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Assessing Information Technology and Business Alignment in Local City Government

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
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2016

Abstract

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MBA, DeVry University, 2008

BS, DeVry University, 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Top executives are interested in more transparent and formalized structures, applicable measurements, and clear justification of alignment. Limited or improper information technology governance (ITG) affects the business strategy that will ultimately influence the overall business alignment in local city government agencies (LCGAs). The problem addressed in this study was the lack of information regarding LCGAs IT/business strategic alignment maturity model (SAMM) level and the LCGAs' employment size. The purpose of this survey study was to evaluate 48 LCGA participants in the Southwestern part of the United States and compare their alignment perceptions with their cities' employment size. The theoretical framework for this study was based on ITG and business strategy as measured by the SAMM instrument. An online survey was used for data collection and data results were analyzed using descriptive statistics and an Analysis of Variance. After using the SAMM instrument, the current snapshot maturity level of LCGAs was 2.49 out of a maximum 5.0 level. Results illustrated no significant relationship between LCGAs alignment maturity levels and a city's size. This study empowers positive social change by providing LCGAs 6 incremental steps to improve the overall alignment maturity level in areas of transparent and formalized structures, applicable measurements, and improved alignment measures.

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Dedication

I dedicate this dissertation as a believer in Jesus Christ who deserves all the glory, honor, and praise for providing me this opportunity to reach this level of education. May I use all of God's blessings to fulfill my purpose here on earth!

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My family has been my biggest supporter throughout this entire process. My wife, Angellicia D'Anjou, daughter, Avyannah D'Anjou, and son, Levi D'Anjou have been great supporters. Having my soul-mate, Angellicia, understand the time requirement demanded from a Ph.D. makes me more in love with her. She has been my balance throughout this entire process. She has given me just what I needed in love, support, understanding, patience, and leeway to dig-in and complete this journey. Thanks, much Honey! I love you with all my heart. Special thanks much also go out to my Dad and Mom, John & Ruth D'Anjou, who have been my voice of reason, prayer warriors, and support. I must also thank my two brothers and their families; John D'Anjou Jr., Santita D'Anjou, John D'Anjou III, and Johanna D'Anjou; along with James D'Anjou, Kessa D'Anjou, Ezra D'Anjou, and Eliana D'Anjou. Extended thanks must also go out to my Father-In-Law, Richard Schultz, Mother-In-Law, Joylin Harding, Brothers-In-Law, Philip Whyte, Sister-In-Law, Alisa Whyte, my little brother Aaron Schultz (expecting to call you Dr. Schultz soon), and my Aunty Judy Griffith.

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Lastly, I would like to acknowledge Walden University for providing me with the vessel to attain this high honor in completing my Ph.D. The bold idea to have all Ph.D. Students focus on social change was and is tangible and attainable. All of the resources, user-friendly online classes, residencies, and knowledge gained have given me the ability to complete this great task. I would recommend Walden University to anyone who is looking for a high quality higher education. Through Walden, I was able to be in contact, work with, and gain invaluable insight from Dr. Luftman, the subject matter expert of the IT/business strategic alignment-maturity assessment tool. Thank you Dr. Luftman for taking your valuable time to spend it with me.

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Chapter 1: Introduction to the Study

Luftman (2000) described information technology (IT) and business alignment as a harmonic relationship. Chen (2010) has likewise asserted that IT and business must be in harmony for them to align correctly. An in-depth understanding of IT and business can be achieved by understanding information technology governance (ITG) and business strategy. It is noted that De Haes and Van Grembergen (2009) found that there is a positive relationship between IT/business alignment and the usage of information technology governance (ITG). Business strategy is measured by how well an organization performs as it relates to structure, processes, and its environment (Croteau & Bergeron, 2001). These two topics inform the examination of IT/business alignment in local city government agencies (LCGAs).

Chapter 1 includes the following sections: background of the study, problem statement, purpose statement, research questions/hypotheses, nature of the study, definition of terms, assumptions, scope/delimitations, limitations, significance of the study, and a summary. Across this chapter, I assert that alignment must be imperative to LCGAs because misalignment causes organizational failure (Chen, 2010). This chapter also includes the initial implications for positive social change as it relates to IT and business alignment.

Background of the Study

Building a good understand of how LCGAs can influence everyone's way of life can help demonstrate why proper alignment is necessary. In this background section, I provide information needed to comprehend LCGAs structures, ITG structures, and

business strategies structures. Each of these subsections is necessary to build a sound foundation.

Local City Government Agencies (LCGAs)

According to Abels (2014), LCGAs have been forced to realign their financial dependency, practices, and structures to what is today called “the new normal” in government. The new norm consist of citizens’ increased demands for local services while budgetary dynamics are increasingly austere in the face of decreases in funding from federal and state agencies (Abels, 2014). In the past, LCGAs could depend on federal and state funding, but after the Great Recession things have changed. Less money is available, but more demand is being experienced.

The citizens served by a LCGA expect a particular level of support. Abels (2014) noted that citizens expect a better quality of life, air to breathe, and safe water to drink. He noted further that citizens also expect to enjoy recreation facilities, have access to jobs high-quality schooling, live in safe communities, and care for the less fortunate (Abels, 2014). In terms of organizational structure, citizens see themselves on top of the organizational chart. Citizens insist that their expectations and needs must be the driving force in the direction in which LCGAs progress.

Most LCGAs have organizational charts that are similar. They place their citizen as head of their organizational chart followed by the mayor or council members, and then the city employees. The intentions of LCGAs based on their organizational chart are note worthy but Abels (2014) noted that even though citizens were aware and invited to the planning stages, they had limited influence on the overall strategic plans.

Figure 1 displays a general structure of LCGAs' overall strategic alignment as it relates to its citizens. Citizens are the stakeholders of the city. Their taxes account for more than half of the accounts receivable. Their feedback and the city council's approval help create the community plan. Abel (2014) has suggested that citizens have no impact on the overall strategic plan, but many cities have taken the step to include citizens through the development of a community plan. In the strategic alignment, the city council functions as the board of directors for LCGAs. They are the liaisons and decision makers between the citizens and the city management. The organizational strategy should be static and constant eliminating biases from change leadership.

Then city management has the task to align and fulfill the community plan. They do this by conducting organizational assessments of the city status, employee feedback, strategic plan, departmental strategic and operational plans, and performance reviews. There are constant checks and balances to verify and validate that work is being performed at the highest standard possible. Alignment must occur to maximize performance.

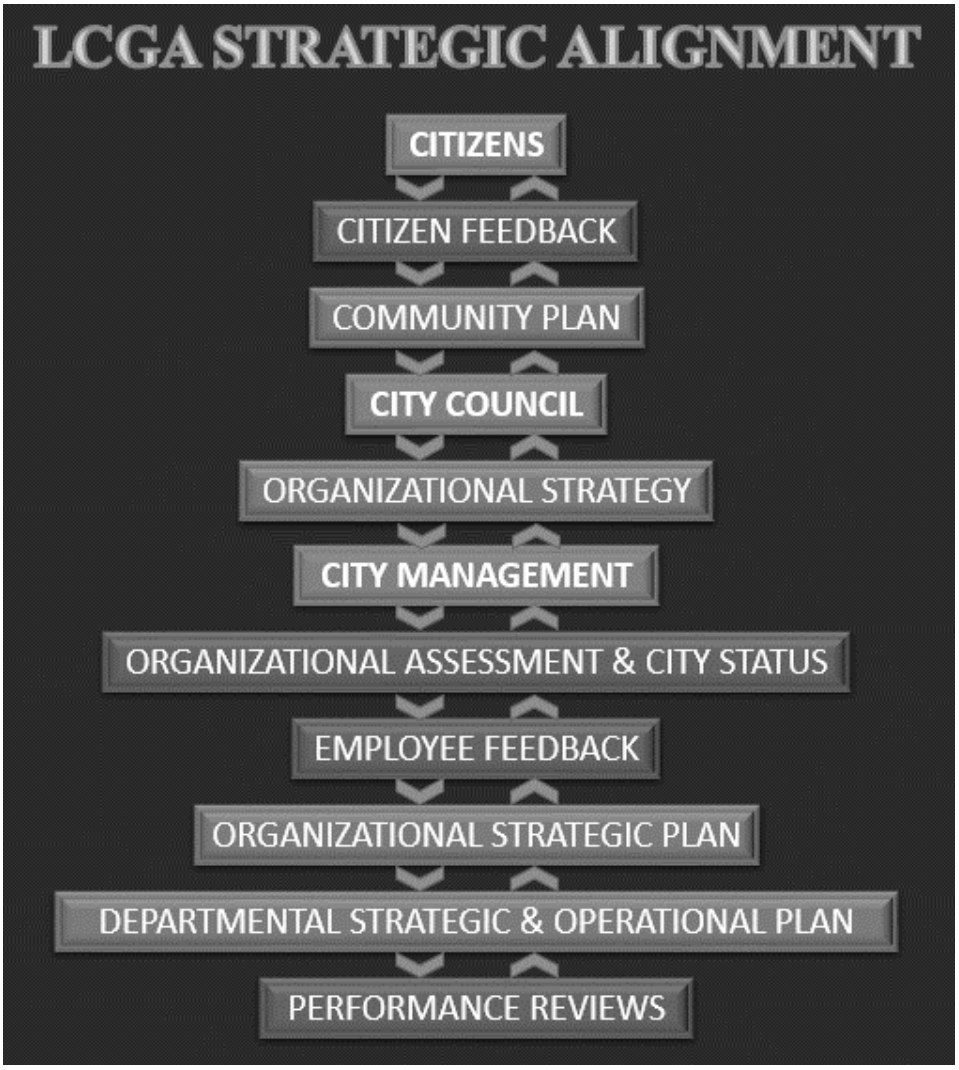

Figure 1. LCGAs strategic alignment structure.

Many factors have changed the perspectives of LCGAs. Martin, Levey, and Cawley (2012) noted that the results from the great recession of 2008 have changed the dichotomy of LCGAs in services and employment. Now, LCGAs has to use new business strategies to deal with the new normal. Abels (2014) suggested that they refocus their mission, reestablish processes and efficiencies, and learn to cope with less.

The new normal of LCGAs can be described as a fiscal environment characterized by restrained revenues and limited expenditures (Martin et al., 2012). According to Abels (2014), regional collaboration among other LCGAs organization can provide a real solution to financial burdens. Another suggestion is to increase taxes, but most citizens do not want to hear about or support tax increases. Martin et al. (2012) noted that the Government Finance Officers Association (GFOA) recommended fees such as building, parks and recreation, false alarms, title searches, tree planting, voter's information, permits, and the like to increase funding. As funding decreases in one or more ways, funding will be acquired in another way. Privatization of many city functions and a new set of hidden taxes that comes in the forms of fees and requirements will influence social change in the new normal. Each LCGA must find ways to improve systems to eliminate waste.

Another perspective of the new normal is in the employment arena. According to Martin et al. (2012), new LCGAs hires will have limited compensation and benefits packages. These authors also noted that job cuts, stagnant salaries, and fewer jobs will be available within LCGAs (Martin et al., 2012). According to the Annual Questionnaire of Public Employment (2014), 22 million jobs in 2013 were in the public sector, of which 63% of those jobs are in LCGAs. Before the great recession, a government job was desirable. In the new normal environment, employment will be reduced marginally (Abels, 2014). Therefore, top executives need to find better ways of meeting and exceeding demand with fewer resources.

Moreover, another factor in the new normal environment are employee benefits. According to Martin et al. (2012), LCGAs can expect to have a smaller workforce with fewer benefits. The Annual Questionnaire of Public Employment (2014) noted that in the year 2012, LCGAs lost 156,877 jobs. It is becoming more difficult for cities to attract top talent. Many employees are looking to the private industry for higher wages and better benefits. City employees are required to do more with fewer benefits. There is no longer the attraction of having better benefits while working for local government. As employment is being reduced and likely will continue in the future, top executives need a plan to manage the additional workload. It is important to know how well LCGAs aligns based on their current full-time employee (FTE) sizes in order to meet the demands of the new normal.

Finding new ways to provide services in the new normal is a need that top executives are looking to improve. Martin et al. (2012) described how LCGAs would have to make hard decisions as to which service should stay or go, how to pay for it, and who should deliver it. Even though the demand for services is increasing, the supplied services are being decreased and the citizens will pay more and receive less. This overview has offered a brief description of LCGAs. It is clear that these agencies have taken on a new normal after the great recession. As the demand increases and the funding decreases, the LCGAs have to find ways to make better use of the limited resources.

IT/Business Alignment

This study focused on IT and business alignment by first, looking at IT in terms of ITG, and second by looking at business in terms of business strategy. Chen (2010) noted

that in order to achieve alignment, organizations must understand that it is an ongoing effort in designing business strategies, implementing best business practices, realigning goals, and continually improving strategic planning. The strategic alignment maturity model (SAMM) instrument is the tool that measures the maturity level between IT/business.

I used an executive perspective to examine ITG and business strategy externally and internally. In the early 1990s, ITG started gaining increased use in commercial and government agencies. According to Magnusson and Bygstad (2013), ITG is now gaining rapid approval both academically and professionally. The literature has demonstrated how a component of ITG is a critical component of strategic alignment and has presented SAMM as a viable instrument for assessing business alignment. For instance, Luftman (2000) assessed business/IT alignment using SAMM to understand the maturity levels of businesses. Using Luftman's SAMM instrument, Chen (2010) studied how companies in China align in terms of business/IT by. Similarly, I sought to add to this body of knowledge by examining the maturity levels in LCGAs in the southwest region of the United States.

Aligning ITG with business strategy is important for any organization because it provides performance improvements (Chen, 2010). Jairak and Praneetpolgrang (2013) described ITG in term of three perspectives including decision rights and accountability, business and IT strategies, and structure and processes. Building on these perspectives, my study focused on examining IT/business strategic alignment as measured by the SAMM instrument. Top executives of government agencies need to understand the

relationship between ITG and their business strategy alignment to understand where they are at and what it will take to advance to the next level.

In addition, many government agencies face accounting irregularities such as unbalanced budgets, debt, and request for bankruptcy. There is a need to examine the relationship between ITG strategic alignment and business strategy alignment in terms of the financial health of any organization (Kuhn, Ahuja, & Mueller, 2013). One example of the most critical policies that affect both the private agencies directly and public agencies indirectly is the Sarbanes-Oxley Act (SOX) of 2002. Producing corporate accountability has been the driving force for the federal mandates.

According to Jacobson (2009), ITG is a subclass of corporate governance or corporate business strategy. Kuhn, Ahuja, and Mueller (2013) indicated that insufficient awareness or misunderstanding of operational controls could potentially lead to financial loss. According to Abu-Musa (2009), ITG is quickly becoming the standard by which most organizations use to comply with state/federal policies. If government agencies ignore the failures of publicly traded agencies in providing effective ITG, then accounting irregularities may be imminent. The accounting irregularities of Enron resulted in the most widely reported violation of all time. Having proven alignment standards in place can help to cultivate good behavior and identify wrongdoings.

Creating an environment that has proven alignment standards is essential to LCGA. According to Wong, Ngan, Chan, and Chong (2012), IT/business alignment is the perfect application for measuring the IT support of the organization's needs, goals, and strategies. El-Mekawy, Rusu, and Perjons (2015) noted that IT/business alignment

improves when business places the value on IT. Achieving alignment is a continuous effort at shaping the strategies of the business, implementing best practices, realigning goals, and planning strategically (Chen, 2010). Strategic IT/business alignment is important today and will be in the future for any organization.

Several ITG methodologies exist to help govern an IT department. Methodologies such as Information Technology Infrastructure Library (ITIL), Control Objectives for Information and Related Technology (COBIT), and Information Security Framework dominate the ITG framework. These ITG methodologies help to document the best practices and formal approaches for organizations to follow strategically.

Figure 1 shows that IT/business strategy alignment falls directly under city management in the organizational framework tool. City managers should be consistently assessing each process, department, and their agency as a whole. If there are no assessment or checks and balances of processes, then there will be no urgency to improve. I used an assessment tool for LCGAs as it relates to IT/business strategy alignment.

Summary

Therefore, one of the ways LCGAs can eliminating waste and maximize their limited resources is through proper IT/business alignment. Financial, employment, and services are areas affected in the new normal of LCGAs. Each of these areas will affect everyone (LCGAs employees, city management, council members, and residents/citizens) in some way or form. Even though IT and business alignment only addresses a small subset of the bigger issue, IT/business alignment address the potential

for internal disaster. According to Chen (2010), misalignment leads to disastrous failures, canceled/redundant projects, and systems failing to meet business needs, business user's dissatisfaction, and high costs.

Problem Statement

Aligning IT and business is a crucial issue for IT executives (Khaiata & Zualkernan, 2009). Chen (2010) noted that the number one concern of IT management and business executives is to understand how IT and business align. Luftman, Ben-Zvi, Dwivedi, and Rigoni (2010) have collected a benchmark repository of over 2,000 organizations measuring IT/business alignment using the SAMM instrument. Only one organization out of 2,000 agencies within Luftman's benchmark repository was a government agency. The problem my study sought to address was the lack of information regarding LCGAs IT/business strategic alignment maturity level and its employment size. The goal of this study was to understand how a city's strategic alignment maturity level might affect large, medium, and small city employment size and to understand its current maturity level.

Purpose of the Study

The purpose of this quantitative survey study was to conduct an IT/business strategic alignment maturity assessment of several cities in the southwestern part of the United States. I compared these maturity assessments to the cities' employment sizes. According to Khaiata and Zualkernan (2009), the primary objective of SAMM is to understand IT and business alignment in a simplistic format. According to the CobiT 4.1 excerpt (2014), the average enterprise strategic alignment maturity level is Level 2. My

intent was to understand the average maturity level of LCGAs and recommend steps to improve alignment. I first used the SAMM instrument to question top executives within LCGAs and second examined the relationship between a city's IT/business strategic alignment maturity level and its employment size.

The primary dependent variable for this study was the SAMM level of LCGAs. This variable consists of six secondary IT/business alignment criteria. These secondary variables were communications maturity (Comm), competency & value maturity (Comp), governance maturity (Gov), partnership maturity (Part), scope & architecture maturity (Scope), and the human resource skills maturity (Skills) levels. Full-time employment size (FTEsize) was the dependent variable. I used the terms *small*, *medium*, and *large cities* distinguish different LCGAs sizes. Both the independent and dependent variables may have significant for LCGAs. They identify the LCGAs strategic alignment maturity level and define how the size of the city's FTE affects alignment.

Research Question

The research question organizing this study was: What was the relationship between a city's IT/business strategic alignment maturity level and its employment size? The hypotheses associated with this question were:

H1o: There was no relationship between a city's IT/business strategic alignment maturity level and its employment size.

H1a: There was a relationship between a city's IT/business strategic alignment maturity level and its employment size.

H2o: There was no relationship between a city's IT/business communication maturity level and its employment size.

H2a: There was a relationship between a city's IT/business communication maturity level and its employment size.

H3o: There was no relationship between a city's IT/business competency and value maturity level and its employment size.

H3a: There was a relationship between a city's IT/business competency and value maturity level and its employment size.

H4o: There was no relationship between a city's IT/business governance maturity level and its employment size.

H4a: There was a relationship between a city's IT/business governance maturity level and its employment size.

H5o: There was no relationship between a city's IT/business partnership maturity level and its employment size.

H5a: There was a relationship between a city's IT/business partnership maturity level and its employment size.

H6o: There was no relationship between a city's IT/business scope and architecture maturity level and its employment size.

H6a: There was a relationship between a city's IT/business scope and architecture maturity level and its employment size.

H7o: There was no relationship between a city's IT/business human resource skills maturity level and its employment size.

H7a: There was a relationship between a city's IT/business human resource skills maturity level and its employment size.

Theoretical Framework

The theoretical framework for this study was based on ITG and business strategy as measured by the SAMM instrument. Both of these theories help form the framework of why this study was needed. Most of the literature refers to alignment as it relates to the private sector. I will look at how the private sector have used these theories identify their maturity level and apply it to LCGA.

According to Ali and Green (2012), effective ITG is vital for an organization to fulfill corporate performance goals. Standardization and best-practice approaches along with modernization of management all characterize sound ITG (de Souza Bermejo & Tonelli, 2011). The theoretical framework of this study could contribute to the knowledge base of top executives, and inform their efforts to make the connection between ITG strategic alignment and strategic business alignment.

Top executives should want their overall business strategy to be inclusive of all departments. Avison, Jones, Powell, and Wilson (2002) have defined business strategy variables as including the business scope, business governance, and distinctive competencies. Raghupathi (2007) suggested that drivers for business strategy could be external through compliance with state/federal policies and internal through strategic performance measures as it relates to ITG. Business strategy looks at the overall need of an organization. It should focus on the customer need as well as the business requirement need while eliminating waste.

One way of combining these two theories together and assessing results is to use a SAMM instruments. Luftman developed the strategic alignment maturity model (SAMM) using six factors of maturity: “communication, competency, governance, partnership, technology scope, and skills” (Chen, 2010). According to Khaiata and Zualkernan (2009), SAMM identified six factors of maturity along with five levels of maturity to include initial/ad hoc (Level 1), committed (Level 2), established/focused (Level 3), improved/managed (Level 4), and optimized (Level 5). Chen (2010) described the SAMM instrument as an alignment assessment tool that evaluates IT and business alignment maturity attributes. Luftman (2000) and Chen (2010) cross-validated and analyzed this instrument.

There is limited knowledge that addresses alignment between ITG and business strategy in LCGAs. Most of the literature focuses on the private industries. Only one out of over 2,000 companies assessed by SAMM have been a government agency. I plan to use these theoretical foundations and apply it to LCGAs.

