative situations. Are the leadership styles and decision-making processes commonly used at the emergency scene also routinely used when making administrative decisions, especially impacting the development of the department's annual operating budget?

This research supports that fire service leadership is moving more toward the transformation style, at least from a budgeting perspective. Historically, as noted in the literature

reviewed in Chapter 2, fire chief leadership was dominated by an autocratic leadership style (Alyn, 2010a; Carter, 2007; Gasaway, 2007). This emanated from the speed and consistency of communications and discipline it produces at emergency scenes; consequently, the autocratic style will likely continue to be the style of choice for emergency scene management (Campbell et al., 2010; Carter, 2007). Further, the autocratic style was the style chief officers trained on most of their careers and was most comfortable managing (Carter, 2007). Over time, however, as general leadership styles evolved, the fire service noticed the potential benefits that could be gained by more inclusive leadership styles, especially the transformational and transactional styles (Alyn, 2010). The belief was that these more inclusive styles could improve organizational efficiency, in the administrative areas, including budget preparation and administration (Alyn, 2010a).

This research supports the proposition that fire service leaders, at least in the sample population studied, use the transformational leadership style as part of the annual budget process. The fire service leadership transition initially saw a movement toward transactional leadership and is now moving toward transformational (Alyn, 2010; Carter, 2007; Compton, 2012). Fire chiefs lead in a political environment where risk-taking is not highly embraced. A step up from the autocratic style, the transactional style of leadership introduces some consideration of follower involvement, a more democratic approach, but also provides a safe course because policies, practices, and technical requirements focus efforts first on the organization before followers (Alyn, 2010). As this research indicates, there are still fire chiefs embracing this leadership style, though to a lesser extent than the transformational style (Carter, 2007). Organizations led by transformational leaders do better financially, and their employees' performance and effectiveness are improved at all levels of the organization (Bass, 1990; Kyj & Parker, 2008; Usman et al., 2016). Consequently, based upon the data findings herein, it is

logical that communities would consider transformational leadership as a highly desirable quality when selecting fire chiefs, especially if there is a considerable priority given to budgeting.

The research also supported that the majority of fire chiefs in the sample population approached budgeting through the use of a rational, logical process. The literature suggested this is the best approach for making government budget decisions, especially when stakeholders have input into the process (Bland, 2013; GAO budget decision-making model, 1998; GFOA, 1999; NACSLB, 1998). This contrasts with the RPD model fire chiefs use during high stress, time-pressured situations at emergency scenes. RPD is an intuitive decision-making style that helps fire chiefs make quick decisions based upon their past experiences and the prevailing conditions when a decision is called for (Kahneman & Klein, 2009). While RPD has proven to be a comfortable model used by fire chiefs in stressful command situations, like the autocratic leadership style, it did not appear to carry over into the administrative budget decision-making environment. The more considered decision-making approach found in the GAO budget model also aligns well with the transformational leadership style, where greater levels of follower involvement are prevalent.

A major consideration of the present study was determining if fire chiefs' leadership styles and DMS when responding to and controlling emergency situations were also used by them to make fire department operational budget decisions. Historically, fire chiefs have relied on the autocratic leadership style, both for emergency scene command and control responsibilities and for administrative leadership needs. The autocratic leadership style has its place in the emergency environment, as it streamlines communications and clarifies decision-making during high-stress operations. However, contemporary leadership styles are more efficient and effective in the fire department administrative, non-emergency environment because they utilize the input of the followers instead of simply telling followers what to do.

In summary, the overarching research question for this study was whether a fire chief's leadership style influences budgetary decision-making. The research clearly indicates that it does. In fact, when compared to the five principals of the GAO budget decision-making model, it was discovered that there was a significant relationship between the three leadership styles in the study and four of the five budget decision-making principles in the model. It was also discovered that the autocratic leadership style used at the emergency scene was not the leadership style used by the majority of fire chiefs in the sample population when making budget decisions. The majority utilized the transformational leadership style, followed by the transactional style. It was further discovered that a rational, logical approach to the fire department's operational budget was the primary method for making decisions about the budget. The RPD model used for decision-making on the fire ground was not relied upon for making operational budget decisions in the majority of the sample population.

Limitations

The present study is limited by its inability to be generalized across a larger population. The target responses were calculated to be $N = 77$. However, despite over 137 survey questionnaires being distributed, only $N = 42$ were returned (31%). Nonetheless, there is still a reasonable conclusion drawn from the data, as provided herein. The narrowly defined sample population (fire chiefs serving communities with resident populations at or above 100,000) produces practical limitations. The use of a broader sample, perhaps all fire departments in the United States, or a more stratified sample based upon fire department structure (full paid career, combination, volunteer) versus strictly the population served, would produce a more in-depth understanding of the topic. The present study may also be constrained by its lack of diversity, specifically with respect to gender, race, and/or national origin of the respondents. The vast majority of respondents were White males. Next, the study concentrated solely on Bass' (1985,

1998) full-range leadership model, including the three leadership styles of transformational, transactional, and laissez-faire. Though these three styles have emerged as the most common contemporary styles, other emerging styles such as servant leadership and its potential impact, or other seminal leadership styles such as Kurt Lewin's (1939) three distinct styles of autocratic, democratic, and laissez-faire, as a collective group, have not been considered fully in this study. Finally, the study only considers a single government budget decision-making model, the GAO model. Other models do exist and may produce different or more fruitful results.

Implications for Practice

The present research can be of practical significance to local government officials when considering the promotion or hiring of local fire chiefs. The research indicates transformational leaders are likely to produce strong budget results due to how they lead and the decision-making approach they employ (Kyj & Parker, 2008). Other technical considerations are important when hiring or promoting chief fire officers, but given the tight economic conditions many communities face today and the large consumption by the local fire departments of limited tax dollars, this is information that could prove beneficial in the broader hiring scheme. Similarly, the research results point to training and education considerations for future (and perhaps even existing) fire chiefs, both in terms of leadership and decision-making focused more specifically on the administrative aspects of the profession. College-level educators teaching public administration and fire service of public safety administration courses could also begin to focus additional curriculum time toward leadership and its interrelationship with and impact on operational budgets, the organization and the community being served.

Recommendations for Research

Now clearly established, the relationship between leadership styles and their impacts on the budgetary process can serve as the basis for future research defining potential ways in which

fire chief leadership styles can better match local budgeting goals and objectives for greater fiscal and service delivery efficiencies.

The present study provides new insight into the relationship between fire chief leadership styles and their operating budget decision-making. The data make clear that a relationship between the two variables does exist. However, future research in this area should probe more deeply the lack of a significant relationship discovered between fire chief leadership style and the evaluation of budget results from the prior year. This is especially the case considering that the descriptive statistics revealed that the majority of fire chiefs in the sample evaluated budget results from the prior year and incorporated lessons learned into the current year's beginning budget process.

Prior research regarding budgetary decision-making in the private sector discovered that organizational performance is enhanced when followers have input into the budgetary decision-making process (Kyj & Parker, 2008; Usman et al., 2016). As previously noted, the literature regarding fire chief leadership provides no readily available information addressing this proposition. The present research reveals a relationship between the transformation and transactional styles of leadership and improved budgeting results because of the follower involvement in the leadership styles employed. Additional research should be conducted to determine in what specific areas organizational performance is enhanced as a result, and at what level within the organization follower input produces the best results.

Additional similar research into other key local government executive leadership positions (e.g., police chiefs, planning directors, public works directors, parks and recreation directors, water department officials), could yield similar information for each of these positions, and importantly, would also provide a base of comparison for future consideration by top local government officials and decision-makers.

Finally, new research into applying the GAO budget decision-making model by local government officials, perhaps using a mix-methods approach, could provide valuable insight into how and why each principle is applied during the budgeting process. This could lead to revisions in the model itself and a better understanding of local leaders' budget decision-making process.