Nature of the Study

I used a quantitative web survey to collect data and test the hypotheses. According to Leedy and Ormrod (2005), survey research is designed to learn more about a large population using a sample of that population. Singleton and Straits (2010) stated, "One purpose of the survey is to describe the frequency of certain characteristics among groups or populations" (p. 9). The frequency can show if there is a significant relationship between variables. The target population for this study was specific to randomly selected LCGAs within the southwestern region of the United States.

This study used results collected from a web survey. Similar to Luftman et al. (2010) and Chen (2010), I examined the relationship between a city's IT/business strategic alignment maturity level and its employment size. I collected data using Luftman's (2010) SAMM instrument and distributed the survey to senior managers and leaders within LCGAs. I used SurveyMonkey as the web-based survey tool to distribute the SAMM instrument via an email link. Target participants were mayors, city council members, city managers, deputy city managers, directors, managers, subject matter experts, and senior IT personnel.

I analyzed the data using the Statistical Package for the Social Sciences (Version 21). I used both descriptive statistics and inferential analysis to identify the frequency, mean, and standard deviation. I used a one-way ANOVA instead of Pearson correlation to measure mean differences. This analysis shows the maturity level of local government agencies compared with its employment size.

Definition of Terms

Throughout this study, I identify literature precise words, phrases, and studies that need clarity. Below is a list of terms defined for clarity:

Business strategy: is the overall organizational strategy of LCGAs. This strategy should always be constant in its subcategories or parts but unique to each organization. A metaphor of this concept is the body. It is made up of many different parts such as the head, nose, lips, and ears. No head, nose, lips, or ears are exactly the same. They are all unique. Similarly, business strategy must be constant in subcategory or parts but unique to each organization.

CobiT: A methodology used by organizations to comply with SOX. CobiT is a model for IT management that consist of internal controls and holistic operations controls (Hong, Chi, Chao, & Tang, 2003).

FTEsize: Full-time employment size is the independent variable grouped into three categories; small, medium, and large.

Global Status Report on the Governance of Enterprise IT (GEIT): A 2011 study uses to measure ITG maturity level.

Governance: According to Palczewska, Fu, Trundle, and Yang (2013), governance is a collection of strategies and processes that formally manages problems. I used governance in a similar manner in this study.

Information technology governance (ITG): An enterprise management approach that links technology to business strategy. According to Robinson (2005), "IT governance is to create a controlled environment for desirable actions to drive the effective, efficient, and secure use of information technology" (p. 45).

Information technology infrastructure library (ITIL): A methodology that is used by organizations to comply with SOX. "The ITIL is a framework of best practices intended to facilitate the delivery of high quality IT services at a justifiable cost" (Galup, Dattero, Quan, & Conger, 2009, p. 125).

ISO/IES 20000: A methodology used by organizations for IT service management. According to Janssen and Schrenker (2011), ISO 20000 is the most known and considered best practice in the IT service management standard.

ITG Maturity Levels: The ITG maturity levels consist of six levels: nonexistent, initial, repeatable, defined, managed, and optimized (Alcott, 2008).

LCGAs: Local city government agencies consist of towns and cities ranging in size greater than 400 and less than 1,000 full-time employees.

Sarbanes-Oxley Act of 2002 (SOX): This is a federal mandate that attempts to stop accounting irregularities. Brochet (2010) stated that, "The Sarbanes-Oxley Act of 2002 (SOX) is a far-reaching federal law aimed at improving the reliability of both corporate governance and the financial reporting process" (p. 419).

Strategic Alignment Model (SAM): According to Chan and Reich (2007), SAM includes four core strategic choice variables, which are business strategy, organizational infrastructure/processes, IT strategy, and IT infrastructure/processes.

Strategic Alignment Maturity Model (SAMM): Luftman developed SAMM that included six maturity criteria such as communication, competency, governance, partnership, technology scope, and skills (Luftman, 2000).

Assumptions

Several assumptions were made in this study that I describe in detail so that the readers can understand and analyze the context of the data from my perspective. First, I assumed that top executives within LCGAs want to understand how ITG and business strategy align. Second, I assumed that the variables covered in this study were adequate to examine the relationship between a city's IT/business strategic alignment maturity level and its employment size. Third, I assumed that the collected data sample, although small, was a good representation of local city governmental workspaces in the

southwestern region of the United States. Fourth, I assumed that government agencies had some level of ITG and business strategy to meet their organization's strategic needs. Fifth, I assumed that the SAMM instrument would adequately measure business strategy alignment in LCGAs. Finally, I assumed that alignment between ITG and business strategy would help to identify the maturity level of a local city government agency.

Limitations

There are limitations in every study. For this study, factors not considered in this design could potentially change the conclusions drawn. This study's limitations include:

1. Data were collected and analyzed from a web survey. Original data were collected using proper research procedures.
2. Data retrieval for the dataset came from SurveyMonkey. Variables are static and fixed.
3. While the sample size may be appropriate for this study, it may not be accurate represent all LCGAs across the U.S.
4. There are also unknown variables not covered that may affect the outcome of the survey.
5. Limited knowledge of IT/business alignment could alter the result of this study.

Scope and Delimitations

I conducted an analysis of LCGAs to understand the relationship between a city's IT/business strategic alignment maturity level and its employment size. The sample used in this study was LCGAs within the Uunited States. According to Leedy and Ormrod (2005), delimitations are the explicit limits and boundaries of the research effort. Then

the four delimitations of this study were (a) that it was limited to LCGAs senior management participants, (b) that data was collected and analyzed using an online survey, (c) that LCGAs were all located in the southwestern region of the United States, and (d) that web-based participation in this survey was on a volunteer basis.

Significance of the Study

Significance to Theory

Chen (2010) noted that it is important to understand how IT and business harmonize because this understanding leads to performance improvements. According to Martin et al. (2012), LCGAs experience and expect marginal changes in finances, employment, and services (Martin et al., 2012). The results of this study may provide LCGAs with significant insights to their IT/business alignment maturity level. I drew specific knowledge from top executives in LCGAs in areas such as communication, competency/value, governance, partnership, technology scope, and skills to understand their IT/business alignment maturity level. By producing such insights, this study shows LCGAs the relation between maturity level and employment size. This study is relevant to current discussions regarding both alignment in general, and to best practices in city management in particular, because IT/business alignment can contribute to improving government agency finances, employment, and services today and in the future.

Significance to Practice

Results from this study may provide executive leadership with data indicating the significance using feasible measurements to link IT to business, and may facilitate their understanding of the maturity level of their local city government agency. Currently, ITG

has several methodologies that can help formalize practice and policies. However, the linkage between ITG strategic alignment and business strategy alignment is unclear within LCGAs. Identifying the link(s) can provide government agencies with valuable data to determine where to go and exactly what steps it could take to align ITG with business strategy. My study could provide LCGAs with a proven instrument for identifying what matters and what does not matter as it relates to alignment.

Significance to Social Change

This study empowers positive social change through better communication, competency/value, governance, partnership, technology scope, and skills. Further studies can use these results as benchmarks. This study presents the first known attempt to capture data within LCGAs. These results can also help auditors (internal and external), executives, stakeholders, and add to the body of knowledge. Each of these organizational changes might produce effective city management changes that better server the population in the new LCGAs normal environment.

Summary

Each LCGAs provides some type finance, employment, and service to the residents of their city or town. I estimated that funding from federal and local state agencies to LCGAs would continue to decrease while the demand for services is steadily increasing. Better strategies within LCGAs may result in more success using fewer resources. There is an opportunity to create positive social change within LCGAs by understanding the strategic alignment maturity level based on its employment size.

There are several studies that correlate challenges, needs, and relevance of both ITG strategic alignment and business strategy alignment. However, there are few analyses available to top executives of LCGAs who struggle with understanding where their organization stands in terms of ITG strategic alignment and business strategy alignment LCGAs. Findings of this study may inspire executive leadership to understand where their agency aligns and how to take the steps to improve.

Five chapters are framed this study. Chapter 1 includes the problem and provides an overview of the design and organization of this study. Chapter 2 includes the literature review describing the evolution of IT/business strategic alignment. Chapter 3 contains the quantitative methodology used in this survey study. Chapter 4 describes the findings while Chapter 5 interprets the findings.

Chapter 2: Literature Review

Current literature on IT/business alignment has several focal points that this study addressed. In LCGAS, alignment hinges upon political approval from the customers and stakeholders, internal and external. Effective ITG ensures that the overall IT and business goals align within the organization (Ali & Green, 2012); however, little is known about the relationship between a city's IT/business strategic alignment maturity level and its employment size. According to Singleton and Straits (2010), literature reviews clearly define the problem using the theoretical context, and explain how other researchers have studied similar studies. In this chapter, I seek to do this by presenting the evolving and current literature, and emphasizing only the significant findings (Singleton & Straits, 2010).

This literature review consists of five sections. The first section describes the research strategy. The second section offers a historical overview of the research topic combined with the theoretical framework and reviews the history of ITG and business strategies externally and internally. The third section includes the literature on ITG and business strategy and includes supporting theories, which justify each of my research variables. The fourth section includes a critically synthesis of the opportunities and the barriers in alignment. This section includes the possibilities and obstacles to past research and compares it to present research. Lastly, the fifth section includes the research design that provided the foundation of this study.

Search Strategy

My research data collection strategy included multiple sources such as eBooks, journal articles, online links, and libraries. Walden University's online book collection and research databases such as EBSCOhost, Emerald, ProQuest, Safari Tech Books, Sage Journal Online, and Science Direct provided access to foundational theories and peer-reviewed articles. Additionally I drew from websites included isaca.org, itgi.org, itsmfusa.org, and sec.gov for resources to build the theoretical framework.

Each journal article, eBook, book, and website provided me information needed to understand ITG strategic alignment and business strategy alignment. In what follows, I present past theories along with current research on these topics. I primarily used journal articles published within the past five years to build the theoretical framework of this study. Keyword searches included *ITG*, *ITIL*, *ITSM*, *MIS*, *Sarbanes-Oxley*, *systems thinking*, *business strategy*, *business logic*, *SAMM*, and *system management.*

Theoretical Foundation

The theoretical foundation that forms this study comprised of the theories of ITG strategic alignment and business strategy alignment as is measured by the SAMM instrument. Research literature on LCGAs is scarce and limited in terms of ITG strategic alignment and business strategy alignment. Conversely, private sector agencies have a broader research literature pool. This section includes the origins of each theory, major theoretical propositions, prior research-based analysis, rationale, and a description of how and why each theory relates to this study.

Top executives are expected to conduct governance in areas of executive compensation, financial reporting, statutory/regulatory compliance, strategic planning, and risk management (Bart & Turel, 2010). The federal mandate, SOX, requires top executives to confirm the financial result with direct personal accountability of its accuracy (Wong, Yip, Ray, & Paramesh, 2007). This theoretical review uses the literature to demonstrate how top executives can understand and align ITG with the organization's overall business strategy.

When describing ITG, the Board Briefing on ITG (2003) stated that, "It is an integral part of enterprise governance and consists of the leadership and organisational structures and processes that ensure that the organisation's IT sustains and extends the organisation's strategies and objectives" (p. 10). The responsibility of ITG belongs to top executives such as executives and board members (Board Briefing, 2003). Norton and Pine (2013) described business strategy from a top executive perspective as aligning their organizational goals with the alignment that creates the best value for their customers. This historical outlook of this study includes the development of both ITG strategic alignment and business strategy alignment as is measured by the SAMM.

Each LCGA within the United States must maintain proper alignment between their overall strategic plan and governance of IT to achieve expected performances and achievable results. Chen (2010) noted that alignment between IT and business is measured by how much both systems are in coherence with each other. The historical perspective demonstrated in this study identified how ITG strategic alignment and

business strategy alignment started development from the beginning of the computer era through today.

Computer Era

The developmental years of ITG came in conjunction with the creation and evolution of the first programmable computer in 1936. Shapiro and Benenson (2006) stated that Turing, a British mathematician who created the first programmable computing machine, saw the computer as a person who was able to do everything that it was programmed to do. According to Myers (1998), commercial products such as the use of computer mouse, Windows, and text editing became available for commercial usage in the 1980s. Meyers (1998) went on to describe technological advancements between 1960 and 1980s by identifying progress in such things as the word processor (the 1962 Sketchpad system), CAD systems (1963), Stanford's TVEdit (1965), mouse manipulation (1965), IBMs light pen (1967), William Newman's Markup (1975), the video game Pong (1976), and the Visi-Calc spreadsheet (1977). While the concepts of ITG did not exist between the 1930s and the 1970s, the technological advancements developed during this time built the foundational footprint of ITG today.

According to Diebold (1965), the potential management impact of computers, as it related to American businesses in the future, would change performance on conventional controls. He went on to say that new capabilities, organizational structures, workforce makeup, physical facilities, and external environments would all change based on the advancement of the computer (Diebold, 1965). Diebold's projections of the future

were well founded, and, he was detailed the need for ITG even before it became applicable.

As computers advanced and became more popular in the 1960s and in the 1970s, the literature of the time was concerned with IS management, technical management, and financial improvement. Although ITG was not the term of that time, the research at this stage also advanced the foundation of ITG indirectly, especially with the concept of management of information systems (MIS).

Management of Information Systems Era

In the 1960's, the concept of MIS became widely disseminated. Daniel (1961) noted that the building blocks of MIS start with top executives' information requirements. Additionally, Daniel (1961) laid out an exhibit of the anatomy of a management information system that covered such topics as environmental data, competitive data, internal data, planning, execution, controls, feedback, nonfinancial data, financial data, management functions, and information systems characteristics. According to Google Scholar, over 650 articles have cited Daniel's article "Management Information Crisis." Rockart (1979) used Daniel's article to define the data needed by top executives to identify critical success factors. Similarly, De Vasconcellos, Sousa, and Hambrick (1989) used the work of both Daniel and Rockart to identify critical success factors which ensure the performance of an organization.

Researchers found that the performance of an organization was an important aspect of development, and they sought to discover what the critical success factors were needed to make improvements in terms of MIS. De Vasconcelos et al. (1989) noted the

importance of performance-based organizations by identifying critical success factors in areas that measure success prerequisites. They noted that critical success factors maximized both internal strengths and external industry strengths (De Vasconcellos et al., 1989). This shows that organizations should not only look to improve based on what they do well internally but should also look toward other similar agencies and follow best business practices.

Between 1970 and 1979, MIS became a paramount and popular topic with varying perspectives on how to improve the management of IS. Mason and Mitroff (1973) defined variables such as psychological types, class of problems, evidence, organizational context, and modes of presentation to explore and broaden different characteristics of MIS. Swanson (1974) noted that the lack of supervision, appreciation, and involvement attributed to failures in implementing MIS, and concluded that participation in the process improved satisfaction. Similarly, Bostrom and Heinen (1977) wrote about the failure of MIS at the organizational level, and related it to inadequate designs. They explained that the use of a socio-technical systems (STS) design approach would improve upon inadequacies. Correspondently, Ein-Dor and Segev (1978) analyzed the success and failures from an organizational level focusing on the context variables such as size, structure, situation, maturity, executive responsibility, and a steering committee which when properly used can identify the success and failures of MIS. Identification of MIS in terms of factors of success and failure were critical focal areas during this time.

Furthermore, the time between 1980 and 1989 advanced the discussions on MIS but there were also significant shifts towards organizational management. Many MIS articles in the 1980s focused on such topics as framework research on MIS (Ives, Hamilton, & Davis, 1980), MIS intellectual development (Culnan, 1986), and contingency theory assessment on MIS (Weill & Olson, 1989). Even though these articles focused specifically on MIS, they started to shift towards the organizational perspective. Other articles during this period that mentioned MIS took a broader perspective in areas in decision support systems (Sprague, 1980), organizational structure in computer information systems (Robey, 1981), performance and behavior of organizational IS (Huber, 1982), Nolan's stage model (King & Kraemer, 1984), structural design in organizations (Daft & Lengel, 1986), and paradigms of IS development.

There was a shift in focus in the 1960s to the 1990s from simple computing to the organizational management of information systems. This shift occurred because more and more organizations were using technology to maximize the value of services they provide. Early adoption of technology cause missteps in strategies, design, transitions, operation, and improvement. Researchers made note of these inefficiencies and started formulating governance strategies.

Governance Era

As with MIS, the term governance was used to set precedence between the accountability of management and financial investments. According to ITIL Service Strategy (2011), governance defines the business and IT rules, direction, and policies. Rhodes (1996) provided a well-defined explanation of governance by defining it as the

ability to give the enterprise direction, control, and oversight of executive actions, accountability, and regulatory guidelines internally and externally. According to Shleifer and Vishy (1997), the evolution of governance system started in the political realm as opposed to the economic realm, which shaped corporate law at the federal level.

I draw on existing notions of governance and seek to navigate between overly broad and narrow definitions, to define governance as the traditions and institutions by which authority. This includes (a) the process by which governments selected, monitored and re- placed; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens and the state for the institutions that govern economic and social interactions among them (Kaufmann, Kraay, & Mastruzzi, 2011, p. 222).

Governance processes are a legal necessity to form a structure acceptable by all parties involved. They are fundamental to the success of every organization. When governance processes are well designed, they coordinate every aspect of an organization: its people, equipment, and money work in concert toward the strategic objectives of the firm. However, when poorly designed, governance processes can be counterproductive (Meyer, 2004).

Literature Review

Provided here is an exhaustive review of the current literature established by past research. First, I reviewed studies related to the constructs of ITG and business strategy. Second, I look at ways in which past research addresses the problem. Third, I described the rationale for each variable. Fourthly, independent and dependent variables are also

discussed along with controversial findings. Last, the literature was review and synthesized as it relates to the research questions. Each review established the need for further studies of the research question and hypotheses.

The literature review focuses on theories of ITG and business strategy. According to Mohamed (2012), ITG is based on five factors, which are organizational demographics, information intensity, corporate culture, external environment, and IT characteristics. Kim, Lee, and King (2010) defined business strategy as the position and the direction in which an organization should progress. Furthermore, Mohamed (2012) went on to say that ITG aligns itself with business strategies and IT in areas of authority making decisions, capabilities, structures, processes, and realistic measurements that connect the two entities. Clearly ITG and business strategies are married concepts that can help to improve an organization.

History of ITG

The first topic of governance as it related to technology was on the subject of information systems (IS) governance. Brown (1997) said that in the 1880s IS governance used new forms to organize IS roles. As computer systems became more prominent in the corporate world, top executives perspectives focused on systems management. Zmud (1984) discussed how organized activities in system roles such as operation, systems development, technical services, and administration functions. Adding to the IS governance body of work, Dixon and John (1989) concluded that top executives must focus on building partnerships, collaborate, improve upon change management perspectives, have changed mindsets, utilize soft skills, manage from a strategic

perspective, and support the overall vision of the organization. King (1993) identified that centralized and decentralized management options within systems were needed to separate decision-making authority with IS. In the early 1990s, Allen and Boynton (1991) continued the body of knowledge in IS governance by identifying strategic and structural characteristics of organizations. Although IS governance remains relevant today, ITG started becoming a broader topic of interest for top executives in the 1990s.

Then a significant shift in the way organizations addressed management of technology started to occur during the early 1990s and continues today. According to Board Briefing (2004), ITG became essential to top executives because they realize the impact IT has on the enterprise to achieve technological objectives, adapt to changing technology, manage risk factors, and appropriately becoming proactive with opportunities. Moreover, Schwartz (2007) noted that organizations today are subject to many types of regulations such as data retention, confidentiality, accountability financially, and disaster recovery that forces them to become compliant. Furthermore, Huang, Zmud, and Price (2010) suggested that ITG is significant in design by addressing governance mechanisms, allocating decision rights, and allocating decision processes appropriately. Additionally, Ali and Green (2012) declared that effective alignment between ITG and business has become critical to modern organizations today. According to Raghpathi (2007), drivers of ITG can be internal or external by focusing on several operational/strategic variables. A general description of these variables used in this study help to develop the research question and hypotheses.

Another reason for the significant shift in the way organizations addressed management of technology was the mistrust between the citizens and corporations. Corporate greed, failures, mismanagement, and lies exposed in the early 2000s drove U.S. citizens to demand better regulation of corporate accounting irregularities. Federal mandates enacted, such as SOX, Basel II, HIPAA, FDIC, FCPA, PCI, and federal sentencing guidelines (Debreceny & Gray, 2013), answer the needs of citizens. Becoming compliant with any of these federal mandates add to the importance of having ITG within an organization.

The most popular mandate in terms of state/federal policies is SOX compliance. Li et al. (2012) noted that firms reporting weaknesses in IT internal controls between 2004 and 2008 had significantly larger forecasting errors compared with firms with effective internal controls. It is essential that organization understand the importance of controlling and governing their entire organization to eliminate potential failures.

Even though SOX Section 404 and other state/federal policies are for the good in most cases, there are always critics. Critics say that SOX is burdensome for business and reduce competition (Li et al., 2012; Zhang, 2007). Another big criticism of this mandate is that the benefits do not outweigh the costs of compliance with SOX (Millar & Bowen, 2009). Because of these reasons, many organizations are weighing the pros and cons of staying in compliance with SOX and other state/federal policies.

Kryzanowski and Zhang (2013) described the creation of SOX as the answer that force federal mandates on publicly traded organizations to be accountable for the accounting irregularities found in many big organizations. Cohen, Krishnamoorthy, and

Wright (2010) explained that SOX was developed because of scandals in organizations such as Enron and World-Com. These authors went on to say that auditors internally and externally were given power by this mandate to create auditing committees, generate independence from top executives, become the financial expert, and have the ability to challenge management (Cohen et al., 2010). Li et al. (2012) described SOX Section 404 in the critical section of this federal mandate that addresses specifically with IT in terms of financial reporting function or FRS. Although there are many more state/federal policies and mandates that affect ITG, SOX is the biggest and most written about a federal mandate that affects ITG.