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APPENDICES

APPENDIX A

GAO Decision-Making Framework Questionnaire

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GAO Decision-Making Framework Questionnaire

INSTRUCTIONS: This questionnaire provides a description of operating budget decision-making considerations. Twelve descriptive statements are listed below. Judge how frequently each statement fits you when making annual fire department operating budget decisions. There is no right or wrong answer to any of the questions.

KEY

Please answer each question using the following scale:

0 = Never 1 = Once in a while 2= Sometimes 3 = Fairly often 4 = Frequently, if not always

1. I review the department's vison and mission at the outset of the formal budget process each year.

   0 1 2 3 4

2. I evaluate and develop alternatives for filling identified gaps between needs and capabilities.

   0 1 2 3 4

3. I budget in useful segments (over several budgets years, if necessary) for new or costly programs as a method for evaluating their ongoing efficiency and effectiveness.

   0 1 2 3 4

4. I use cross-functional teams to provide broad support, needed expertise, and input for the creation and implementation of new projects, programs and services or to review old ones as to continued viability.

   0 1 2 3 4

5. I quantify desired outcomes and assess resources needed to achieve program and service results.

   0 1 2 3 4

6. I establish and employ a formal review framework when considering potential services, programs and priorities.

   0 1 2 3 4

7. I consider innovative funding approaches for programs, projects and services.

0 1 2 3 4

8. I evaluate and compare results to established program goals and objectives and adjust as necessary.

0 1 2 3 4

9. I identify gaps between current capabilities and needed programs, projects, services, and capabilities.

0 1 2 3 4

10. I use established performance criteria to rank and select projects, programs and services for funding.

0 1 2 3 4

11. I periodically monitor program and manager budget performance and establish incentives for accountability.

0 1 2 3 4

12. I evaluate the budget decision-making process and institute changes as necessary for greater success in the future.

0 1 2 3 4

TOTAL_____

Principal I-Integrate organizational goals (Items 1, 5, 9, 2) _____Principal I
Principal II-Evaluation, ranking, selection of projects (Items 6, 10) _____Principal II
Principal III-Managerial flexibility (Items 3, 7) _____Principal III
Principal IV-Utilization of Project Management Techniques (Items 11, 4) _____Principal IV
Principal V-Evaluation of Results (Items 8, 12) _____Principal V

Demographic Information:

- Total Population of Community Protected by the fire Department: _____
- Fire Department's Current Year Total Operating Budget: _____

- Fire Department's Current Year Total Capital Budget: _____
- Form of Government Structure:
    - Strong Mayor/Statutory_____
    - City Manager/Charter Form_____
- Number of Total Fire/EMS Stations_____
- Services Provided by Department (please check all that apply):
    - Fire Suppression_____
    - Technical Rescue Service_____
    - EMS Transport Service_____
    - Haz/Mat Unit Response_____
    - Fire Prevention Bureau/Fire Inspection Service_____
    - Emergency Dispatching Service_____
- Total Number of Personnel in the Department (Sworn & Civilian) _____
- Department Fire Chief's Total Years in the Fire Service: _____
- Total Years as Chief of a Fire Department: _____
- Fire Chief's Gender: Female____ Male_____
- Fire Chief's Race: White____ Hispanic_____ Asian____ Other_____
- Type of Budget Process utilized by Community (please select the type which you believe most closely aligns with the process currently utilized within your community):
    - Line-Item_____
    - Balanced Score Card_____
    - Outcome Budgeting _____
    - Performance Budget____
    - Planning-Program Budget System (PPBS)_____
    - Target-Based Budgeting (TBB) _____

- o Zero-Base Budget (ZBB)_____
- o None of the Above _____

APPENDIX B

Cronbach Alpha-Omitted Item Statistics, Independent Variables

APPENDIX B

Cronbach Alpha—Omitted Items Statistics, Independent Variables

Table B1

Cronbach Alpha for each Individual IV Question—Omitted Item Statistics

Omitted Variable	Adj. Total *M*	Adj. Total *SD*	Item-Adj. Total Corr	Squared Multiple Corr	Cronbach's Alpha
Q1 I provide others with a	115.74	10.40	0.5565	*	0.7964
Q2 I reexamine critical a	115.37	11.00	0.1544	*	0.8117
Q3 I fail to interfere unt	117.47	11.37	-0.2754	*	0.8313
Q4 I focus attention on ir	116.24	10.63	0.4230	*	0.8030
Q5 I avoid getting involve	118.29	11.23	-0.1566	*	0.8245
Q6 I talk about my most im	115.45	10.94	0.2303	*	0.8098
Q7 I am absent when needed	118.05	11.38	-0.2878	*	0.8308
Q8 I seek differing perspe	115.16	11.06	0.0958	*	0.8125
Q9 I talk optimistically a	115.16	11.09	0.0330	*	0.8137
Q10 I instill pride in other	115.82	10.36	0.6995	*	0.7912
Q11 I discuss in specific t	115.58	10.77	0.4579	*	0.8033
Q12 I wait for things to go	118.03	11.24	-0.2135	*	0.8202
Q13 I talk enthusiastically	115.26	10.83	0.5103	*	0.8038
Q14 I specify the importance	115.32	10.85	0.4035	*	0.8055
Q15 I spend time teaching a	115.61	10.85	0.3669	*	0.8062
Q16 I make clear what one c	115.89	10.57	0.5557	*	0.7983
Q17 I show that I am a firm	117.66	10.89	0.1923	*	0.8119
Q18 I go beyond self-interest	115.16	10.98	0.2292	*	0.8098

Q19 I treat others as indiv	115.24	10.98	0.1830	*	0.8109
Q20 I demonstrate that prob	118.21	11.18	-0.1234	*	0.8178
Q21 I act in ways that build	115.66	10.61	0.5709	*	0.7986
Q22 I concentrate my full a	117.34	10.93	0.1178	*	0.8164
Q23 I consider the moral an	114.87	11.05	0.1499	*	0.8114
Q24 I keep track of all mis	117.45	10.73	0.2641	*	0.8106
Q25 I display a sense of po	115.89	10.56	0.6377	*	0.7964
Q26 I articulate a compelling	115.39	10.81	0.4855	*	0.8037
Q27 I direct my attention t	117.08	10.96	0.1133	*	0.8153
Q28 I avoid making decision	118.34	11.22	-0.2140	*	0.8188
Q29 I consider an individua	115.42	10.84	0.3506	*	0.8064
Q30 I get others to look at	115.39	10.79	0.5613	*	0.8025
Q31 I help others to develop	115.45	10.67	0.6869	*	0.7983
Q32 I suggest new ways of l	115.82	10.95	0.3039	*	0.8084
Q33 I delay responding to u	118.18	11.28	-0.2831	*	0.8222
Q34 I emphasize the important	115.29	10.96	0.2689	*	0.8090
Q35 I express satisfaction	115.18	10.80	0.5032	*	0.8033
Q36 I express confidence the	115.34	10.73	0.6006	*	0.8006
Q37 I am effective in meeting	115.71	10.75	0.6015	*	0.8012
Q38 I use methods of leader	115.55	10.74	0.6416	*	0.8005
Q39 I get others to do more	115.92	10.71	0.5918	*	0.8002
Q40 I am effective in repre	115.16	10.88	0.3656	*	0.8066
Q41 I work with others in a	115.42	10.97	0.2682	*	0.8092

Q42 I heighten others desire to	115.53	10.81	0.4539	*	0.8042
Q43 I am effective in mee_1	115.18	10.98	0.2452	*	0.8096
Q44 I increase others willingness	115.66	10.93	0.3632	*	0.8074
Q45 I lead a group that is	115.18	10.89	0.3895	*	0.8064