According to Jairak and Praneetpolgrang (2013), the core principles of ITG are business/IT alignment, IT resource management, IT service quality, IT security, and IT risk management. Ali and Green (2012) described ITG effectiveness by identifying seven independent variables: top management involvement, corporate communications systems, IT steering committee, corporate performance measurement system, IT strategy committee, ethics and the culture of compliance, and the overall effectiveness of ITG. As organizations address these topics formally, they will minimize issues addressed by state/federal policies. Bernroider and Ivanov (2011) noted that much attention has been directed towards proper management controls since the U.S. imposed SOX. Therefore, many organizations today implement ITG to be in compliance with state/federal mandates and to know where they are at in terms of a maturity measurement.

De Haes and Van Grembergen (2010) provided a maturity models that is divided into six sections to include nonexistent (Level 0), initial/ad hoc (Level 1), repeatable but

intuitive (Level 2), defined process (Level 3), managed and measurable (Level 4), and optimized (Level 5). CobiT 4 (2014) agreed with having six maturity levels. Similarly, Chen (2010) identified ITG in five levels leaving out the nonexistent level. I used Luftman's (2000) maturity levels to understand the maturity level in LCGAs. The ITG maturity model helps determine where any organization is as it relates to its maturity level.

An Executive View (2009) stated, "The levels of the generic maturity model follow:

- 0 Non-existent: Complete lack of any recognisable processes. The enterprise has not even recognised that there is an issue to be addressed.
- 1 Initial/ Ad Hoc: There is evidence that the enterprise has recognised that the issues exist and need to be addressed. There are, however, no standardised processes; instead, there are ad hoc approaches that apply to an individual or case-by-case basis. The overall approach to management is disorganised.
- 2 Repeatable but Intuitive: Processes have developed to the stage where similar procedures are followed by different people undertaking the same task. There is no formal training or communication of standard procedures, and responsibility is left to the individual. There is a high degree of reliance on the knowledge of individuals and, therefore, errors are likely.
- 3 Defined Process: Procedures have been standardized and documented, and communicated through training. It is mandated that these processes should be followed; however, it is unlikely that deviations was detected. The procedures

themselves are not sophisticated but are the formalization of existing practices.

- 4 Managed and Measurable: Management monitors and measures compliance with procedures and takes action where processes appear not to be working effectively. Processes are under constant improvement and provide good practice. Automation tools are used in a limited or fragmented way.
- 5 Optimised: Processes have been refined to a level of good practice, based on the results of continuous improvement and maturity modeling with other enterprises. IT is used in an integrated way to automate the workflow, providing tools to improve quality and effectiveness, making the enterprise quick to adapt" (p. 22-23).

According to Tiwana, Konsynski, and Venkatraman (2013), the knowledge of ITG can be best described by a cube that focuses on who is governed (ecosystem, firm, projects), what is regulated (IT artifacts, content, stakeholders), and how is it administered (decision rights, control, and architecture). Existing disciplinary articles cover only nine of 27 areas. The other areas still need to be explored.

Even though there is much support of ITG, there are also critics that have strong dislikes and concerns about its alignment effectiveness. According to Kooper, Maes, and Lindgreen (2011), ITG is harmful (Ciborra, 1997), difficult to master (Chan, 2002), and misleading (Maes, 2007). They went on to note that Hoebeke (2006) saw ITG as an unmanageable mechanism (Kooper el al., 2011). Critics are concerned that ITG is not as

straightforward as it is presented. Products are changing so fast that ITG seem to be one or more steps behind.

There are many topics that ITG covers. This study does not cover all topics nor does it attempt to answer the critics of ITG. It does not go into full details about ITG because the topics are too broad and too many for the scope of this paper. Core principles are covered to provide a basis of understanding of how ITG came about, used and seen today.

ITG Methodology

Development of ITG methodology must be viewed from a corporate governance perspective as it relates to business strategy. Raghupathi (2007) said that corporate ITG bring about accountability and transparency to build stakeholder's confidence in a positive way. Jacobson (2009) described ITG as a subset of corporate governance, which stems from SOX legislation and accountability standards. Accountability, compliance, and transparency are all focal points for top executives who want to make sure that their IT departments are meeting expectations.

Several national and international organizations striving to document and formalize the operational and strategic use of IT have done so in creating methodologies such as Control Objectives for Information and Related Technology (CobiT), Information Technology Infrastructure Library (ITIL), ISO 20000, and ISO 38500 (Bin-Abbas & Bakry, 2014). Similarly, organization use ITG methodologies for different reasons such as the use of CobiT for audit and control, ISO 17799 for meeting security management

obligations, Prince 2 for project management, balanced scorecard for developing vision and strategy, and Val IT for managing IT investments (Iden & Eikebrokk, 2014).

Kerr and Murthy (2013) stated that CobiT was developed by the IT Governance Institute (ITGI) to minimize the management risk of IT. Bernroider and Ivanov (2011) noted that CobiT is as part of the framework uses as a best practice guideline. According to the Global Status Report (2011), the trend in usage for CobiT decreased between 2008 and 2010 by 1.1%. Even though the usage trend declined, CobiT appeals to businesses because it provides a best practice guideline to measure performance and project success (Bernroider & Ivanov, 2011). As with all methodologies, CobiT is not perfect. It is a good guideline to follow.

According to the Global Status Report (2011), ITIL is the most used external framework at 28% of what?. This methodology has five books focusing on service strategy, service design, service transition, service operation, and continual service improvements. These publications are part of the best practice business procedures (ITIL Service Operation, 2011). Service management governance can be managed by using ITIL methodology as a best practice business process. It includes standards from ISO/IEC 20,000 which is an official auditing standards and certification across the world (ITIL Service Design, 2011). It is also important to note that the creation of this methodology was birth in Great Britain by the Office of Government Commerce.

Both ITIL and CobiT have been competing against each other for the top spot. Internationally, ITIL is world renown and respected. Each of these methodologies

provides a way for organizations to standardize complicated work. These methodologies are there to create a culture of proper flow and not restrictive rules.

"ISO 20,000 is the external framework most frequently mentioned as a basis for an enterprise's GEIT approach" (Global Status Report, 2011). Both ITIL and ISO 20,000 were rated the same since ITIL include all the standards of ISO 20,000. The Global Status Report (2011) also noted that both ITIL and ISO 20,000 are the fastest growing external methodology. This framework is not a methodology but an auditing standards and certification.

This study does not go into each specific detail on each methodology because the primary focus of this study is to understand the relationship between ITG and the alignment of business strategy in LCGAs. Even though this is the case, describing how different methodology fills the gap between business strategy areas of concerns are important. There are several IT goals or business strategy goals. These objectives are identified and compared with ITIL, CobiT, and ISO 17799 to provide a broad understanding of how these methodologies achieve business strategy goals. Top executives can use one or several ITG methodologies to accomplish the different objectives.

ITIL

Because ITIL is so prominent worldwide, it is important to look closely at this methodology and understand why there is such an interest in it. Five books were put together to articulate this methodology. Each of those five books explains IT in terms of the service it provides building a business strategy model for all businesses to follow.

A business strategy, according to Casadesus-Masanell and Ricart (2010), is based on specific agency goals and desires. This defitiona is true for LCGAs as well. They are all different sizes of cities, and each city has its unique value. Casadesus-Masanell and Ricart (2010) used the analogy of a business strategy by comparing it to a mechanical task driven device. These authors showed that this mechanical task drove device changes from agency to agency.

The ITIL approach was different. They provided a methodology or a mechanical task driven device that was constant no matter the size or unique value of that organization. Those books organized any service driven organization into five categories; service strategy, service design, service transition, service operation, and continual service improvements. Books were developed for each service type explaining in full detail how to have a constant business strategy/methodology or mechanical task driven device that never changes.

According to ITIL Service Strategy (2011), service strategy describes patterns, plans, positions, and perspectives needed to fulfill the overall business strategy. This book goes into detail about each critical success factor within service strategy. They organize this service type into several subtypes such as strategy management, service portfolio management, financial management, demand management, and business relationship management (ITIL Service Strategy, 2011). Thinking of the overall business strategy and placing each subtype into organized categories will allow for better planning moving forward.

The next service type is service design. According to ITIL Service Design (2011), service design describes the design of each service, methodology, processes, policies, and facilitation of services. Service design helps define all aspects of the IT service. These service subtypes are availability management, capacity management, continuity management, design coordination, information security management, service catalog management, service level management, and supplier management (ITIL Service Design, 2011). The design section help create formal processes.

Service transition is the third service type. It consists of the lifecycle of a service in terms of new, modified, and retired services (ITIL Service Transition, 2011). This service type allows for proper management and implementation of the change. According to ITIL Service Transition (2011), service transition consist of change management, change evaluation, knowledge management, release/deployment management, service asset/configuration, service validation/testing, and transition planning/support. This service type is for approving, quantifying, and implementation of new, modified, and retired services.

Service operation is the fourth service type. “Service operation coordinates and carries out the activities and processes required to deliver and manage services at agreed levels to business users and customers. Service operation also manages the technology that is used to deliver and support services” (ITIL Service Operation, 2011, p. 342). It is important that SLAs are in place to identify improvements, consistency, or lack. Access management, event management, incident management, problem management, and

request fulfillment (ITIL Service Operation 2011). The description of service operations will work for any organization/agency. It focuses on the day-to-day operations.

Lastly, continual service improvement (CSI) is the final service type. According to ITIL Continual Service Improvement (2011), CSI ensures alignment of services by identifying and implementing continuous improvements. This service type is embedded to certify continual optimal success through a seven-step improvement process; "identify, define, gather, process, analyze, present, and implement improvements" (ITIL Continual Service Improvement, 2011, p. 40). Organizations are constantly changing, and CSI allow changes in dynamic environments.

Moreover, each of the five service types is unique but interrelated. They need each other's inputs and outputs for alignment. A service strategy means nothing if it does not have a proper design/methodology, transition/oversight, operation/daily functions, and CSI/optimization. The great benefit of an ITIL methodology is that it places stakes (business strategies) within an organization that never changes but at the same time allows for the dynamic business world to adapt and change effectively.

Business Strategy

In Greek, the word strategy is the ability to lead a troop from the general's office. According to Casadesus-Masanell and Ricart (2010), "Strategy is a firm's contingent plan as to the business model it will use" (p. 204). The word strategy is the way in which an organization decides how they will achieve their goals using a particular business model. In a local city government environment, this would mean that a strategy is constructed from top management using a particular business model.

Consequently, there are three levels of strategy within an organization. Alsudiri, Al-Karaghouli, and Eldabi (2013) noted that the three levels of strategy within an organization, as it relates to alignment, are a corporate strategy, a business strategy, and a functional strategy. The corporate strategy focuses on the type of business or agency the organization wants to become. Business strategy focuses on how to be more competitive or more politically aligned. The functional approach focuses on how everyday operations will fulfill the competitive/political advantage. I focus on business strategy, but the functional approach was also addressed to show how these two work in tandem.

According to Miller (2006), department stores used business strategy to guide decision-making approach in the past because there was a lack of human resource management strategies in the early 20th century. Slater, Olson, and Finnegan (2011) identified Miles and Snow in 1978 as the authors that initiated the use of business strategy to organize structure and processes. Business strategy principles were then linked to human resource (HR) systems back in the 1980s (Pena & Villasalero, 2010). Organizations today look at the HR department to identify, monitor, and measure business strategy in terms of functional business performance.

When describing the business strategy, Shavarini, Salimian, and Nazemi (2013) described it as the way in which an organization attains competitive advantage. Many organizations struggle with the idea of alignment. Business strategy is a simplified narrative that transcends the desired behavior (Norton & Pine, 2013). How then can an organization exceed its competitive advantage?

One way to exceed competitive advantage is through proper alignment. The strategic alignment maturity model (SAMM) is an alignment tool that allows top executives the ability to know if their organization aligns with the business strategy level and the functional strategy level. According to Luftman (2010), SAMM allows top executives to view an alignment roadmap that display levels of IT effectiveness through business performance.

Luftman et al. (2010) noted that SAMM has six IT and business strategy alignment components that are communication, value, governance, partnership, scope/architecture, and skills. They went on to show that these core components relates to ITG through nine items. These nine items are strategic business planning, IT strategic planning, IT organizational structure, IT reporting, IT budgeting, IT investment decisions, IT steering committee(s), IT project prioritization process, and IT reaction capability (Luftman et al., 2010).

Even though SAMM provides good strategic alignment between ITG and business strategy, there are many critics of strategic alignment. Röglinger, Pöppelbuß, and Becker (2012) described over 10 different articles that criticized strategic alignment from its existence because of its simplistic view of a dynamic world, its lack of empirical foundation, results that didn't consider evolution/change, documentation that was dissatisfying, and also but not limited to economic infrastructure that was non-existent. As with most concepts, considering all aspects of a problem is overwhelming for a particular article. As more and more researcher focus on specific topics over time, the

body of knowledge will increase to fill the gap. This study helps fill the gap by using SAMM to align IT and business strategy in LCGAs.

IT in the Public Sector

When describing the differences between public and private sector organizational culture, Rosacker and Rosacker (2010) noted that public and private agencies are similar in fiscal accountability, resource allocation, adherence to laws/regulations, and applying best practice management principles but different in competitive pressures where the public sector agencies face political pressures as opposed to competitor pressures. All pressures are not the same. Political forces provide more scrutiny than that of competitive pressures because public sector demands do not only come from the client, but it also come from the citizens, media, special interest groups, elected officials and the like (Rosacker & Rosacker, 2010). Political pressure from all of those stakeholders created an organizational culture that requires accountability of time, resources, and money.

Organizational structure can also play a big role in understanding the alignment between ITG and business strategy. According to Luftman et al. (2010), SAMM also looks at the three organizational structures, which are centralized, decentralized, and federated structures. In a centralized structure, the IT Director or CIO is the position where all IT resources report. In a decentralized structure, each division has its reporting head and leader. In a federated structure, a portion of IT is centralized while the other portion is decentralized. The LCGAs tend to have a centralized IT structure based on their yearly strategic plans.

According to Reddick (2011), the public sector has always faced the issue of limited resources to deal with technology. Management failure has occurred because naïve and blind trust has been given to commercial organizations in hopes that they are looking out for the best interest of the public and/or the government (Hall, Kutsch, & Partington, 2012). As technology is becoming one of the biggest budget items yearly (Rosacker & Rosacker, 2010), stakeholders want to know that their money is being spent productively. Aligning ITG with business strategy and providing stakeholders with a clear measure as to how well IT has matured will provide transparency into the strengths and weaknesses of IT in the public sector.

Ali and Green (2012) said, "The issue of establishing and implementing effective information technology governance has become an important matter of modern business" (p. 179). Rosacker and Rosacker (2010) noted that the private sector were first to use best business practices and was later adopted by the public sector to improve IT project management. It is evident that public sector agencies are taking effective measures to meet the political pressures. According to the Global Status Report (2011) questionnaire, the two highest percentage drivers of ITG are alignment between IT/business at 38% and managing cost at 20%. Examining the relationship between ITG and business strategic alignment in government agencies may provide stakeholders with the evidence they need to identify how their government agency aligns.

Many government agencies are outsourcing IT. According to Duhamel, Gutierrez-Martinez, Picazo-Vela, and Luna-Reyes (2014) outsourcing IT is attractive to LCGAs because the administration is not able to keep up with the rapid change of technology.

These authors went on to say that there is a higher risk of failure (Duhamel et al., 2014). Top executives are constantly looking for ways to meet the demands of technology. Outsourcing technology is one way.

Reddick (2011) noted that barriers such as financial resources and support from elected officials are recurrent problems within LCGAs. Since resources are scarce, LCGAs must find better ways to align. Financial dependencies, structures, and practices have been realigned in LCGAs and identified as the new normal (Abels, 2014). The new normal is working with less financial and elected official support.

Abels (2014) noted that regional collaboration in LCGAs can provide a solution to financial limitations. It is essential that technology alignment functionss the same way. How does small, medium, and large LCGAs align? Does size matter? It is important that some level of collaboration occurs. The new normal demands it. Martin et al. (2012) noted that LCGAs should attain additional funding through raised permits, voter's information, false alarms, title searches, park/recreation, and building fees. Although these are good options, alignment could improve financial burdens as well.

Employment issues in LCGAs are also a function of the new normal that must be considered. New hires are expected to receive less compensation and benefits (Martin et al., 2012). Over 13 million jobs were lost in 2013 in the public sector (Annual Questionnaire of Public Employment, 2014). The new normal is working with less and less. IT staff get paid competitive salaries in the private sectors, but stagnant salaries, job cuts and fewer jobs are available with LCGAs (Martin et al., 2012).

No longer is top IT talent looking toward LCGAs for a stable, competitive salary, and great benefits because it does not exist. There is a great need now in the new normal more than ever before to maximize on limited resources. In 2012, LCGAs lost over 156,000 jobs (Annual Questionnaire of Public Employment, 2014). Knowing how well LCGAs aligns could provide a benchmark point based on the size of the city.

This example shows how technology resources in LCGAs are scarce. The new normal is being able to function with less and less in finances, resources, and greater demand. Everyone wants better technology, but the resources are not there to properly implement the growing need. All LCGAs have to find a better way to function with limited resources. Alignment does provide some relief.

Literature and Research Based Analysis

Alignment's importance has been well known and well documented since the late 1970's (e.g., Brancheau & Whetherbe 1987; Chan & Huff, 1993; Dixon & Little, 1989; Henderson, & Venkatraman, 1996; IBM, 1981; Luftman & Brier, 1999; McLean & Soden, 1977; Mills, 1986; Niederman et al., 1991; Parker & Benson, 1988). Over the years, it persisted among the top-ranked concerns of business executives. Alignment seems to grow in importance as companies strive to link technology and business in light of dynamic business strategies and continuously evolving technologies (Papp, 1995; Luftman, 1996). Importance aside, what is not clear is how to achieve and sustain this harmony in relation to business and IT, how to assess the maturity of alignment, and what the impact of misalignment might be on the firm (Papp & Luftman 1995). The ability to achieve and sustain this synergistic relationship is anything but easy. Identifying an

organization's alignment maturity provides an excellent vehicle for understanding and improving the business-IT relationship (Luftman, 2000).

Luftman (2000) created an assessment tool to measure the alignment maturity level of an organization. Currently, there is a repository database with over 2,000 agencies that have taken this assessment tool to measure overall alignment. Within Luftman's repository, only one public sector agency has taken this assessment. According to Chen (2010), this assessment tool provides a snapshot of the current state of an organization. He also went on to say that this assessment tool is the most comprehensive assessment available (Chen, 2010). Since there was no empirical evidence within LCGAs to understand their current state of alignment, Luftman's SAMM assessment tool is the perfect tool to provide LCGAs with empirical evidence.

There are several researchers who have studied ITG strategic alignment and business strategy alignment within the private sector. Luftman brought the most attention to the topic of IT and business alignment. Today the questions are still being asked, how to align IT with the business. Empirical studies on this subject in public sectors are scarce but needed to achieve proper alignment and functionality.

Present Study

Process alignment of information systems and business strategy alignment according to Chen (2010) is an adaptive behavior instead of an event-planning situation. Top executives must realize that it is their responsibility to measure the maturity of ITG strategic alignment to their overall business strategy. Van Grembergen and De Haes (2010) noted that an IT department can not adequately realize the investment into IT until

the business level thinks it is important. Chen (2010) agreed that alignment must be addressed at different levels strategically through IT needs projected in the future, tactically through adequate resources allocation, and operationally through effective and efficient operations within the IT department. Luftman et al. (2010) linked ITG to alignment by showing how ITG is the responsibility of strategic, tactical, and operational owners that represent the stakeholders.

Researcher acknowledgment and documentation of the importance of ITG strategic alignment and business strategy alignment has urged companies to become align, but many organizations are still out of alignment (Chen, 2010). Top executives must construct the alignment (Van Grembergen & De Haes, 2010). Without proper top executive understanding and direction, the alignment will fail and cause poor implementation internally. Collaboration between IT strategy and business strategy should be a resultant of decisions made by top executives (Luftman et al., 2010). Alignment must come from a collaboration of the senior management team.

There are many reasons for misalignment. The top reasons for misalignment included lack of a close working relationship between IT and business, lack of effective prioritization of IT needs, inability of IT to meet its commitments, ITs lack of understanding of business, lack of senior executive support of IT, and lack of leadership in IT management (Chen, 2010). Van Grembergen and De Haes (2010) noted that poorly aligned organizations are organizations that fall below the Maturity Level 2. Misalignment can cause poor business strategic planning, IT strategic planning, IT budgeting, IT investment decisions, steering committee, IT prioritization process, and IT

reactions capacity (Luftman et al., 2010). Chen (2010) noted that alignment has a positive association with success through a positive effect on IT and business.

Many practitioners and researchers have acknowledged SAM as a framework that can be used to evaluate IT and business alignment (Luftman et al., 2010). Luftman (2000) introduced the original SAMM instrument. Several studies have evolved from SAMM such as Luftman's (2004) study on assessing the maturity of business and IT. For example, Huang and Hu (2007) study of achieving enterprise-wide IT and business alignment, De Haes and Grembergen (2008) study on ITG and business maturity, De Haes and Grembergen's (2009) study on ITG implementation on business and IT alignment, and Chen's (2010) study on business and IT alignment in China. Chen use of the SAMM instrument provided this study with guidelines on how to measures ITG strategic alignment and business strategy alignment. This instrument contains 39 updated questions using a 5-point Likert scale with minor wording differences from the original Luftman (2000) model.

There are five levels, six levels when including nonexistent maturity levels, to assess alignment. According to Chen (2010), SAMM involves five process levels which the first level is the initial / ad hoc processes, the second level is the committed processes, the third level is the established focused processes, the fourth level is the improved / managed processes, and the fifth level is the optimized processes. In conjunction, Luftman et al. (2010) described six components of IT and business strategy alignment that are communications, value, governance, partnership, scope/architecture, and skills. Chen (2010) also corroborated that these six values are components of IT and business

strategy alignment. Both Chen (2010) and Luftman et al. (2010) analyzed alignment using Luftman (2000) original SAMM instrument. Chen went a step further to refine Luftman's SAMM and created a simplified instrument to evaluate alignment. Luftman's instrument was used to assess alignment within LCGAs.

The five predictors of ITG are strategic alignment, value delivery, resource management, risk management, and performance management (ITGI, 2003; Tsai, Hwang, Chang, & Lin, 2011). The strategic alignment predictor of ITG is the focal point of this study because it is assessed using SAMM. Another description of an ITG assessment tool is that it is a communication tools, process alignment assessment tool, and structures used for decision-making (Kooper et al., 2011; Weill & Ross, 2004). Furthermore, ITG predictors are leadership, organization structure, and process that expand business strategy (Markovic & Maksimovic, 2012; Culver-Lozo, 1995). These different predictors can be summed up as the ability of an organization to increasing productivity through increased efficiency.

According to Chen (2010), IT strategy and business strategy relates to nine ways; cost, quality, distinction, introduction of new products, diversity of products, efficiencies, quality customer service, intensive marketing, and new market expansions. Since the private sector organizations prospers on being competitive and public sector agencies thrive on political power, Table 1 includes a public sector comparison between ITG strategy and business strategy based on Chen's comparison.

Table 1

Public Sector ITG Strategy and Business Strategy

ITG Strategy and Business Strategy Comparison	
ITG strategy	Business strategy
1. The cost is reduced.	1. Reduce the cost.
2. The quality of the product is improved.	2. Quality over quantity.
3. Attaining best business practices.	3. Follow best business practices.
4. Continuous improvement.	4. Introduce innovation.
5. The product is scalable and expandable.	5. System thinking short term and long term.
6. Process improvements.	6. Improve efficiencies.
7. Quality customer service.	7. The customer comes first.
8. Marketing of systems following the right channels.	8. Communicate effectively.
9. Change management system in place.	9. Follow approval processes.

Externally, predictors of business strategies are drivers focused externally and strategically on meeting state/federal policies. For an organization to maintain compliance with state/federal policies, they must understand what each law requires and strive to attain and remain compliant. Times change and laws change; therefore, ITG and business strategies must be built on a solid conceptual foundation that is dynamic enough to meet all state/federal policies.

Internally, predictors of business strategies are described as strategic logic, which focus on competitive advantage and obtaining the bottom line (Malaterre, McNamara, Matz-Costa, Pitt-Catsouphes, & Valcour, 2013). Competitive advantage relates to the private sector. Similarly though, competitive advantage is replaced by political pressures in public sectors which also looks at the bottom line. Malaterre et al. (2013) went on to say, “Organizations with a strong business strategy are likely to monitor indicators such as sales, productivity, costs and profitability and base their decision on hard data” (p.

1377). This study uses these defined business strategy indicators to analyze internal business strategies as it relates to ITG.

Luftman (2000) introduced SAMM that included 39 questions that divide into six sections. Section 1 is the communication maturity that includes questions relating to understanding of business by IT, understanding of IT by business, inter/intra-organizational learning, protocol rigidity, knowledge sharing, and liaison(s) breadth/effectiveness. Section 2 is the competency and value maturity that includes questions relating to IT metrics, business metrics, balance metrics, service level agreement, benchmarking, formal assessments/reviews, and continuous improvements. Section 3 is the governance maturity that includes questions relation to strategic business planning, IT strategic planning, reporting/organization structure, budgetary control, IT investment management, steering committee(s), prioritization process, and business perception of IT value. Section 4 is the partnership maturity which includes questions relating to the role of IT in strategic business planning, shared goals, risk, rewards/penalties, IT program management, relationship/trust style, and business sponsor/champion. Section 5 is the technology scope maturity that includes questions relating to traditional, enabler/driver, external, standards articulation, architectural integration, enterprise, inter-enterprise, and architecture transparency-flexibility. Section 6 is the skills maturity that included questions relating to innovation, entrepreneurship, locus of power, management style, change readiness, career crossover & education, cross-training, social, political, and trusting environments.

Luftman's (2000) maturity questions are well defined, and it covered all aspects to IT and business to assess alignment. Sledgianowski, Luftman, and Reilly (2006) found that 22 of the 39 items were a significant fit improvement. Figure 2 illustrates Chen's model fit test. Chen (2010) conducted the same fit test to see which items applied to businesses in China and found that only 21 items had a significant fit. Although this study did not perform a confirmatory factor analysis, it was relying on to test already performed by Chen and Sledgianowski et al. to validate a good fit.

Item	Description	Model 2 loadings[a]	Model 3 loadings[b]
Communication maturity (COMM)			
COMM1	Degree of understanding of the business by the IT function	0.61	0.74
COMM2	Degree of understanding of IT by the business	0.50	Dropped
COMM3	Degree of richness of methods used for organizational learning	0.71	0.72
COMM4	Communication style used within the organization	Dropped	Dropped
COMM5	Degree of knowledge sharing throughout the organization	0.66	0.65
COMM6	Use of IT business liaisons	Dropped	Dropped
Competency and value maturity (COMP)			
COMP1	Focus of the metrics and processes to measure IT's contribution	0.78	0.77
COMP2	Focus of the metrics and processes to measure business contribution	0.77	0.75
COMP3	Degree of and orientation of integrated IT and business measures	0.78	Dropped
COMP4	Degree of service level agreements	Dropped	Dropped
COMP5	Frequency and formality of benchmarking practices	Dropped	0.75
COMP6	Frequency and formality of IT assessments and reviews	0.69	0.71
COMP7	Degree of continuous improvement practices	0.69	0.69
COMP8	Contribution of IT to strategic goals	Dropped	Dropped
Governance maturity (GOV)			
GOV1	Degree of business strategic planning with IT involvement	Dropped	0.75
GOV2	Degree of IT strategic planning with business involvement	Dropped	Dropped
GOV3	Basis of budgeting IT resources	0.54	0.67
GOV4	Basis of IT investment decisions	0.64	0.67
GOV5	Frequency formality, and effectiveness of IT steering committees	Dropped	0.73
GOV6	Integration of IT project prioritization	0.57	Dropped
GOV7	IT function's responsiveness to changing business needs	Dropped	Dropped
Partnership maturity (PART)			
PART1	Business' perception of the role of IT	0.62	0.61
PART2	Role of IT in strategic business planning	Dropped	0.75
PART3	Integrated sharing of risks and rewards	0.67	0.66
PART4	Formality and effectiveness of partnership programs	Dropped	0.77
PART5	Perception of trust and value	0.62	Dropped
PART6	Reporting level of business sponsor/champion	Dropped	Dropped
Technology scope maturity (SCOPE)			
SCOPE1	Technological and strategic sophistication of primary systems/applications	Dropped	Dropped
SCOPE2	IT standards articulation and compliance	0.68	0.66
SCOPE3	Degree of architectural integration	0.74	0.79
SCOPE4	Degree of infrastructure transparency	0.56	Dropped
SCOPE5	Degree of infrastructure flexibility	Dropped	0.66
Skills maturity (SKILLS)			
SKILLS1	Degree of an innovation culture	0.55	Dropped
SKILLS2	Degree of integrated locus of power in IT-based decisions	0.64	Dropped
SKILLS3	Degree of a change readiness culture	0.66	Dropped
SKILLS4	Degree of opportunity for skills enrichment through job transfer	Dropped	Dropped
SKILLS5	Degree of opportunity for skills enrichment through cross-training or job rotation	Dropped	0.81
SKILLS6	Degree of interpersonal interactions across IT and business	Dropped	Dropped
SKILLS7	Ability to attract and retain IT staff with technical and business skills	0.69	0.65

[a] Factor loadings of the measurement model derived from [18] (22 items).
[b] Factor loadings of the measurement model of our study (21 items).

Figure 2. Chen (2010) maturity model fit test. From "Business–IT alignment maturity of

companies in China," by L. Chen, 2010, *Information & Management, 47*, p. 15-16. Reprinted with permission.

Although there is a differentiation between public and private agencies, the Luftman (2000) maturity list of questions applies to all organizations. Private companies address the bottom line. Public agencies address their political interest. Luftman's maturity list of questions goes beyond the bottom line or the political interest. It focuses on core principles of ITG and business strategy to understand the alignment between the two strategies. Therefore, no changes were needed to be made to Luftman's maturity list of questions.

Luftman (2000) used his 39 variables to create a survey. Similarly, Chen (2010) used a survey approach to creating the dependent variable of participants self-reporting along with the six maturity criteria as the independent variable. The six maturity criteria are communication maturity, competence and value maturity, governance maturity, partnership maturity, technology scope maturity, and skills maturity. Luftman (2000) found that 25 Fortune 500 companies averaged a maturity level of 2. An assessment on the maturity level in LCGAs was conducted in the Southwest region of the United States.

The size of an organization is an important construct of SAMM. Luftman (2000) noted that benchmarks for the SAMM instrument analyzes the type of industry and the size of the organization. Chen (2010) analyzed the difference between Chinese domestic companies and multinationals companies in China. I analyzed LCGAs as the industry and full-time employment size as the size of the organization. Analyzing how size affects the

overall maturity of an organization aligns with the purpose of the SAMM assessment instrument.

Rationale

The rationale behind this study was to understand different perspective from departments such as IT, city management office, finance, HR, police, fire, water, engineering, and the like cohesively along with perspectives from top management such as city managers, council members, and mayors. Each perspective was evaluated based on the FTEsize of LCGAs. Along with the perspectives and the FTEsize, this study addressed the relationship between a city's IT/business strategic alignment maturity level and its employment size. It also looks at the current snapshot of LCGAs based on its size.

Luftman (2000) noted that alignment addressed the question of how IT is in harmony with the organization. Chen (2010) added that maintenance of IT and business alignment produces greater improved planning, higher perceived value, and more excellent business performance. Aligning IT and business strategy within a local city government agency is necessary to achieve greater harmony, planning, value, and business performance.

Summary and Conclusions

In this chapter, the literature was carefully selected and constructed to provide more insight into IT/business alignment. The theoretical foundation provided the theories, historical foundations, major hypotheses, rationale, and the connection to the present study. The literature review provided the constructs of interest, ways other researchers have addressed this problem, and justification for each variable related to the research

questions. The literature justified the need to analyze external and internal variables of IT/business alignment. The next chapter discusses the research methodology, design, method, and sample for this study.

Chapter 3: Research Method

The purpose of this quantitative survey study was to examine the relationship between a city's IT/business strategic alignment maturity level and its employment size. Previous studies have investigated issue related to ITG in such areas as consequences of SOX's internal controls (Li et al., 2012), SOX financial restatements (Kryzanowski & Zhang, 2013), ITG top-performance management (Weill & Ross, 2004), and ITG performance due to maturity levels (Simonsson, Johnson, & Ekstedt, 2010). Other studies have focused on business maturity levels (Luftman et al., 2010), business/IT alignment in China (Chen 2010), project management in public sectors (Rosacker & Rosacker, 2010), emergency management of IT in the United States (Reddick, 2011), and the application of ITG in universities (Jairak & Praneetpolgrang, 2013). I have examined the relationship between a city's IT/business strategic alignment maturity level and its employment size.

In this chapter, I discuss the research design and its appropriateness. I also present a review and critique of the methodology used, and describe the data analysis plan. In the final section of this chapter, I describe the threats to validity externally and internally along with construct validity and ethical procedures.

Research Design and Rationale

I have looked at the overall strategic alignment maturity level of LCGAs and their employment size. My sampling and measurement techniques were affected by the method I chose. Leedy and Ormrod (2005) have described quantitative studies as a relationship-based, qualitative studies as phenomena-based, and mixed-method studies as covering both aspects. After a close examination of definitions and prior studies, I

decided that a quantitative design was the best approach for this study. Similarly, I selected a nonexperimental study design over experimental and quasi-experimental designs mostly because of the influence of prior studies, but also because this study did not try to manipulate data in any way. I used a quantitative survey research approach to understand the relationship between a city's IT/business strategic alignment maturity level and its employment size. Van de Ven (2007) noted that a quantitative survey study could correlate and compare different variables. I sought to do so by distributing the survey to participants online using SurveyMonkey, and making available for 3 weeks. The condensed timeframe allowed participants sufficient time to take and complete the survey.

I measured the average maturity level of LCGAs using the SAMM instrument. Chen (2010) provided the six maturity components for strategic alignment as seen in Table 2. These maturity components are communications, competency/value measurements, governance, partnership, technology scope, and skills. There are also five maturity levels on a 1 to 5 Likert scale.

Table 2

Strategic Alignment Maturity Categories

Maturity category	Description
Communications (COMM)	The effectiveness of leveraging information for mutual understanding and knowledge sharing. This category evaluates such issues as whether business and IT understand each other's operating environment, whether a liaison is used to facilitate knowledge transfer between them, and whether there are rigid protocols that impede discussion and sharing of ideas.
Competency/value measurement (COMP)	The management decisions and strategic choices that an organization makes when determining the value and contribution of IT to the firm. This category evaluates such issues as whether an organization uses technical or business metrics for measuring IT success, whether the organization has formal benchmarking practices, and whether IT has contributed to the achievement of the organization's strategic goals.
Governance (GOV)	The choices organizations make when allocating decision rights for IT activities. This evaluates issues such as how IT projects are prioritized and how IT budgets are controlled.
Partnership (PART)	Pertains to how IT and the business perceive each other's contribution. This evaluates issues such as IT's role in strategic business planning and how risk and rewards are shared by IT and business functions.
Technology scope (SCOPE)	The management decisions and strategic choices an organization makes when allocating resources toward its IT infrastructure. This evaluates whether the primary systems of the organization enable business strategy, whether business or IT changes are transparent across the organization, and whether the IT architecture is flexible in accommodating business and technology changes.
Skills (SKILLS)	The organization's cultural climate toward change and innovation. This evaluates issues such as the organization's ability to change, whether career crossover opportunities among IT and business professionals exist, and whether the organization has the ability to attract and retain the best business and technical professionals.

Note. From "Business–IT alignment maturity of companies in China," by L. Chen, 2010, *Information & Management, 47*, p. 10. Reprinted with permission.

According to Kaiata and Zualkernan (2009), communication competency/value measurement, governance, partnership, scope, and skills capture the maturity areas of IT and business alignment. They went on to say that for each of the six maturity areas, there are five classification levels (Kaiata & Zualkernan, 2009). Both the maturity areas and the five classification levels made up variables for this study. Similarly, this study used the SAMM instrument in a local city government environment to understand the average maturity level and provide recommendations based on each maturity level.

The dependent variable for this study was the strategic alignment maturity level (SAMM), and the independent variable measured the full-time employee size (FTEsize) of LCGAs (large, medium, or small). I categorized LCGAs into three sizes. First, small-sized cities are cities with less than 400 full-time employees. Second, medium-sized cities are cities with 400 or more full-time employees but less than 1,000 employees. Third, large cities are cities with more than 1,000 full-time employees. The overall maturity level was averaged based on all responses to the survey.

Methodology

Researchers have three research methods to choose from when conducting research: qualitative, quantitative, and mixed methods. When describing the differences between qualitative and quantitative research approaches, Newman (1998) noted that qualitative research reflected a phenomenon while quantitative research indicated universal reality. Leedy and Ormrod (2005) supported Newman's assertion by describing how quantitative research answers relationship questions, qualitative research answers natural phenomena questions, and a mixed research approach answers questions of both

the relationship and the phenomena. I evaluated each of these methodologies to determine which method was suitable for this study. Because I was not looking at a natural phenomenon or trying to validate a particular event but rather examining relationships, a qualitative or mixed methods approach was not applicable for this study. Researchers have used all three methods to study ITG and business strategies. Quantitative studies are deductive while qualitative studies are inductive. Conversely, inductive or qualitative reasoning makes a generalization based on events. To reach a conclusion, I determined that deductive or quantitative reasoning was the practical choice for this study.

Authors such as De Haes and Van Grembergen used a quantitative research methodology to study the relationship between two or more variables in ITG and business performance. Similarly, Luftman (2000 & 2004), Sledgianowski et al. (2006), Luftman et al. (2010) and Chen (2010) used quantitative research methodology to study IT and business alignment. Because this study was similar to Luftman and Chen's studies, I determined that a quantitative research methodology was most applicable.

I looked at the relationship between ITG and the alignment of business strategy in LCGAs. According to De Haes and Van Grembergen (2009), there are quantitative research hypotheses that should be potentially explored when conducting exploratory research in such areas as ITG, ITG maturity levels, and business/IT alignment. The purpose of a quantitative research method according to Leedy and Ormrod (2005) is to examine relationships, confirm the relationships, and validate relationships within the theory being studied. Therefore, a quantitative research methodology was applicable for

this study because I examine the relationship between ITG and the alignment of business strategy as it relates to the size of LCGAs.

I used a quantitative survey design to examine the relationship between ITG strategic alignment and business strategy alignment. According to Van de Ven (2007), there are three designs to choose from; randomized experimental, quasiexperimental, and nonexperimental designs. A quantitative experimental design analyzes cause and effect (Leedy & Ormrod, 2005). The randomized experimental design requires two or more groups of equivalence with one random group used as a treatment subject. Similarly, a quasiexperimental design analyzes cause and effect with no randomization used on a group (Leedy & Ormrod, 2005). Nonexperimental studies lack a control group but observe and compare a natural event (Van de Ven, 2007). A nonexperimental study was appropirate for this study because there was no control group.

A quantitative survey design was used to examine the relationship between both the independent and dependent variables (Van de Ven, 2007). I used survey data to examine the relationship a city's IT/business strategic alignment maturity level and its employment size. I also identified a snapshot of the current maturity level of small, medium, and large size LCGAs organizations. There are two types of nonexperimental collection of data that can be used, correlational and survey. A correlational study statistically investigates surface relationships that do not identify the underlining reasoning behind the relationship (Leedy & Ormrod, 2005). A survey study was used to examine the underlining reasoning behind a relationship in terms of incidence,

distribution, and frequency (Leedy & Ormrod, 2005). Therefore, a survey design was useful for this study.

Population

The target population for this study is from randomly selected cities within the Southwest region of the United States. Budgetary information provided publically by each city showed the number of approved overall employment positions. These figures are used to assess the population data. Based on the accepted employment positions, cities were considered as large cities (> 1000 employees), medium cities (400 < 1,000 employees), and small size cities (< 400 employees). The plan attempted to ask on average five participants per city with three strata sizes. The total population needed for a viable study was estimated to be 38 participants. This survey provides a general looking into the local city government workplace environments to determine relationships in IT/business strategic alignment maturity level and its employment size.

Sampling and Sampling Procedures

Luftman (2003) refined the SAMM instrument, as did Sledgianowski et al. (2006) and Chen (2010) by identifying a goodness-of-fit index of the model. This study used the same instrument to examine the relationship between ITG and the alignment of business strategy in LCGAs. These results were further analyzed. The SAMM instrument was available in an online survey format and administered online anonymously within a 3-week period to give participants enough time to complete the survey.

The sample size was calculated using a G*Power 3 Tool. This study has included a report on the mean of a scale called maturity level. The scale has five possible

responses, which range from a maturity level of one or initial at one end to optimized or a maturity level of 5 at the other end. Because these responses follow a logical sequence, I can assign a numerical score to each response (from 1 to 5), and compute a mean and standard deviation. I have estimated the mean to within (plus/minus) 0.3 points of the true value. The computation of sample size is the error margin of plus/minus 0.3 points on a 5-point Likert scale, patterned estimated responses, and missing data.

A worst case expected pattern of responses is seen in Figure 3. The estimated initial response–Level 1 is (45%), committed response–Level 2 is (30%), established response–Level 3 is (20%), improved response–Level 4 is (5%), and the optimized response–Level 5 is (0%). These estimates correspond to a mean of 1.85 with a standard deviation of 0.91. Only completed responses were analyzed, and missing data deleted from the final computation.

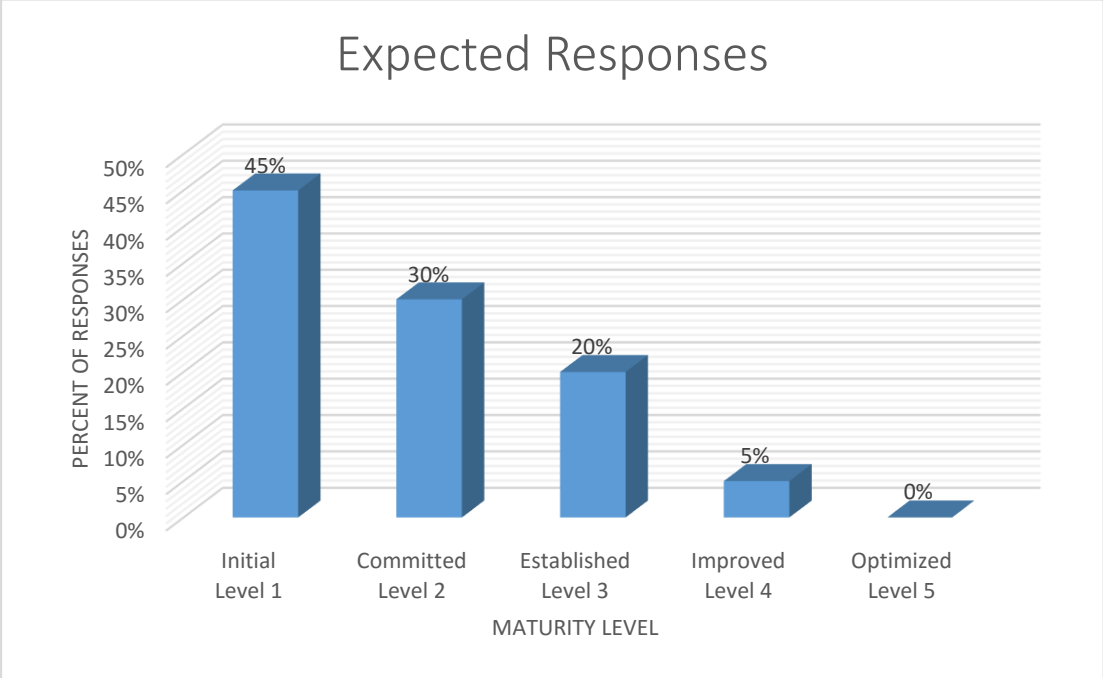

Figure 3. Worst case expected responses.