APPENDIX C

Cronbach Alpha-Omitted Item Statistics, Dependent Variables

APPENDIX C

Cronback's Alpha—Omitted Items Statistics, Dependent Variables

Table C1

Cronbach Alpha for each Individual DV Question—Omitted Item Statistics

Omitted Variable	Adj. Total *M*	Adj. Total *SD*	Item-Adj. Total Corr	Squared Multiple Corr	Cronbach's Alpha
Q46 I review the department	34.439	5.418	0.5307	0.5704	0.8561
Q47 I evaluate and develop	34.561	5.670	0.4850	0.4180	0.8577
Q48 I budget in useful segm	34.366	5.553	0.6373	0.4989	0.8493
Q49 I use cross-functional	34.488	5.745	0.3309	0.3879	0.8656
Q50 I quantify desired outc	34.634	5.379	0.7162	0.6421	0.8419
Q51 I establish and employ	34.854	5.420	0.6277	0.5107	0.8479
Q52 I consider innovative f	34.561	5.500	0.5031	0.5014	0.8570
Q53 I evaluate and compare	34.463	5.491	0.7308	0.6069	0.8439
Q54 I identify gaps between	34.512	5.455	0.7689	0.7212	0.8413
Q55 I use established perfo	34.585	5.541	0.5945	0.5658	0.8510
Q56 I periodically monitor	34.976	5.502	0.3678	0.3225	0.8726
Q57 I evaluate the budget d	34.341	5.637	0.4627	0.4162	0.8587

APPENDIX D

Descriptive Statistics for Each Independent Variable Survey Question

APPENDIX D

Descriptive Statistics for Each Independent Variable Survey Question

Table D1

Descriptive Statistics by Survey Question for Independent Variables

	N	*M*	*SD*	Minimum	Median	Maximum
Transformative II att variable						
Q10 I instill pride in others	42	2.88	1.03	0	3	4
Q18 I go beyond self-interest	42	3.52	0.55	2	4	4
Q21 I act in ways that builds	42	3.05	0.84	0	3	4
Q25 I display a sense of po	42	2.79	0.87	0	3	4
Transformative II behavior variable						
Q6 I talk about my most importa	42	3.24	0.69	2	3	4
Q14 I specify the importance	42	3.4	0.63	1	3	4
Q23 I consider the moral an	42	3.83	0.38	3	4	4
Q34 I emphasize the important	42	3.38	0.54	2	3	4
Transformative IM variable						
Q9 I talk optimistically a	42	3.55	0.5	3	4	4
Q13 I talk enthusiastically	42	3.45	0.55	2	3	4
Q26 I articulate a compelling	42	3.24	0.66	2	3	4
Q36 I express confidence th	42	3.33	0.65	2	3	4
Transformative IS variable						
Q2 I reexamine critical a	42	3.29	0.67	1	3	4
Q8 I seek differing perspectives	42	3.5	0.51	3	3.5	4
Q26 I articulate a compelling	42	3.24	0.66	2	3	4
Q32 I suggest new ways of l	42	2.9	0.58	2	3	4
Transactional IC variable						
Q15 I spend time teaching a	42	3.12	0.67	2	3	4
Q19 I treat others as individuals	42	3.43	0.63	2	3.5	4
Q29 I consider an individua	42	3.31	0.72	1	3	4
Q31 I help others to develop	41	3.22	0.61	2	3	4
Transactional CR variable						
Q1 I provide others with a	42	2.98	1.18	0	3	4
Q11 I discuss in specific t	42	3.1	0.69	1	3	4
Q16 I make clear what one c	42	2.79	0.93	0	3	4
Q35 I express satisfaction	42	3.5	0.59	2	4	4
Transactional ME variable						
Q4 I focus attention on ir	42	2.31	1.12	0	2	4
Q22 I concentrate my full a	42	1.31	1.16	0	1	4