Consequently, the decision to use a sample size of 38 participants is the basis of the decisions and assumptions outlined above. Based on different sets of decisions and assumptions, the sample size changed accordingly. There was an assumption that the majority of LCGAs will have a worst-case maturity level of one, two, or three. According to those assumptions, 38 participants were ideal with a target of 56 or more participants. Computation of the required sample size was based primarily on three factors: the margin of error, dispersion of responses, and missing data.

The first factor that determines the necessary sample size was the acceptable margin of error. Accepting a relatively wide margin of error will need a small sample size. Similarly, if a relatively narrow margin of error is desire, then a relatively large sample size is needed. For an error margin of plus/minus 0.30 points, I needed 38

participants at a minimum. If the error margin (to 0.60 points) doubles, the sample size would be reduced to 12 subjects. By contrast, if the error margin (to 0.15 points) reduces in half, the required sample size would increase to 144 participants.

The second factor that determines the necessary sample size was the dispersion of responses. If clustered responses are in a narrow range, the error will tend to be small, and the appropriate sample size is relatively small. Similarly, if the responses fall over a wider range, the error will tend to be larger, and the appropriate sample size is relatively high. Based on the G*Power 3 tool, the dispersion was quantified using the standard deviation of the responses. The pattern used in this calculation leads to a required sample size of 38. If the true standard deviation were 10% larger than assumed, then a sample size of 46 would be needed. If the true standard deviation were 10% smaller than assumed, a sample size of only 32 participants would be necessary.

The third factor that determines the required sample size was the percent of missing data. In following the assumption that the sample size be 38 participants, there can be no missing data associated with this sample. The expected rate of missing data is 2%. Therefore, a sample size of 39 would be needed. To cover the expected real rate of missing data and other assumption, 56 participants was the objective. The adjustment of missing data assumes that the data is missing entirely at random. No attempt was made to calculate the validity of participants who complete the survey as opposed to participants who did not complete the survey.

I targeted and try to contact at minimum 38 IT and business executives from several local cities and towns using the three strata sizes. Chen (2010) required at least

three IT executives and three business executives from each company take the survey. Similarly, this study randomly attempted to contact at least three IT executives along with three business executives per city to obtain the sample size of 38. Five or more IT and business executives had access to the survey. Using the G*Power 3 tools to calculate the sample size, 38 participants were calculated to be ideal. This sample size creates a 95% likelihood that the sample mean and the true mean will fall within 0.3 points of each other. Observation of a mean of 1.85 will report that the true mean will probably fall in the range of 1.85 plus/minus 0.3 points. I removed blank responses and omitted data from the dataset. The original response rate for this study was 100% after excluding nonresponses and missing data.

The research generalization findings of the survey may be affected by the total error. Because only random LCGAs participants were studied, sampling errors can occur along with nonsampling error, which equates to the total error (Smith & Albaum, 2005). The goal of the survey was to obtain results from a target population of 50 participants online using Surveymonkey. Smith and Albaum (2005) noted that there is a reduction in the total error when using online surveys. The sampling technique used was a random sampling of LCGAs.

Procedures for Recruitment, Participation, and Data Collection

The data source use in this study was a survey data source analysis. A Web-based survey collected answers anonymously. SurveyMonkey was used to distribute the survey and act as an instrument to collect data.

The local city government participants did use a web browser to access the online survey for completion. Informed consent acknowledgement was provided at the beginning of each survey. The survey did not identify the organization or individual information. At the end of the survey, participants were given one final chance to decide if they wanted to have their responses added to this study. After they submitted their responses, they were thanked for their participation and will be provided aggregate results after this study is complete. The dataset was available after the time to take the survey was complete. During the data collection phase, the information was stored on a secured server at SurveyMonkey. After finalizing data collection, SurveyMonkey exported an SPSS data file using Illume software with case numbers (no other identifiers) attached. I then analyze the data file. Once the dataset was uploaded and stored, the dataset will remain on SurveyMonkey until a request is made to delete the original dataset.

Instrumentation and Operationalization of Constructs

The originator of the SAMM instrument is Luftman (2000). Chen (2010) revised this instrument and deployed it to organizations within China. I used Luftman's SAMM instrument and distributed it to LCGAs in the Southwest region of the United States. The appropriateness of this instrument to the current study was that it identified the alignment maturity level of LCGAs as it relates to the city size. City agencies can use this information to determine how well they compare to other LCGAs of similar and different sizes.

Chen (2010) noted that the reliability and validity of this instrument are much higher than the benchmark requirements. Approval was granted to use Luftman (2010) work (see Appendix A). Thus far, this instrument has been used in over 2,000 organizations within the United States; however, only one government agency was evaluated. This instrument was also used in China to test 22 companies and 154 solicitations of IT and business executives (Chen, 2010).

The basis for the development of this instrument was to see a snapshot of IT and business maturity alignment levels. I used the research question to examine if there was a relationship between a city's IT/business strategic alignment maturity level and its employment size. Since this instrument has been in use for over 14 years within the U.S., it provides credibility to answer the research questions. The results from the data collected were used to test each hypothesis by averaging the overall maturity level responses of LCGAs.

Dependent Variables

The LCGAs strategic alignment maturity level is the dependent variable of this study. There are primary and secondary factors. The strategic alignment maturity level is the primary factor in this study and is represented by (SAMM). The average mean value calculates the secondary factors. Each of the six criteria, secondary factors, are averaged as an ordinal value. These averages make up the secondary factors.

Communications maturity was the first secondary factor (Comm). Luftman (2000) noted that this secondary factor measures communication effectiveness. This factor identifies whether or not ideas are being communicated within LCGAs. Using the

SAMM instrument, six questions relates to communication maturity. The average level of those question measures the observed communication maturity level of one participant.

Competency and value maturity was the second secondary factor (Comp). Luftman (2000) described this secondary factor as how well both the IT and business demonstrates value. Eight questions relates to the competency and value maturity level. Each of the eight questions represents the observed competency and value maturity level.

Governance maturity was the third secondary factor (Gov). Chen (2010) noted that this secondary factor measures how well IT and business can allocate decision right and prioritize budgets. Seven questions relates to the governance maturity level. Each of the seven questions represents the governance observed maturity level.

Partnership maturity was the fourth secondary factor (Part). Chen (2010) described this secondary factor measures how well IT and business perceive contributions. Six questions relate to the partnership maturity level. Each of the six questions represents the partnership observed maturity level.

Scope and architecture maturity was the fifth secondary factor (Scope). Luftman (2000) noted that this secondary factor measures technology maturity. Five questions relates to the scope and architecture maturity level. Each of the five questions represents the scope and architecture observed maturity level.

Human resource skills maturity was the sixth secondary factor (Skills). Chen (2010) noted that this secondary factor measures change and innovation within the culture of the environment. Seven questions relates to the human resources skills maturity

level. Each of the seven questions represents the human resources skills observed maturity level.

Independent Variable

The independent variable for this study was the size of each LCGAs. City sizes are calculated by full-time employees (FTE) and defined in terms of small (< 400), medium (400 < 1000), and large (> 1,000) agencies. This data was collect anonymously using an online survey.

Data Analysis

Analyzing the survey dataset using SPSS helped organize, simplify, and analyze data. The plan for analyzing the survey dataset was to use descriptive and inferential statistical analysis. Statistical analysis was conducted using SPSS Version 21. Raw SPSS dataset file from the survey was imported into SPSS Version 21 to perform the analysis. The sample within this study was described using descriptive statistics. Summary statistics represented the mean, median, normal/skewness, frequency of distribution, variance, and standard deviation. Analyzing data was not conducted using correlation and linear regression analysis but instead a one-way ANOVA was more applicable based on the histogram.

The research question organizing this study was: What was the relationship between a city's IT/business strategic alignment maturity level and its employment size? This research question provides the following hypotheses.

H1o: There was no relationship between a city's IT/business strategic alignment maturity level and its employment size.

H1a: There was a relationship between a city's IT/business strategic alignment maturity level and its employment size.

H2o: There was no relationship between a city's IT/business communication maturity level and its employment size.

H2a: There was a relationship between a city's IT/business communication maturity level and its employment size.

H3o: There was no relationship between a city's IT/business competency and value maturity level and its employment size.

H3a: There was a relationship between a city's IT/business competency and value maturity level and its employment size.

H4o: There was no relationship between a city's IT/business governance maturity level and its employment size.

H4a: There was a relationship between a city's IT/business governance maturity level and its employment size.

H5o: There was no relationship between a city's IT/business partnership maturity level and its employment size.

H5a: There was a relationship between a city's IT/business partnership maturity level and its employment size.

H6o: There was no relationship between a city's IT/business scope and architecture maturity level and its employment size.

H6a: There was a relationship between a city's IT/business scope and architecture maturity level and its employment size.

H7o: There was no relationship between a city's IT/business human resource skills maturity level and its employment size.

H7a: There was a relationship between a city's IT/business human resource skills maturity level and its employment size.

Pearson product-moment correlation coefficient linear regression equation was not used to calculate and make correlations between different variables in IT/business alignment and its employment size. Instead, a one-way ANOVA was used to measure mean differences. According to Frankfort-Nachmias and Nachmias (2008), Pearson's r reflects the direction and magnitude of the correlation between two variables. This test was not used in the hypothesis to confirm an assumption of correlation. Pearson's correlation coefficient (r) has a high positive correlation when the two variables are closer to a positive one. Conversely, r has a high negative correlation when the two variables are closer to a negative one. No correlation exists when r for each variable approach zero. Another equation not used in this study was a bivariate linear regression analysis. According to Green and Salkind (2011), bivariate linear regression evaluates how well the independent variable predicts one or more dependent variables. This study analyzes the overall maturity level of LCGAs.

A one-way ANOVA was used to measure mean differences between different groups. According to Green and Salkind (2011), an ANOVA assesses whether the means of a dependent variable is significantly different among the independent variable groups. A one-way ANOVA predicted how well IT/business strategically aligns as it relates to

communication maturity, competency/value maturity, governance maturity, partnership maturity, technology scope maturity, and skills maturity.

Threats to Validity

External Validity

External validity is the length at which findings of a study can be applied to a larger population or in a different setting (Frankfort-Nachmias & Nachmias, 2008). This study used a 95% assumption rate to compute the sample size. This assumption rate allowed the observation value to fall within the margin of error in either direction. As random sampling technique was used, there was external validity in this study.

Internal Validity

According to Leedy and Ormrod (2005), internal validity allows the researcher to make accurate conclusions about cause-and-effect relationships in data. Factors that can jeopardize internal validity are extrinsic factors, which happen before the study and intrinsic factors, which occur during the study period (Frankfort-Nachmias & Nachmias, 2008). The validity of the instrument to collect data was assumed because it was created by Luftman (2000) and validated by Sledgianowski et al. (2006) and Chen (2010). Theories used around the world as best practices provide decisive factors of validity.

Researchers collecting data correctly along with the confidence that it is complete minimizes threats to internal validity (Leedy & Ormrod, 2005). Because of the 14 plus years of using this survey, I am confident that the data collected from this survey have a limited threat to internal validity. Chen (2010) measured internal consistency by assessing composite reliability. He found that the composite reliability coefficients were

higher than the benchmark coefficient of 0.60. The coefficient of 0.06 means that the internal validity of this survey had a high internal reliability of the data (Chen 2010). There was also high internal validity for this study due to IRB approval, Dissertation Committee approval, and proven focus areas.

Construct Validity

According to Leedy and Ormrod (2005), construct validity is characteristics such as motivation, creativity, racial bias, bedside manner, and the such that are taken into consideration when using an instrument to conduct a survey. There are 39 questions asked of participants. All of these questions in some way measure the constructs in question. Threats to construct validity would be only to ask these questions of particular participants. I used several cities, different FTEsizes, and randomized participation to gather data. Participants could have had varying educational levels, ethnicity, ages, and gender differences, which limit the threat of construct validity.

Ethical Procedures

The ethical research was consistent with APA standards and Walden University ethical standards as it relates to the use of a survey, confidentiality, consent, and organization involvement. My committee members approved my proposal. Then the Institutional Review Board (IRB) reviewed this study, accepted, verified, and validated that all ethical standards were in proper compliance.

Letters of recruitment (see Appendix C) was sent to LCGAs asking participants within the city to voluntarily participate in this online survey. This emailed letter clearly identified the full scope and approximate time it takes to complete this survey along with

how this study was voluntary and how it maintained confidentiality. The participant reminder email (see Appendix D) was the official email letter used to remind participants to take the survey before the deadline of three weeks has been met. This letter explained to each participant a brief description of the nature of the study, benefits/risks, voluntary consent information, the right to withdraw, and personal information usage. When participants take the online survey, they were given the opportunity read and accept the acknowledgment informed consent form (see Appendix E). Participants were given the opportunity print a copy of this consent form for his or her records.

Protecting LCGAs and participant personal identifying information have minimized risk. Participant did not enter personal information. A password protected personal computer, and a memory stick are two electronic media devices to store data. Access to data was restricted only to authorized personnel such as my dissertation committee members, Walden University Ethics Board, and myself. I used SurveyMonkey to distribute and collect data. Only completed results from this online survey were collected.

In social science research, ethical considerations must be addressed. Frankfort-Nachmias and Nachmias (2008) postulated that regulatory requirements such as legal requirements, review committees within Universities and institutions, code of ethics used professionally, and the code of ethics used personally are all important in ethical considerations. Following such guidelines protects both the researched and the researcher. Walden University Institutional Review Board (IRB) approves studies. This study proposal was subject to a full review, evaluation, and approval process by

Walden's IRB. A flash drive stores all data in a read-only format and will be locked in a safe for 5 years. According to Walden University's security policy, data must be stored for five years and then destroyed. This research will store data for 5 years.

Summary

The literature review for this study justifies the need for quantifiable data about IT/business alignment. Chapter 3 presents a detailed explanation of the research method and design. It also tested the hypothesis to examine if there was a relationship between a city's IT/business strategic alignment maturity level and its employment size. Analyzing seven local cities should provide a snapshot into the state of IT and business alignment and serve as a benchmark for future studies.

Overall, Chapter 3 includes a detailed explanation of the research method and design. This chapter first included an analysis of the appropriateness of a quantitative survey design to determine the research questions and hypotheses. Additionally included is the data source, sample used, and detailed steps taken for data analysis management and procedures. Finally, this chapter included ethical considerations to protect the participants.

Chapter 4: Results

This chapter includes the findings and results of the data I collected and statistically analyzed. The purpose of this quantitative survey study was to perform an assessment using the SAMM instrument to determine if there was a relationship between the LCGAs IT/business strategic alignment maturity level and the city's full-time employee size. I also sought to provide snapshots of the current maturity levels of LCGAs studied. The primary dependent variable for this study was the strategic alignment maturity level of LCGAs (SAMM). This variable consisted of six secondary IT/business alignment criteria. These secondary variables were communications maturity (Comm), competency & value maturity (Comp), governance maturity (Gov), partnership maturity (Part), scope and architecture maturity (Scope), and the human resource skills (Skills) maturity levels. The independent variable was measured using the city's FTEsize. I categorized the LCGAs by city size into small, medium, and large LCGAs. Both the independent and dependent variables have significance for LCGAs. They identify the LCGAs strategic alignment maturity level and define how the size of the city's FTE affects alignment. The research question guiding my study was: What is the relationship between LCGAs IT/business strategic alignment maturity level and the city's FTE size? This research question had seven hypotheses associated with it, one primary, and six secondary. I analyzed the data using SPSS version 21.0. I have divided the following chapter into three sections: data collection, study results, and the summary of the results. The data collection section is comprised of the timeframe of the study, discrepancies in

data collection, a description of the data, and results. The Results section includes a description of statistical assumptions and my statistical analysis of findings.

Data Collection

This section includes the data collection summary. Here I describe the initial plan and timeframe along with response rates. I also describe all the discrepancies along with the descriptive statistics. The data collection process was random, confidential, and anonymous.

Plan/Time Frame

In collaboration with dissertation committee members, LCGAs leadership, and the Walden IRB, I had planned to make initial data collection strategic and precise. Originally, I had planned to proceed as follows:

1. Obtain approval from Dr. Luftman to use SAMM instrument (1 week).
2. Obtain IRB approval (3 weeks).
3. Setup and use SurveyMonkey to distribute the survey via a web link (2 weeks).
4. Develop a good Letter of Recruitment (Appendix C), Cooperation Letter, (Appendix D), Participant email (Appendix E), Acknowledge Informed Consent Form Appendix F) (1 week).
5. Obtain approval via email from LCGAs city managers two weeks after IRB approval (2 weeks).
6. Open the survey (3 weeks).
7. Email top executives to request anonymous participation (3 weeks).

8. Present aggregate results to top executives one month after the email went out to the city managers for approval (1 month).

I asked top executives to participate anonymously, and gave them 3 weeks to complete the survey. Each participant was sent a follow-up email reminder the first week, the second week, at the beginning of the third week, on Wednesday of the third week, and on the last day before the time of the survey had come to an end. Once the survey's period had ended, data was then summarized by SurveyMonkey and exported as an SPSS file. No personal information was collected or distributed.

During the open survey period, 80 participants attempted the survey. Forty-eight surveys were completed, $N = 48$. I sent seven hundred and ninety-six emails to 81 different LCGAs. There were 66 small cities, five medium cities, and ten large cities selected in the southwestern region of the United States. Twenty participants from small cities completed the survey. Medium size cities likewise had 20 participants complete the survey. Large size cities had eight participants complete the survey. Out of all participants, 18 were leaders, 15 were department directors, and 15 were top management.

Discrepancies

Discrepancies in the data collection plan are listed below:

1. Obtain approval from Dr. Luftman to use SAMM instrument (1 week). This was completed as planned.

2. Obtain IRB approval (3 weeks). It took three different revisions of my IRB application to gain final approval. This process extended the planned approval time from three weeks to two months.
3. Setup and use SurveyMonkey to distribute the survey via a web link (2 weeks). I completed this as planned.
4. Develop a good letter of recruitment (Appendix C), cooperation letter, (Appendix D), participant email (Appendix E), and acknowledge informed consent form (Appendix F) (1 week). The appendix order and contents changed during the second and third IRB application revisions. The IRB reviewer found no need for the cooperation letter. I replaced the coorperation letter with changes made to the letter of recruitment, participant reminder email, and the SurveyMonkey acknowledge informed consent form. In total, IRB approval process took 2 months to complete.
5. Obtain approval via email from LCGAs city managers 2 weeks after IRB approval (2 weeks). No need for this step. To replace this step, I distributed around 800 public record emails to local cities and towns in the southwestern region of the United States.
6. Open survey (3 weeks). I completed this as planned. I also included 2 additional weeks as a contingency plan for additional IRB clearance if I was unable to obtain 38 participants or more.
7. Email top executives to participate anonymously (3 weeks). I completed this as planned.

8. Present aggregate results to top executives 1 month after the email was distributed to the city managers for approval (1 month). I sent aggregate results to each person on the email list 1 month after this study is completed.

As this list indicates, there were several discrepancies between the initial plan and final implementation. SurveyMonkey was used to anonymously collect the data from participant responses. Each participant was asked two demographic questions about their agency, job level, and the FTE size of their organization. Three weeks were given to all participants along with several follow-up email reminders encouraging each participant to complete their surveys before the deadline. After the deadline, I exported the results as an SPSS (.sav) file.

Another discrepancy I found was my assumption that Pearson correlation would be the ideal analytic measurement. Pearson correlation measures the relationship of different variables based on a linear correlation. After attempting to use Pearson correlation, it was clear that this was not the correct analysis to use. Figure 4 displays the simple scatter dot plot that shows no linear relationship between each dataset.