Q24 I keep track of all mis	42	1.14	1.22	0	1	4
Q27 I direct my attention t	42	1.48	1.07	0	1	4
Laissez-faire LF variable						
Q5 I avoid getting involve	42	0.36	0.93	0	0	4
Q7 I am absent when needed	42	0.57	1.02	0	0	4
Q28 I avoid making decision	42	0.33	0.53	0	0	2
Q33 I delay responding to u	42	0.45	0.63	0	0	2
Laissez-faire ME variable						
Q3 I fail to interfere until	42	1.19	1.09	0	1	4
Q12 I wait for things to go	42	0.62	0.62	0	1	2
Q17 I show that I am a firm	42	0.98	0.95	0	1	4
Q20 I demonstrate that prob	42	0.48	0.63	0	0	2

APPENDIX E

Descriptive Statistics for Each Dependent Variable Survey Question

APPENDIX E

Descriptive Statistics for Each Dependent Variable Survey Question

Table E1

Descriptive Statistics by Question for Dependent Variables

Variable	*N*	*M*	*SD*	Minimum	Median	Maximum
Q51 I establish and employ	42	2.86	0.84	1	3	4
Q55 I use established perfor	42	3.1	0.73	1	3	4
Managerial variable						
Q48 I budget in useful segm	42	3.31	0.68	2	3	4
Q52 I consider innovative f	42	3.14	0.87	1	3	4
Integration variable						
Q46 I review the department	41	3.27	0.98	1	4	4
Q47 I evaluate and develop	42	3.14	0.61	1	3	4
Q50 I quantify desired outco	42	3.07	0.81	1	3	4
Q54 I identify gaps between	42	3.19	0.67	1	3	4
Optimization variable						
Q49 I use cross-functional	42	3.21	0.65	2	3	4
Q56 I periodically monitor	42	2.74	1.08	0	3	4
Budget Variable						
Q53 I evaluate and compare	42	3.24	0.66	1	3	4
Q57 I evaluate the budget d	42	3.36	0.69	2	3	4

APPENDIX F

Figures F1-5, Normality and Independence Graphs for Each Criterion Variable from Regression Analysis

APPENDIX F

Figures F1-5, Normality and Independence Graphs for Each Criterion Variable from Regression Analysis

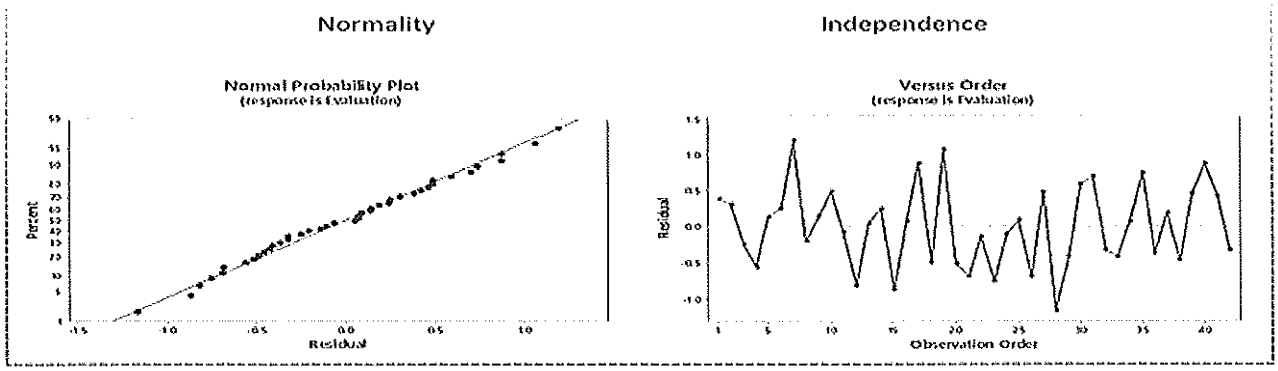

Figure F1. Normality and independence graphs for evaluation CV.