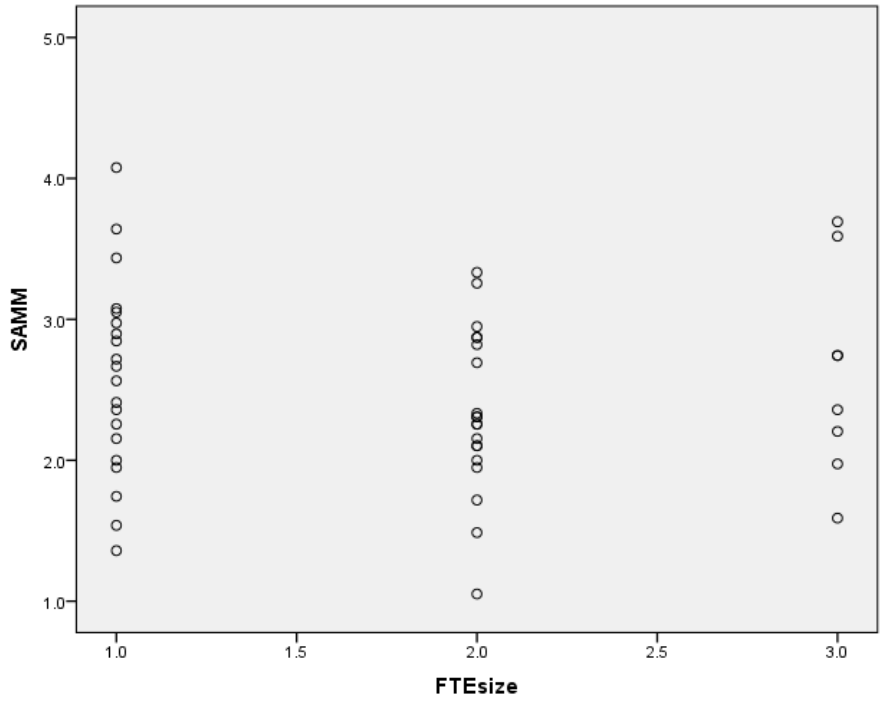

Figure 4. Simple scatter plot.

After analyzing the scatter plot, it was clear that I was using an incorrect analysis. I then used a histogram chart to see how the mean, standard deviation, and sample size would appear. Figure 5 shows how the frequency curve has positively skewed distribution, normal curve, and pointed in a positive direction. This chart indicated that the dependent variable was normally distributed. Therefore, I determined that an ANOVA was adequate for this study. ANOVA would look at the mean differences between groups instead of looking at the relationships between variables as in the Pearson correlation.

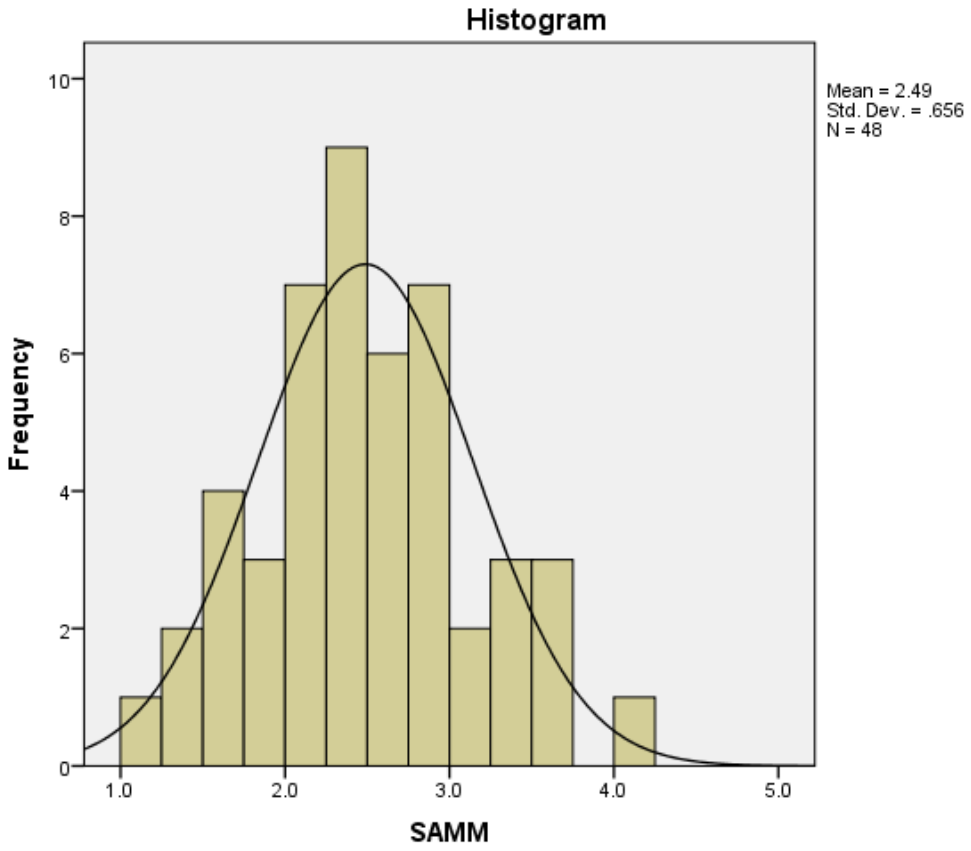

Figure 5. Histogram of SAMM.

I looked for a relationship between a city's IT/business strategic alignment maturity level and its employment size. I used a random selection process to obtain LCGAs participants. My goal was to identify approximately 800 LCGAs public email addresses and send emails to each address, expecting to generate a pool of 38 or more participants. I distributed 796 emails during a 3-week period and targeted 81 different LCGAs. Only 6% responded and participated.

Descriptive Statistics

I exported all data for each survey question was from SurveyMonkey to SPSS Version 21 for statistical analysis. I coded numerically coded the data using a 5-point

Likert scale (1 = Level 1-initial to 5 = Level 5-optimized). I made no changes made to the SAMM instrument.

I measured the distribution patterns of the survey data using frequency distribution, and calculated responses using descriptive statistics in term of the means, standard deviations, and ranges. I tested each hypothesis with a one-way ANOVA using SPSS version 21. To reject the null hypotheses at a 95% confidence level, the standard of $p < .05$.

Table 3 displays the frequency of the survey results in terms of the participant's job position, the size of their city/town, and their SAMM responses. Across all participants' job position, 18 (37.50%) were leaders, 15 (31.25%) were department directors, and 15 (31.25%) were top management. Based on FTE city size, 20 (41.67%) were small cities/towns, 20 (41.67%) were medium cities, and 8 (16.67%) were large cities. Responses to each question are equal in the number of responses because only completed responses were measured. The total number of participants who started the survey were 80 participants. Only 60% completed the survey.

Table 3

LCGAs Frequency (N = 48)

Variables and category	*n*	%
Job Position		
Leader	18	37.50
Department Director	15	31.25
Top Management	15	31.25
Total	48	100
City Size		
Small	20	41.67
Medium	20	41.67
Large	8	16.67
Total	48	100
SAMM		
Comm	48	100
Comp	48	100
Gov	48	100
Part	48	100
Scope	48	100
Skills	48	100
Total	48	100

Table 4 displays the overall descriptive statistics related to LCGAs FTEsize and the SAMM. The maturity level ranges from 1 to 5 for each FTEsize. According to Frankfort-Nachmias and Nachmias (2008), the mean (*M*) lends itself to mathematical calculations and statistical measures. Small LCGAs FTEsize cities and towns recorded an *M* = 2.59 with a standard deviation (*SD*) = 0.83. Medium LCGAs FTEsize cities had an *M* = 2.34 with a *SD* = 0.58. Large LCGAs FTEsize cities had an *M* = 2.61 with a *SD* = 0.74. The overall mean value for LCGAs is *M* = 2.49 with a *SD* = 0.66. Standard deviation identifies the dispersion points above and below the mean value (Frankfort-

Nachmias & Nachmis, 2008). Any value above or below this value is considered an outlier.

Table 4

Overall Descriptive Statistics (N = 48)

FTEsize	*M*	*SD*	Low	High
Small – SAMM	2.59	0.83	1.4	4.1
Medium – SAMM	2.34	0.58	1.1	3.3
Large – SAMM	2.61	0.74	1.6	3.7
Total – SAMM	2.49	0.66	1.1	4.1

Table 5 illustrates a comparison of descriptive statistics based on the mean scores of small, medium, and large LCGAs FTEsizes. The table shows that there are mean differences between the maturity level of a small size cities/towns, medium sized cities, and large size cities. Both small and medium LCGAs scored low in both competency and skills. Large LCGAs scored low in competency and governance followed closely by a low score in skills. Competency scores for medium and large LCGAs were very low.

Table 5

Descriptive Statistics – Mean Score, Standard Deviation, and FTEsize (N = 48)

FTEsize and category	*M*	*SD*	*n*
Small			
Comm	2.91	0.83	20
Comp	2.46	0.87	20
Gov	2.58	0.86	20
Part	2.77	0.82	20
Scope	2.55	0.76	20
Skills	2.33	0.67	20
Medium			
Comm	2.58	0.69	20
Comp	2.05	0.66	20
Gov	2.38	0.79	20
Part	2.58	0.62	20
Scope	2.47	0.77	20
Skills	2.14	0.64	20
Large			
Comm	3.21	1.00	8
Comp	2.25	0.88	8
Gov	2.43	0.91	8
Part	2.75	0.79	8
Scope	2.70	0.86	8
Skills	2.52	0.72	8

Results

Research question and hypotheses guiding this study were: What was the relationship between a city's IT/business strategic alignment maturity level and its employment size?

*H*1o: There was no relationship between a city's IT/business strategic alignment maturity level and its employment size.

*H*1a: There was a relationship between a city's IT/business strategic alignment maturity level and its employment size.

A one-way Analysis of Variance (ANOVA) was used to examine whether a city's IT/business strategic alignment maturity level (SAMM) is a function of its employment size. The independent variable represented three different city sizes with unequal sample sizes: (a) small (n = 20); (b) medium (n = 20); and (c) large (n = 8). The dependent variable was the overall SAMM results obtained from 48 participants. All analysis used an alpha level of .05. The test for homogeneity of variance was not significant [*Levene F* (2, 45) = 0.57, $p > .05$] indicating that the underlying assumptions of applying ANOVA were correct. Figure 6 reveals that there was not a statistically significant difference in results [$F(2, 45) = 0.86$, $p > .05$] between SAMM and all three groups of city sizes which resulted in a small effective size of .04.

ANOVA

SAMM

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.747	2	.374	.864	.428
Within Groups	19.459	45	.432		
Total	20.206	47			

Figure 6. Analysis of variance for SAMM.

Figure 7 graphically displays the means for the three city size groups as it relates to SAMM. The X-axis (FTEsize) represents the three groups (small, medium, and large). The Y-axis (SAMM) represents the mean number of the overall IT/business strategic alignment. SAMM values are between 1 and 5. In this case, the medium sized LCGAs had the lowest mean score (2.34) compared to small sized LCGAs (2.59) and large sized LCGAs (2.61).

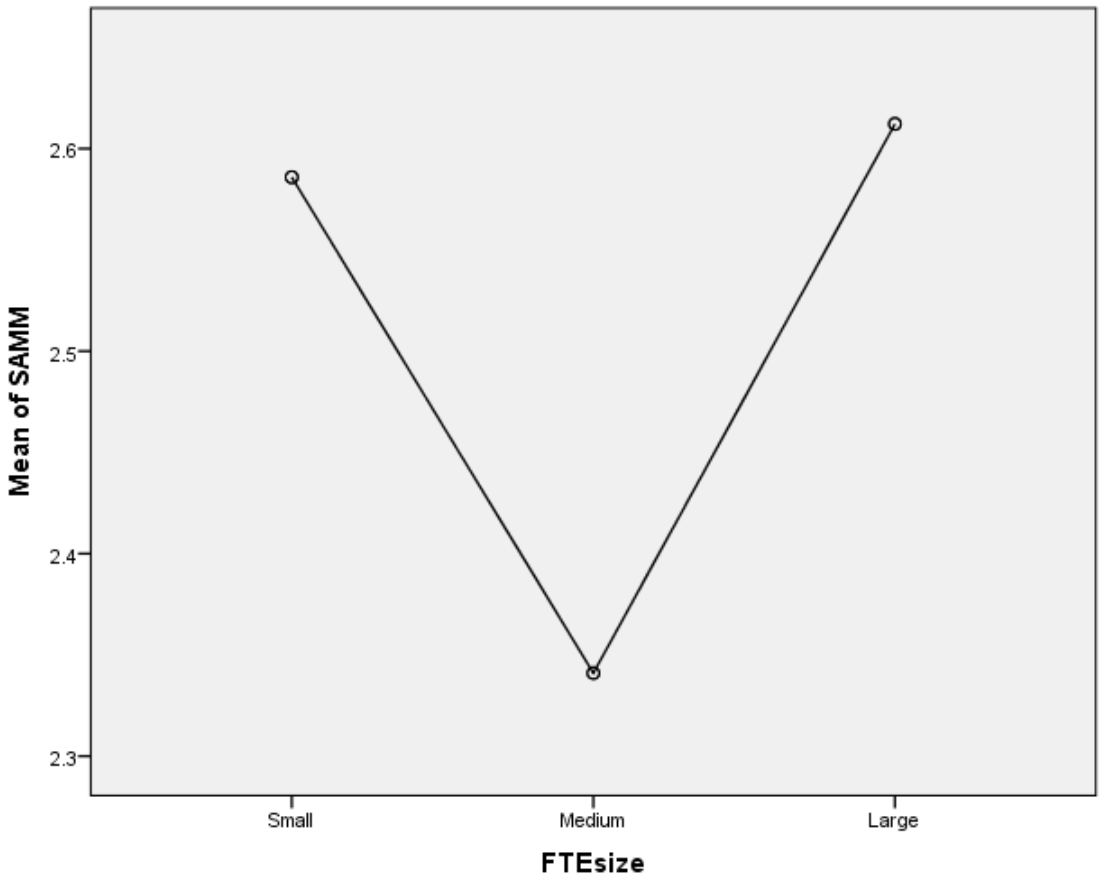

Figure 7. SAMM mean plot.

The second hypothesis was as follows:

H2o: There was no relationship between a city's IT/business communication maturity level and its employment size.

H2a: There was a relationship between a city's IT/business communication maturity level and its employment size.

A one-way Analysis of Variance (ANOVA) was used to examine whether a city's IT/business communication maturity level (Comm) is a function of its employment size. The independent variable represented three different city sizes with unequal sample sizes: (a) small (n = 20); (b) medium (n = 20); and (c) large (n = 8). The dependent variable was

the overall Comm results obtained from 48 participants. All analysis used an alpha level of .05. The test for homogeneity of variance was not significant [*Levene F* (2, 45) = 0.31, $p > .05$] indicating that the underlying assumptions of applying ANOVA were correct. Figure 8 reveals that there was not a statistically significant difference in results [$F(2, 45) = 1.99$, $p > .05$] between communication and all three groups of city sizes which resulted in a small effective size of .08.

ANOVA

Comm

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.563	2	1.281	1.993	.148
Within Groups	28.928	45	.643		
Total	31.491	47			

Figure 8. Analysis of variance for Comm.

Figure 9 graphically displays the means for the three city size groups as it relates to communication. The X-axis (FTEsize) represents the three groups (small, medium, and large). The Y-axis (Comm) represents the mean number of communication. Comm values are between 1 and 5. In this case, the medium sized LCGAs had the lowest mean score (2.58) compared to small sized LCGAs (2.91) and large sized LCGAs (3.21).

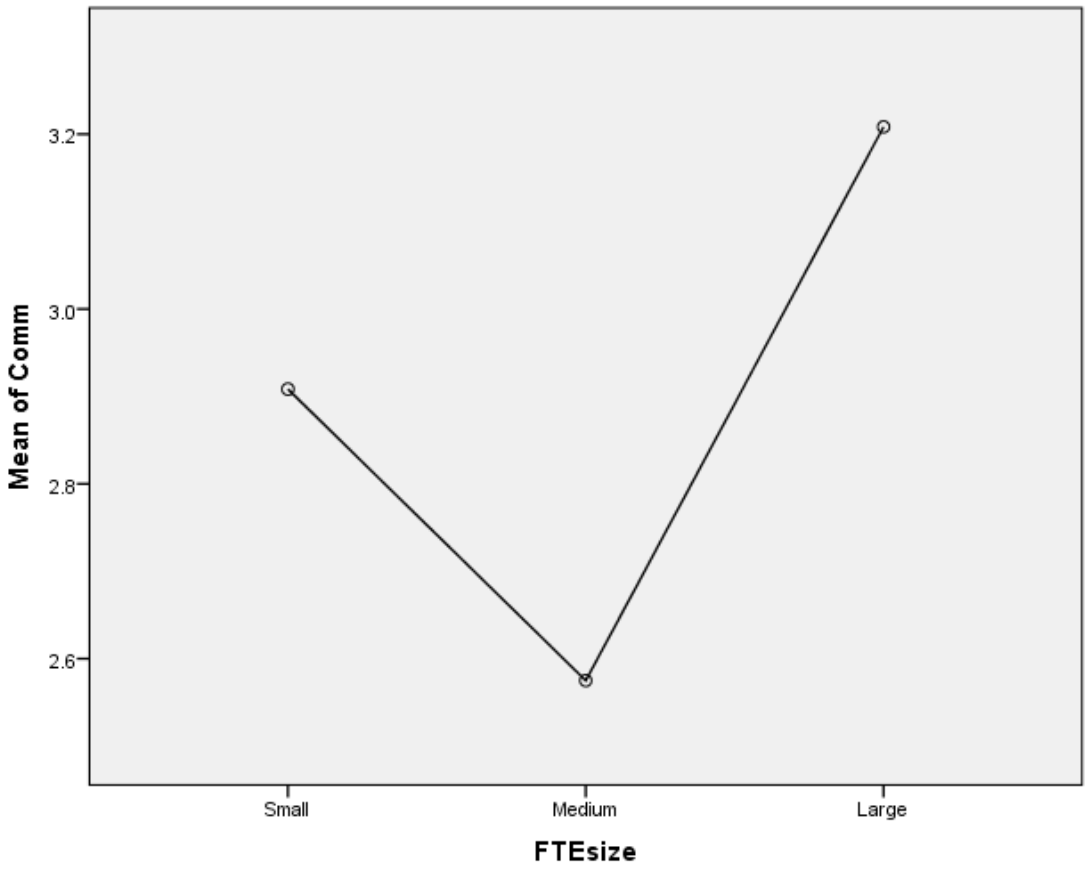

Figure 9. Comm mean plot.

The third hypothesis was as follows:

H3o: There was no relationship between a city's IT/business competency and value maturity level and its employment size.

H3a: There was a relationship between a city's IT/business competency and value maturity level and its employment size.

A one-way Analysis of Variance (ANOVA) was used to examine whether a city's IT/business competency and value maturity level (Comp) is a function of its employment size. The independent variable represented three different city sizes with unequal sample sizes: (a) small (n = 20); (b) medium (n = 20); and (c) large (n = 8). The dependent

variable was the overall SAMM results obtained from 48 participants. All analysis used an alpha level of .05. The test for homogeneity of variance was not significant [*Levene F* (2, 45) = 0.31, $p > .05$] indicating that the underlying assumptions of applying ANOVA were correct. Figure 10 reveals that there was not a statistically significant difference in results [$F(2, 45) = 1.37$, $p > .05$] between competency/value and all three groups of city sizes which resulted in a small effective size of .06.

ANOVA

Comp

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.702	2	.851	1.368	.265
Within Groups	27.984	45	.622		
Total	29.686	47			

Figure 10. Analysis of variance for Comp.

Figure 11 graphically displays the means for the three city size groups as it relates to competency and value. The X-axis (FTEsize) represents the three groups (small, medium, and large). The Y-axis (Comp) represents the mean number of competency and value. Comp values are between 1 and 5. In this case, the medium sized LCGAs had the lowest mean score (2.05) compared to small sized LCGAs (2.25) and large sized LCGAs (2.46).

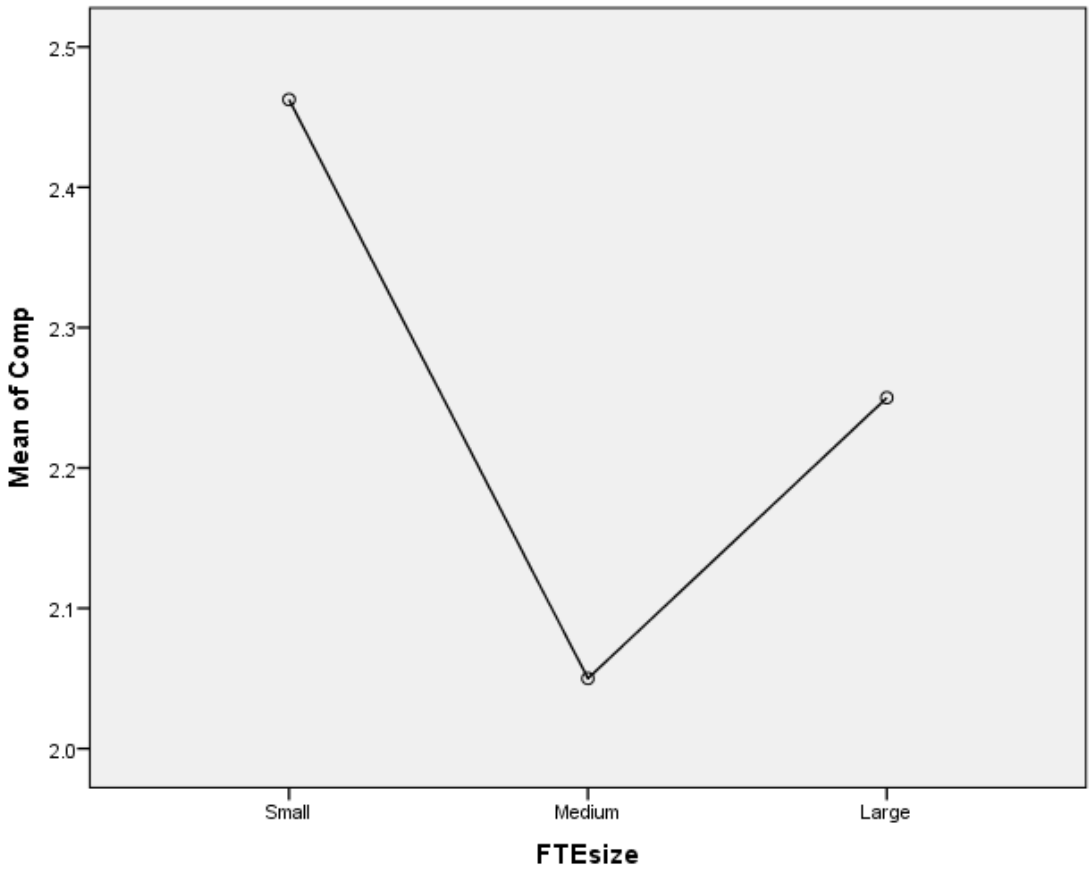

Figure 11. Comp mean plot.