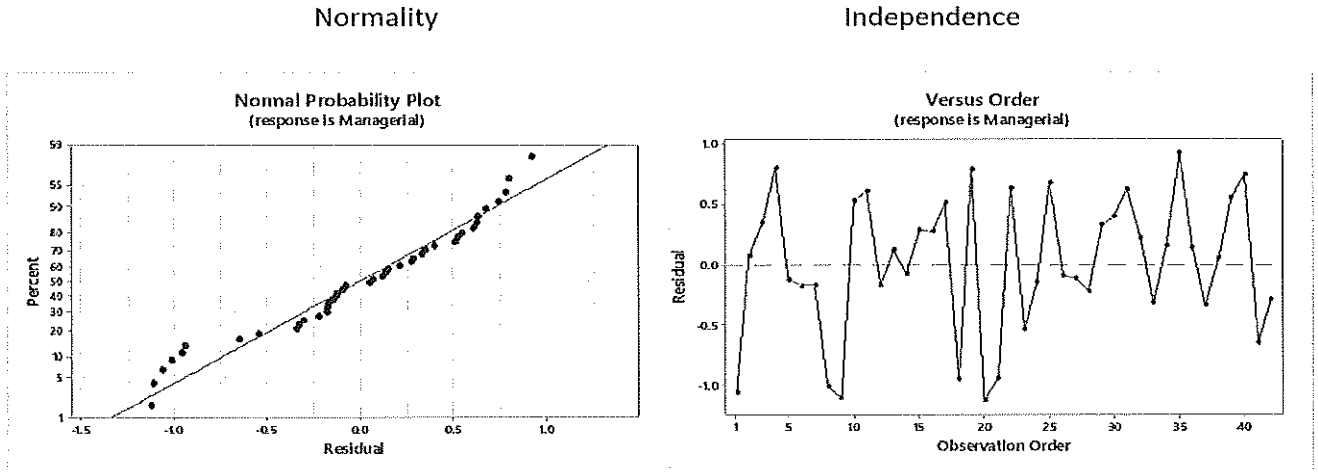

Figure F2. Normality and independence graphs for managerial flexibility CV.

Normality Independence

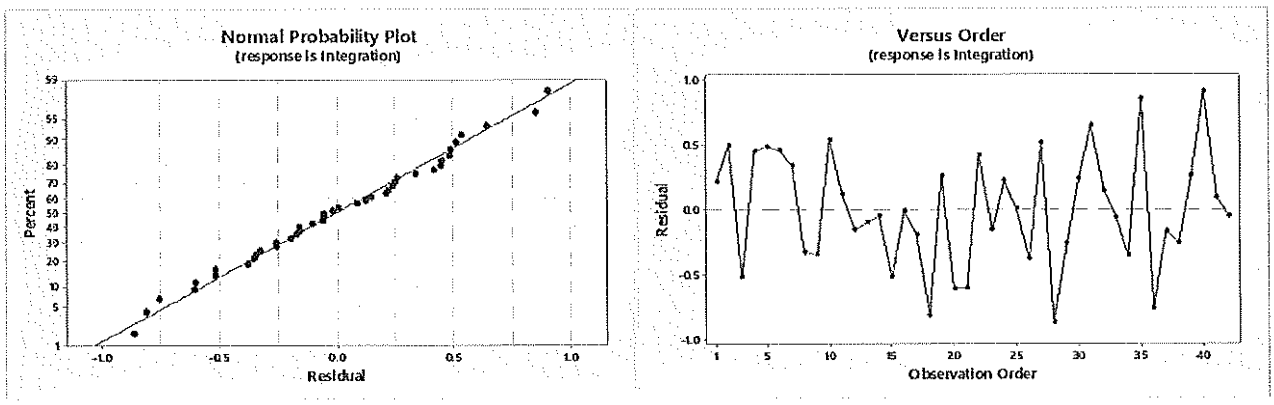

Figure F3. Normality and independence graphs for integration of organizational goals CV.