The fourth hypothesis was as follows:

H4o: There was no relationship between a city's IT/business governance maturity level and its employment size.

H4a: There was a relationship between a city's IT/business governance maturity level and its employment size.

A one-way Analysis of Variance (ANOVA) was used to examine whether a city's IT/business governance maturity level (Gov) is a function of its employment size. The independent variable represented three different city sizes with unequal sample sizes: (a) small (n = 20); (b) medium (n = 20); and (c) large (n = 8). The dependent variable was

the overall Gov results obtained from 48 participants. All analysis used an alpha level of .05. The test for homogeneity of variance was not significant [*Levene F* (2, 45) = 0.07, *p* > .05] indicating that the underlying assumptions of applying ANOVA were correct. Figure 12 reveals that there was not a statistically significant difference in results [*F*(2, 45) = 0.30, *p* > .05] between governance and all three groups of city sizes which resulted in a small effective size .01.

ANOVA

Gov

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.417	2	.208	.295	.746
Within Groups	31.827	45	.707		
Total	32.243	47			

Figure 12. Analysis of variance for Gov.

Figure 13 graphically displays the means for the three city size groups as it relates to governance. The X-axis (FTEsize) represents the three groups (small, medium, and large). The Y-axis (Gov) represents the mean number of governance. Governance values are between 1 and 5. In this case, the medium sized LCGAs had the lowest mean score (2.38) compared to small sized LCGAs (2.58) and large sized LCGAs (2.43).

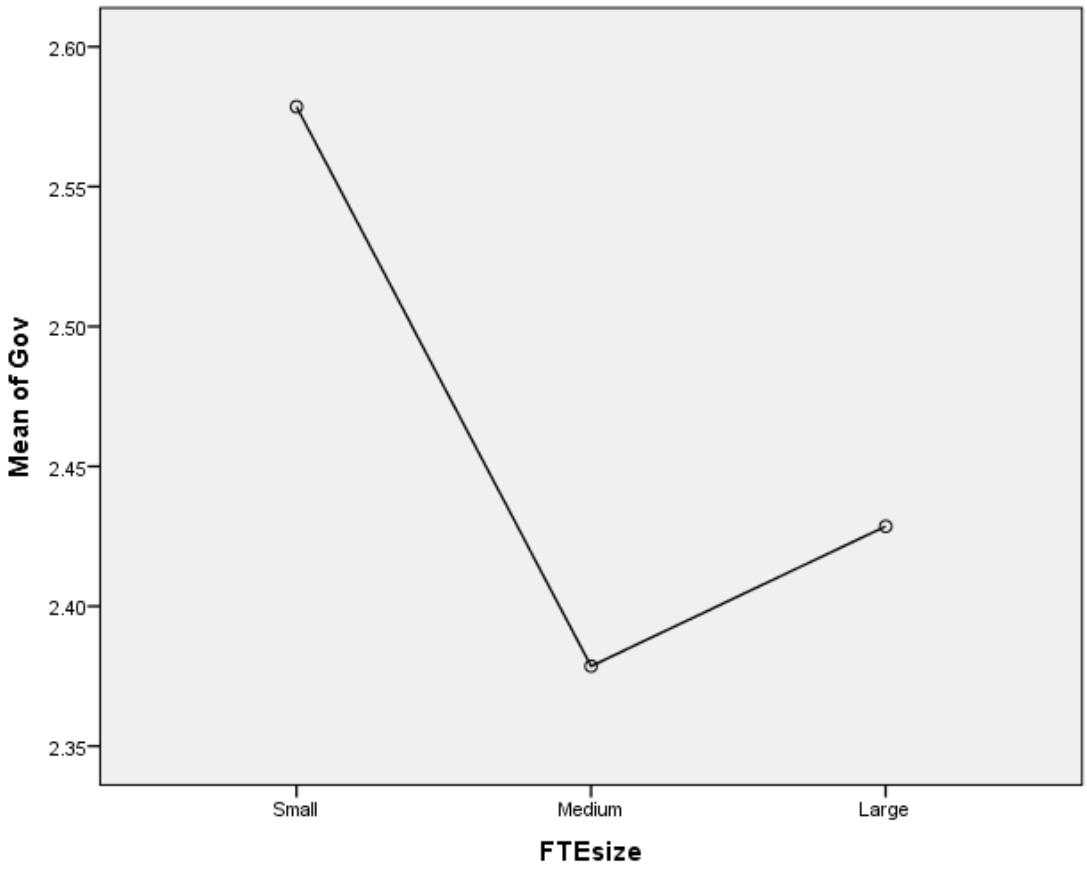

Figure 13. Gov mean plot.

The fifth hypothesis was as follows:

H5o: There was no relationship between a city's IT/business partnership maturity level and its employment size.

H5a: There was a relationship between a city's IT/business partnership maturity level and its employment size.

A one-way Analysis of Variance (ANOVA) was used to examine whether a city's IT/business partnership maturity level (Part) is a function of its employment size. The independent variable represented three different city sizes with unequal sample sizes: (a) small (n = 20); (b) medium (n = 20); and (c) large (n = 8). The dependent variable was

the overall partnership results obtained from 48 participants. All analysis used an alpha level of .05. The test for homogeneity of variance was not significant [*Levene F* (2, 45) = 1.94, $p > .05$] indicating that the underlying assumptions of applying ANOVA were correct. Figure 14 reveals that there was not a statistically significant difference in results [$F(2, 45) = 0.71$, $p > .05$] between Part and all three groups of city sizes which resulted in a small effective size of .02.

ANOVA

Part

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.374	2	.187	.347	.709
Within Groups	24.217	45	.538		
Total	24.590	47			

Figure 14. Analysis of variance for Part.

Figure 15 graphically displays the means for the three city size groups as it relates to the partnership criteria. The X-axis (FTEsize) represents the three groups (small, medium, and large). The Y-axis (Skills) represents the mean number of partnership. Part values are between 1 and 5. In this case, the medium sized LCGAs had the lowest mean score (2.58) compared to small sized LCGAs (2.77) and large sized LCGAs (2.75).

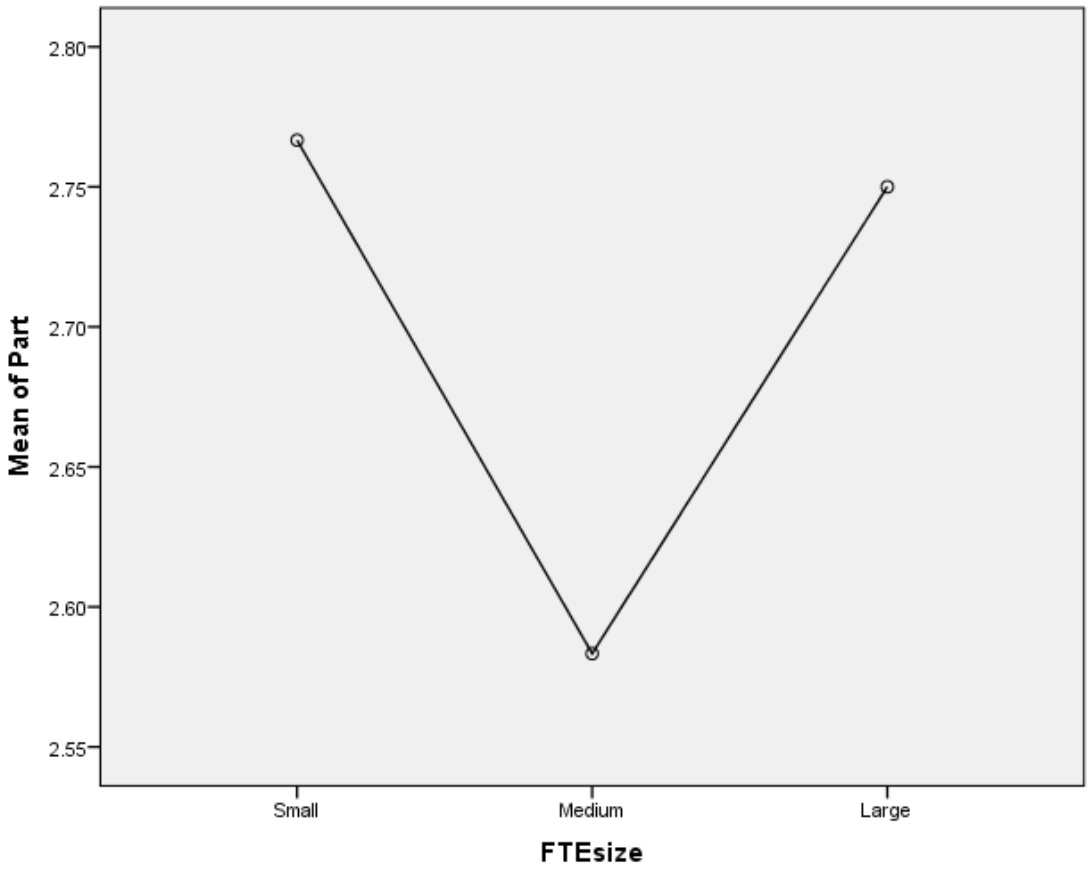

Figure 15. Part mean plot.

The sixth hypothesis was as follows:

H6o: There was no relationship between a city's IT/business scope and architecture maturity level and its employment size.

H6a: There was a relationship between a city's IT/business scope and architecture maturity level and its employment size.

A one-way Analysis of Variance (ANOVA) was used to examine whether a city's IT/business scope and architecture maturity level (Scope) is a function of its employment size. The independent variable represented three different city sizes with unequal sample

sizes: (a) small (n = 20); (b) medium (n = 20); and (c) large (n = 8). The dependent variable was the overall scope and architecture results obtained from 48 participants. All analysis used an alpha level of .05. The test for homogeneity of variance was not significant [*Levene* F (2, 45) = 0.01, $p > .05$] indicating that the underlying assumptions of applying ANOVA were correct. Figure 16 reveals that there was not a statistically significant difference in results [F(2, 45) = 0.86, $p > .05$] between scope/architecture and all three groups of city sizes which resulted in a small effective size of .04.

ANOVA

Scope

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.305	2	.152	.250	.780
Within Groups	27.452	45	.610		
Total	27.757	47			

Figure 16. Analysis of variance for Scope.

Figure 17 graphically displays the means for the three city size groups as it relates to scope and architecture. The X-axis (FTEsize) represents the three groups (small, medium, and large). The Y-axis (Skills) represents the mean number of scope and architecture. Scope values are between 1 and 5. In this case, the medium sized LCGAs had the lowest mean score (2.47) compared to small sized LCGAs (2.55) and large sized LCGAs (2.70).

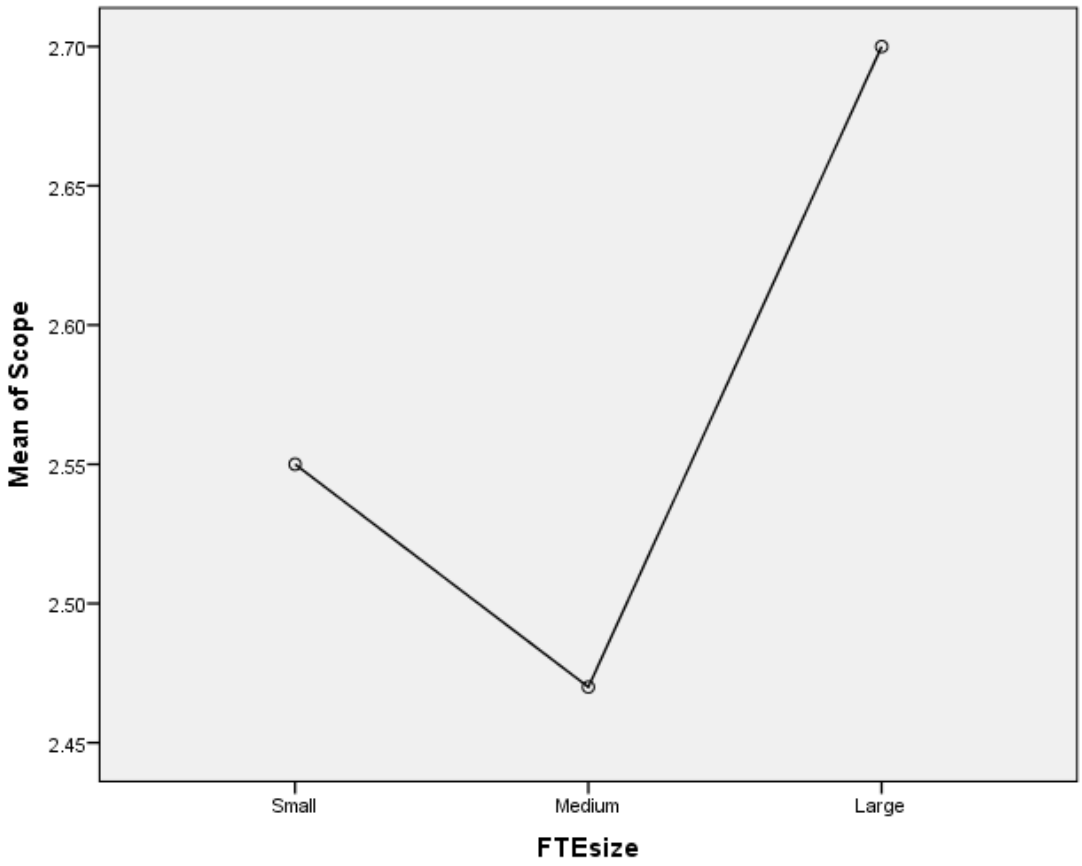

Figure 17. Scope mean plot.

The final hypothesis was as follows:

H7o: There was no relationship between a city's IT/business human resource skills maturity level and its employment size.

H7a: There was a relationship between a city's IT/business human resource skills maturity level and its employment size.

A one-way Analysis of Variance (ANOVA) was used to examine whether a city's IT/business human resource skills maturity level (Skills) is a function of its employment size. The independent variable represented three different city sizes with unequal sample sizes: (a) small (n = 20); (b) medium (n = 20); and (c) large (n = 8). The dependent

variable was the overall human resource skills results obtained from 48 participants. All analysis used an alpha level of .05. The test for homogeneity of variance was not significant [*Levene F* (2, 45) = 0.20, $p > .05$] indicating that the underlying assumptions of applying ANOVA were correct. Figure 18 reveals that there was not a statistically significant difference in results [$F(2, 45) = 1.04$, $p > .05$] between human resource skills and all three groups of city sizes which resulted in a small effective size of .04.

ANOVA

Skills

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.916	2	.458	1.040	.362
Within Groups	19.817	45	.440		
Total	20.733	47			

Figure 18. Analysis of variance for Skills.

Figure 19 graphically displays the means for the three city size groups as it relates to human resource skills. The X-axis (FTEsize) represents the three groups (small, medium, and large). The Y-axis (Skills) represents the mean number of human resource skills. Skills values are between 1 and 5. In this case, the medium sized LCGAs had the lowest mean score (2.14) compared to small sized LCGAs (2.33) and large sized LCGAs (2.52).

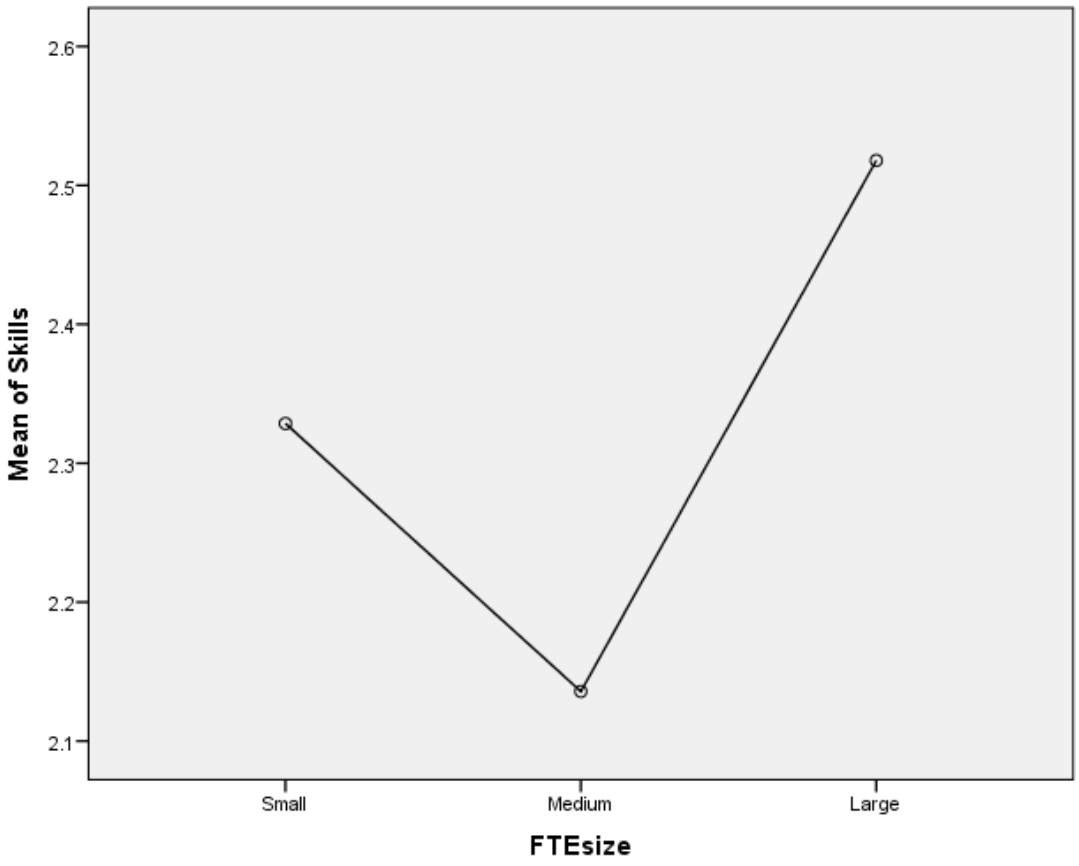

Figure 19. Skills mean plot.

Summary

The research question organizing this study was: What was the relationship between a city's IT/business strategic alignment maturity level and its employment size? I also looked at the current snapshot maturity level of LCGAs. Top management, department directors, and leaders within LCGAs accepted all null hypotheses. These business professionals showed that there were no mean differences between IT/business strategic alignment and employment group size. Therefore I can conclude that there is not enough evidence to reject all null hypotheses in terms of communication, competency/value, governance, partnership, scope/architecture, and human resource

scope as it relates to employment size. These findings, social change implications, and future research recommendations are discussed further in Chapter 5.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this study was to examine the relationship between a city's IT/business strategic alignment maturity level and its employment size using top executive perspectives. This quantitative survey design study relied on a one-way ANOVA test to analyze the relationship between means differences from 48 completed surveys. In addressing the question of what was the relationship between a city's IT/business strategic alignment maturity level and its employment size, I used a quantitative approach to examine if there is any statistical relationship between the independent (FTEsize) and dependent variables (SAMM). I distributed recruitment emails to 796 randomly selected LCGAs top executive participants and invited them all to participate in this web-based SurveyMonkey survey. A total of 80 participants attempted to take this survey of which 60% completed the survey. Only completed surveys were accepted and analyzed.

The purpose of Chapter 4 was to present and give comments on the statistical significance of this study. Chapter 5 interprets the findings in Chapter 4 and (a) summarizes findings, (b) explores interpretation of the findings, (c) discusses limitations, (d) provides recommendations for LCGAs, (e) discusses significance of this study, (f) identifies implications for social change, and (g) provides a conclusion. Each of these sections provides an overall summary of this study.

Interpretation of the Findings

Based on the statistical results in Chapter 4, I found that all null hypotheses must be retained because there was no statistical evidence to reject them. In the test for homogeneity in each hypothesis, $p > .05$.

The survey had two main sections: demographic and SAMM assessment questions. Because this survey was anonymous and confidential, only the job position and the city size demographics were asked of each participant. Participants were asked to self-identified as top management (deputy city manager, city manager, council member, major and the like), department directors (IT director, HR director, and the like), or Leaders (subject matter expert within the city). Similarly, participants were asked to identify the size of their city: small (<400), medium (400<1,000), and large (>1,000). The second section, SAMM, contained Luftman's 39 questions from his IT/business strategic alignment maturity model. I categorized these into six different criteria using a 5-point Likert scale on all of them with 1 = *Level 1 – Initial*, 2 = *Level 2 – Committed*, 3 = *Level 3 – Established*, 4 = *Level 4 – Improved/Managed*, and 5 = *Level 5 – Optimized*.

In the literature review, I noted that both Luftman and Chen's surveys used a similar approach in gathering both demographic and SAMM information. Following his strategic alignment measurement, GIMM (2015), Luftman's survey asked for demographic information such as the organizational demographics, country, and company background. Similarly, Chen (2010) asked for functional areas of responsibility, company type, and the type of industry. Chen's survey included the demographic

information and SAMM questions. A 5-point Likert scale allowed both Luftman and Chen to assess the significance of IT/business alignment.

To determine the relationship between variables, I designed the research question to be comprised of one independent variable and seven dependent variables. The independent variable was the LCGAs full-time employment size (FTEsize). All dependent variables were based on SAMM (the overall maturity level of LCGAs), Comm (communication maturity level), Comp (competency and value maturity level), Gov (governance maturity level), Part (partnership maturity level), Scope (scope and architecture maturity level), and Skills (human resource skills). I used SurveyMonkey to collect research data, and SPSS software to compute the data. For each hypothesis, I used a one-way ANOVA. I generated tables and figures of the results using SPSS.