Normality Independence

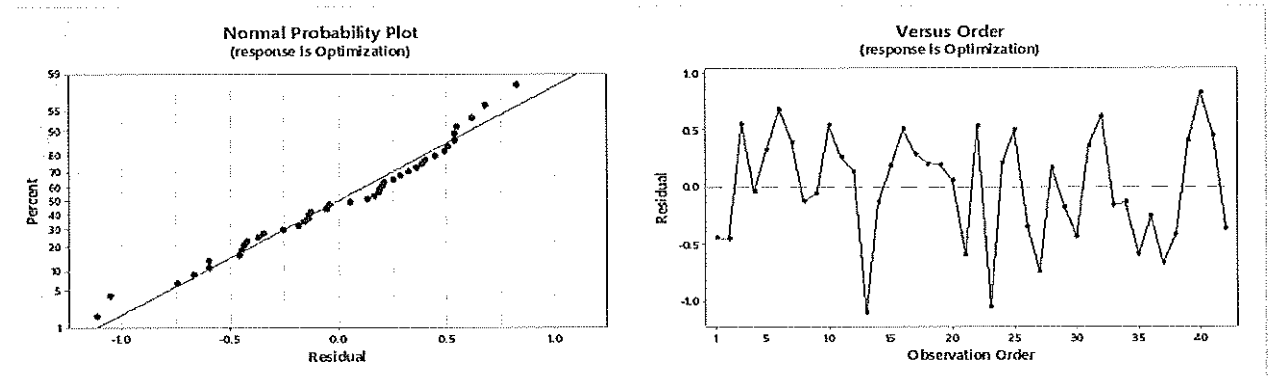

Figure F4. Normality and independence graphs for optimization of project success.

Normality Independence

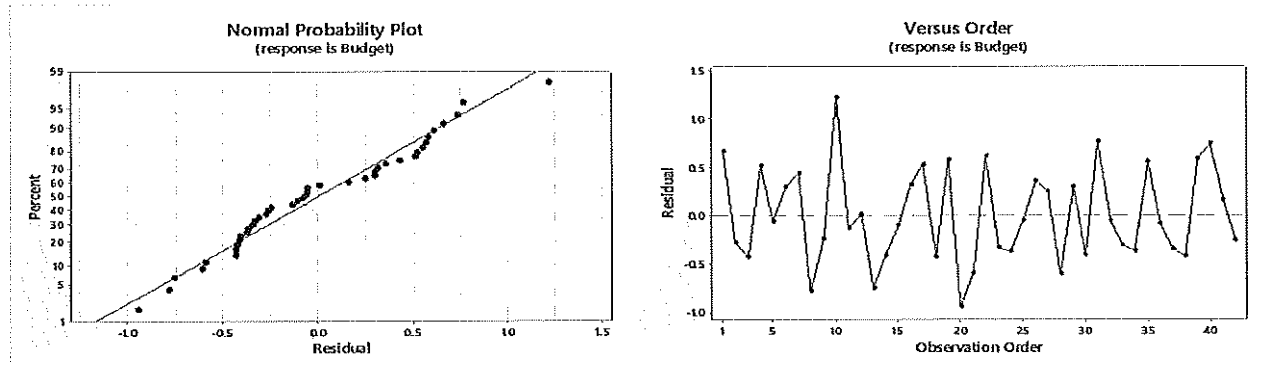

Figure F5. Normality and independence graphs for Budget Results Evaluation CV.

APPENDIX G

Multiple Regression Model Summaries for Criterion Variables, Including R^2

APPENDIX G

Multiple Regression Model Summaries for Criterion Variables, Including R^2

Table G1

Evaluation CV Regression Model Summary

S	R^2	R^2 (adj)
0.295	31.11%	27.19%

Table G2

Managerial Flexibility CV Regression Model Summary

S	R^2	R^2 (adj)
0.456	23.12%	19.56%

Table G3

Integration CV Regression Model Summary

S	R^2	R^2 (adj)
0.156	41.03%	32.56%

Table G4

Optimization CV Regression Model Summary

S	R^2	R^2 (adj)
0.281	37.99%	29.56%

Table G5

Budget CV Regression Model Summary

S	R^2	R^2 (adj)
0.652505	16.99%	13.46%

APPENDIX H

Permission to Use Copyright Material

APPENDIX H

Permission to Use Copyright Material

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