Conversely, my literature review identified several differences in how researchers studying IT/business alignment have designed their research questions. Luftman et al. (2010) used a quantitative survey approach to measure relationship using a partial least squares method. De Haes and Van Grembergen (2009) took a qualitative approach with two research questions using exploratory research from secondary data. Khaiata and Zualkernam (2009) used a quantitative survey approach that sought to improve the SAMM instrument. Chen (2010) used a quantitative survey approach that included self-reporting maturity as the dependent variable and SAMM, along with its six criteria, as his independent variable. I was not able to establish consistency between authors based on the type of research questions asked.

The research question for this study was: What is the relationship between a city's IT/business strategic alignment maturity level and its employment size? For each of the seven hypotheses, I retained all null hypotheses because there was no statistical evidence to reject them in SAMM, Comm, Comp, Gov, Part, Scope, and Skills. I calculated the results for each hypothesis using a one-way ANOVA.

Compared to the findings of the studies outlined in the literature review, this study's findings were illuminating. Never before had a study of this nature been conducted on LCGAs. The findings of my study are thus a benchmark and a current snapshot of LCGAs. All participants of this study are innovators because they were willing to be the first to take a survey that had never been done before in LCGAs. Response levels indicate that there are many leaders in LCGAs looking for ways to improve their organization.

I designed this study to explore the characteristics or roles of ITG and business strategy and to determine significant mean differences between LCGAs IT/business strategic maturity level and its employment size. Luftman (2000) designed the SAMM assessment tool to quickly identify the maturity level of an organization. Based on the findings of my study, the overall maturity level of LCGAs is 2.5. Small-sized LCGAs had a maturity level of 2.59, medium-sized LCGAs had a maturity level of 2.34, and large-sized LCGAS had a maturity level of 2.61. Even though these maturity levels may appear low, it higher than those of the private sector organizations who have taken this survey. According to Cobit 4.1 excerpt (2014), the average private sector enterprise strategic alignment maturity level was Level 2.

The study from the Board Briefing (2003) noted that the responsibility of ITG belongs to top executives. As part of the demographic questions asked in my study, each participant was asked about their job position. A total of 18 participants were leaders, 15 were department directors, and 15 were top management. One of SAMM's criteria measured governance that is the responsibility of the top executives. Small-sized LCGAs has an overall governance maturity level of 2.58, medium-sized LCGAs has a governance maturity level of 2.38, and large-sized LCGAs has a governance maturity level of 2.43. The combined overall governance maturity level for LCGAs was 2.46. These results show that top executives feel that there is room for governance improvements.

Clearly, there was no statistical significant found between the SAMM and the FTE size. Even though the results were not statistically significance, the Luftman's assessment tool provided a baseline and current snapshots of the maturity levels of LCGAs. The maturity levels I found link back to the fundamental theories of this study. My findings show that medium-sized cities ranked the lowest in all the maturity areas measured. Both small and large cities had similar maturity levels. Human resource skills was the lowest maturity level for small (2.33) agencies. Competency and value maturity level was the lowest for medium and large-sized agencies (2.05 and 2.25 respectively). Conversely, I found that small cities are best at communication (2.91), medium cities are best at both communication (2.58) and partnership (2.58), and large cities are best at communication (3.21).

These findings are important to LCGAs. A major goal of this study was to provide LCGAs with information that may help their organization improve misalignment.

Misalignment can cause problems in IT/business strategic planning, budgeting, investment decisions, prioritization, and support. Knowing potential weaknesses and strengths will help LCGAs to target specific areas to improve. The assessment conducted this study provides LCGAs with a current snapshot of their maturity alignment levels.

Limitations of the Study

There are several limitations that may have had an influence on the results of this study. One possible reasons why the null hypotheses were rejected could have been because of the power level. A larger sample size would have changed the statistical significance. I calculated that if all remained the same, three times as many participants would have produced a significance, $p < .05$. Future researchers should attempt to assess a bigger sample size ($N = 150+$).

Another limitation of this study was the small area of ITG that this study covered. Luftman et al. (2010) addressed governance in terms of the allocation of decision rights. Reduction cost, quality improvements, best practices, continuous improvement, scalability, process improvements, quality customer service, marketing, and change management are all strategies of ITG not covered in this study. Due to the limitations of this study, these areas were not addressed.

Additionally, meeting potential participants could have increased the sample size and engender more enthusiasm to take the survey. Each participant only received emails, and they responded to the survey without any face-to-face interaction. Allocating time to take this survey was also a big concern knowing that potential participants in LCGAs are

operating with fewer resources, time, and money. Despite all these limitations, this study provided results that could be used for future studies and in LCGAs.

Recommendations

The results of this study depicted areas in which one can expect better alignment between ITG and business strategy alignment. Organizations today are looking for tangible proof that they are receiving IT value on their investments. The review of the literature shows that ITG is becoming valuable in organizations today in terms of performance measures, management, reporting, investments, alignment, and executive discussion points (Magnusson and Bygstad, 2013). Even though the results show that there were no statistical significance between the three group sizes and SAMM, there was value in assessing the current snapshot of LCGAs. The assessment results provide a snapshot of the maturity level of small, medium, and large LCGAs.

It recommended that small, medium, and large LCGAs work at attaining maturity Level 3. Except for large LCGAs communication maturity level, all other maturity levels were below Level 3. According to Luftman (2000), there are six main transition points to transition from maturity Level 2 to Maturity Level 3.

Therefore, Figure 19 displays the current maturity level of LCGAs along with Luftman's (2000) easy steps to improve by one level. Luftman (2000) noted that improvement is incremental. To move from maturity Level 2.5 to 3.0, LCGAs must improve in several ways:

1. Comm: Each LCGAs will need to move from a limited business IT understanding to a good understanding, relaxed communication emerging

2. Comp: Each LCGAs will need to move from measuring functional cost efficiency to measuring some cost effectiveness, dashboard established
3. Gov: Each LCGAs will need to move from tactical at the functional level, occasionally responsive to relevant processes across the organization
4. Part: Each LCGAs will need to move from IT emerging as an asset, process enabler, to IT is as an asset, process driver, and conflict seen as creative
5. Scope: Each LCGAs will need to move from being transactional to integrated across the organization
6. Skills: Each LCGAs will need to move from differing across the functional organization to an emerging value service provider balanced technical and business hiring

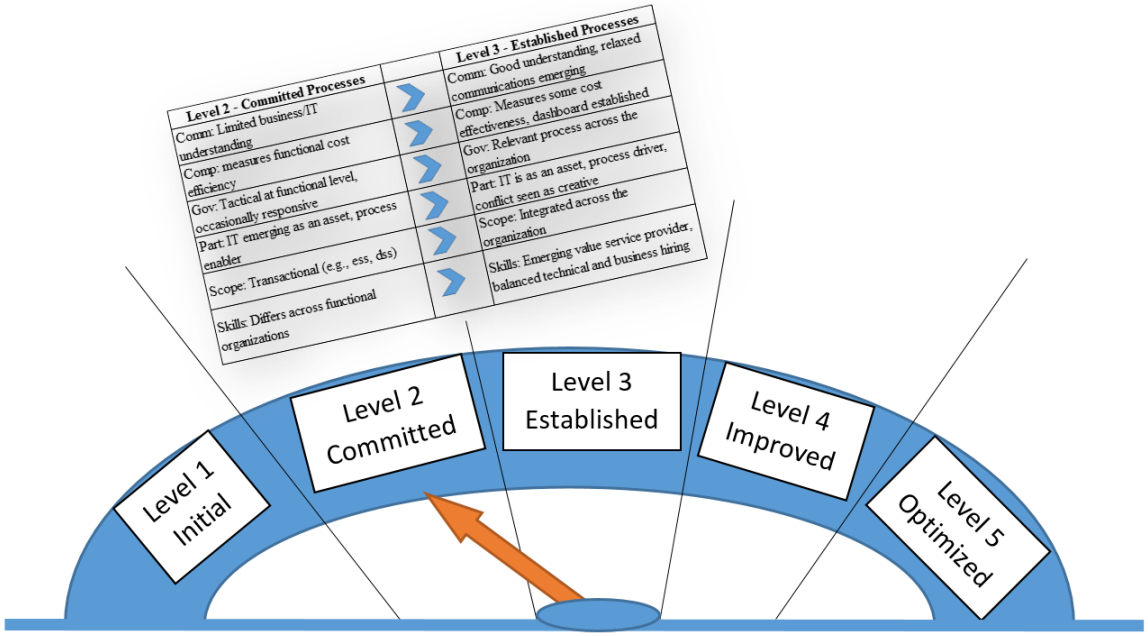

Figure 20. SAMM maturity level adjustment.

This study only covered a few areas that related to ITG and business strategy. Future study must focus externally and operationally on ITG as it relates to business strategy in areas such as customer relationship, supplier management, data protection, outsourcing, and privacy. Similarly, other studies should focus on specific alignment areas in external strategic state/federal policies such as HIPPA compliance, SOX compliance, ISO 9000 compliance, or the Patriot Act compliance. Internally, future research should focus operationally on how ITG relates to business strategy in areas such as ethics codes, Internet policies, information assurance, and quality assessment/testing. Lastly, other studies should focus internally and strategically on areas such as audit controls, benchmarking, and strategic alignment. There are many opportunities available to build upon research on ITG and business strategies.

Implication of Social Change

Implications of positive social change may be assessed by evaluating the present state of individual and collaborative LCGAs. Because of limited resources, time, and money, proper governance of IT is being required by customers, stakeholders, investors, and state/federal governing bodies. Similarly, considering the relationship internally between the effectiveness of ITG and business strategy has significant implications of positive social change because key positions within an organization such as the mayor, council members, city managers, CIOs, CFOs, and the like are held responsible for the investments made by an IT department.

I examined the relationship between a city's IT/business strategic alignment maturity level and its employment size. The results of the research question showed that

no statistically significant relationship exists between SAMM and the size of a city. Additionally, the results showed a snapshot maturity level as it relates to SAMM and ITG. These results offer evidence that inform LCGAs how well a similar FTEsize city agency is currently performing. This study provides positive social change in LCGAs because it provides data that never existed before.

The findings of this study show the need for more ITG discussions and strategic business alignment. There is a need for further studies. The current state of ITG and business strategic alignment in LCGAs is at a maturity Level of 2.5. There may be a need to cover external requirements and more internal requirements. Decision makers within LCGAs should use this study as a guide in addressing the need for better defined ITG and business strategy measures. To achieve the effectiveness of ITG in such areas as expanding market niche, managing workflow talent, reducing operational cost, and providing flexible staffing proper measures must be in place to evaluate these results. These findings of this study show decision makers areas in which they can make improvements.

Conclusion

Many top executives have accepted ITG as a method to govern IT in terms of setting rules, providing direction, and developing policies to be the right direction moving forward. According to the Global Status Report (2011), 94% in 2010, 93% in 2008, 87% in 2006, and 91% in 2004 of all respondents thought that ITG helps with the delivery of the overall business strategy. I identified tangible variables that relates to the relationship between a city's IT/business strategic alignment maturity level and its employment size.

The results of this study revealed several tangible variables that did not reveal a statistically significance between ITG and business strategy alignment. However, this study was able to assess the current state of LCGAs and provide a snapshot of the current environment. According to the Global Status Report (2011), only 8.5% of 834 respondents think that ITG activity is driven by complying with industry and governmental regulations. Managing cost and alignment with current business needs represent 58% that drives ITG activities (Global Status Report, 2011). Top executives should ensure the use of ITG to align itself with business strategies in the way it sets rules, provide direction and develop policies. It is the top executives' duty to make sure that ITG is not only implemented but aim to reach a maximum maturity, Level 5. Further research must be done to understand how ITG aligns with business strategy. This study provides a good initial basis to expand upon this research.

References

Abels, M. (2014). Strategic alignment for the new normal collaboration, sustainability, and deliberation in local government across boundaries. *State and Local Government Review, 46*(3), 11-218. doi:10.1177/0160323X14551179

Abu-Musa, A. (2009). Exploring the importance and implementation of COBIT processes in Saudi organizations: An empirical study. *Information Management & Computer Security, 17*(2), 73-95. doi:10.1108/09685220910963974

Alcott, L. (2008). *IT governance maturity and context* (ECAR Research Study 5). Retrieved from the Educause Center for Applied Research website: http://net .educause.edu/ir/library/pdf/ers0805/rs/ers08053.pdf

Ali, S., & Green, P. (2012). Effective information technology (IT) governance mechanisms: An IT outsourcing perspective. *Information Systems Frontiers, 14*(2), 179-193. doi:10.1007/s10796-009-9183-y

Allen, B., & Boynton, A. (1991). Information architecture: In search of efficient flexibility. *MIS Quarterly, 15*(4), 435-445. doi:10.2307/249447

Alsudiri, T., Al-Karaghouli, W., & Eldabi, T. (2013). Alignment of large project management process to business strategy: A review and conceptual framework. *Journal of Enterprise Information Management, 26*(5), 596-615. doi:10.1108 /JEIM-07-2013-0050

Avison, D., Jones, J., Powell, P., & Wilson, D. (2002). Using and validating the strategic alignment model. *Journal of Strategic Information Systems, 13*(2004), 223-246. doi:10.1016/j.jsis.2004.08.002

Bargeron, L. L., Lehn, K. M., & Zutter, C. J. (2010). Sarbanes-Oxley and corporate risk-taking. *Journal of Accounting and Economics, 49*(1), 34-52. doi:10.1016/j .jacceco.2009.05.001

Bart, C., & Turel, O. (2010). IT and the board of directors: An empirical investigation into the "governance questions" Canadian board members ask about IT. *Journal of Information Systems, 24*(2), 147-172. doi:10.2308/jis.2010.24.2.147

Bemroider, E., & Ivanov, M. (2011). IT project management control and the control objectives for IT and related technology (COBIT) framework. *International Journal of Project Management, 29*(2011), 325-336. doi:10.1016/j-ijproman .2010.03.002

Bin-Abbas, H., & Bakry, S. H. (2014). Assessment of IT governance in organizations: A simple integrated approach. *Computers in Human Behavior, 32*(2014), 261-267. doi:10.1016/j.chb.2013.12.019

Brochet, F. (2010). Information content of insider trades before and after the Sarbanes-Oxley Act. *The Accounting Review, 85*(2), 419-446. doi:10.2308/accr.2010 .85.2.419

Brown, C. (1997). Examining the emergence of hybrid IS governance solutions: Evidence from a single case site. *Information Systems Research, 8*(1), 69-94. doi:10.1287/isre.8.1.69

Casadesus-Masanell, R., & Ricart, J. E. (2010). From strategy to business models and onto tactics. *Long Range Planning, 43*(2), 195-215. doi:10.1016/j.Irp.2010.01.004

Cenus Burea. (2014). *Annual Questionnaire of Public Employment & Payroll Summary*

Report: 2013. Retrieved from the census website: http://www2.census.gov/govs/apes/2013_summary_report.pdf

Chan, Y., & Reich, B. (2007). IT alignment: What have we learned? *Journal of Information Technology, 2007*(22), 297-315. doi:10.1057/palgrave.jit.200109

Chen, L. (2010). Business–IT alignment maturity of companies in China. *Information & management, 47*(1), 9-16. doi:10.1016/j.im.2009.09.003

Cohen, J., Krishnamoorthy, G., & Wright, A. (2010). Corporate governance in the post-Sarbanes-Oxley era: Auditors' experiences. *Contemporary Accounting Research, 27*(3), 751-786. doi:10.1111/j.1911-3846.2010.01026.x

Collins, D., Masli, A., Reitenga, A. L., & Sanchez, J. M. (2009). Earnings restatements, the Sarbanes-Oxley Act, and the disciplining of chief financial officers. *Journal of Accounting, Auditing & Finance, 24*(1), 1-34. doi:10.1177/0148558X0902400103

Croteau, A. M., & Bergeron, F. (2001). An information technology trilogy: Business strategy, technological deployment and organizational performance. *The Journal of Strategic Information Systems, 10*(2), 77-99. doi:10.1016/S0963-8687(01)00044-0

Daniel, D. R. (1961). Management information crisis. *Harvard Business Review*, *39*(5), 111-121. Retrieved from http://hbr.org

De Haes, S., & Van Grembergen, W. (2009). An exploratory study into IT governance implementations and its impact on business/IT alignment. *Information Systems Management, 26*(2), 123-137. doi:10.1080/10580530902794786

De Haes, S., & Van Grembergen, W. (2010). Analysing the impact of enterprise

governance of IT practices on business performance. *International Journal of IT/Business Alignment and Governance (IJITBAG), 1*(1), 14-38. doi:10.4018/ijitbag.20100101

de Souza Bermejo, P. H., & Tonelli, A. O. (2011, January). Planning and Implementing IT Governance in Brazilian Public Organizations. In *System Sciences (HICSS), 2011 44th Hawaii International Conference on* (pp. 1-10). IEEE. doi:10.1109/HICSS.2011.343

De Vasconcellos, E. S., Sousa, J. A., & Hambrick, D. C. (1989). Key success factors: Test of a general theory in the mature industrial-product sector. *Strategic Management Journal, 10*(4), 367-382. doi:10.1002/smj.4250100406

Debreceny, R., & Gray, G. (2013). IT governance and process maturity: A multinational field study. *Journal of Information Systems, 27*(1), 157-188. doi:10.2308/isys-50418

Diebold, J. (1965). What's ahead in information technology? *Harvard Business Review, 43*(5), 76-82. Retrieved from http://hbr.org

Dixon, P., & John, D. (1989). Technology issues facing corporate management in the 1990s'. *MIS Quarterly, 13*(3), 247-255. doi:10.2307/248998

Duhamel, F., Gutierrez-Martinez, I., Picazo-Vela, S., & Luna-Reyes, L. (2014). IT outsourcing in the public sector: A conceptual model. *Transforming Government: People, Process and Policy, 8*(1), 8-27. doi:10.1108/TG-05-2013-0012

El-Mekawy, M., Rusu, L., & Perjons, E. (2015). An evaluation framework for comparing business-IT alignment models: a tool for supporting collaborative learning in

organizations. *Computers in Human Behavior, 51*(2015), 1-19. doi:10.1016/j.chb.2014.12.016

Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences* (7th ed.). New York, NY: Worth Publishers.

Galup, S. D., Dattero, R., Quan, J. J., & Conger, S. (2009). An overview of IT service management. *Communications of the ACM, 52*(5), 124-127. doi:10.1145/1506409.1506439

GIIM strategic alignment measurement. (2015). GIIM. Retrieved from https://www.surveymonkey.com/r/?sm=OESQnK%2BZVbSxDzcGfJMicA%3D%3D

Global status report on the governance of enterprise IT (GEIT) - 2011. (2011). ISACA. Retrieved from http://www.isaca.org/Knowledge-Center/Research/ResearchDeliverables/Pages/ITGI-Global-Questionnaire-Results.aspx

Green, S., & Salkind, N. (2011). *Using SPSS for Windows and Macintosh: analyzing and understanding data.* (6th ed.) Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Hall, M., Kutsch, E., & Partington, D. (2012). Removing the culture and managerial barriers in project-to-project learning: a case from the UK public sector. *Public Administration, 90*(3), 664-684. doi:10.1111/j.1467-9299.2011.01980.x

Hoekstra, A., & Conradie, N. (2002). PricewaterhouseCoopers. Retrieved from https://www.cccure.org/Documents/COBIT/COBIT_ITIL_and_BS7799.pdf

Hoitash, R., Hoitash, U., & Johnstone, K. M. (2012). Internal Control Material Weaknesses and CFO Compensation* Internal Control Material Weaknesses and CFO Compensation. *Contemporary Accounting Research, 29*(3), 768-803. doi:10.1111/j.1911-3846.2011.01122.x

Hong, K. S., Chi, Y. P., Chao, L. R., & Tang, J. H. (2003). An integrated system theory of information security management. *Information Management & Computer Security*, *11*(5), 243-248. doi:10.1108/09685220310500153

Hong, K. S., Chi, Y. P., Chao, L. R., & Tang, J. H. (2003). An integrated system theory of information security management. *Information Management & Computer Security, 11*(5), 243-248. doi:10.1108/09685220310500153

Huang, R., Zmud, R. W., & Price, R. L. (2010). Influencing the effectiveness of IT governance practices through steering committees and communication policies. *European Journal of Information Systems*, *19*(3), 288-302. doi:10.1057/ejis.2010.16

Iden, J., & Eikebrokk, T. R. (2014). Using the ITIL process reference model for realizing IT Governance: An empirical investigation. *Information Systems Management, 31*(1), 37-58. doi:10.1080/10580530.2014.854089

Information Systems Audit and Control Association. (2014). CobiT 4.1. Retrieved from the ISACA website: http://www.isaca.org/Knowledge-Center/cobit/Documents/COBIT4.pdf

IT Governance Institute. (2004). *Board briefing on IT governance* (2nd ed). Retrieved from the ISACA website: http://www.isaca.org/restricted/Documents/26904

_Board_Briefing_final.pdf

IT Governance Institute. (2011). *An executive view of IT governance*. Retrieved from the ISACA website: http://www.isaca.org /Knowledge-Center/Research/Documents /An-Executive-View-of-IT-Governance-Research_res_Eng_0109.pdf

ITIL Continual Service Improvement. (2011). *ITIL*. Norwich, England: The Stationery Office.

ITIL Service Strategy. (2011). *ITIL*. Norwich, England: The Stationery Office.

Jacobson, D. D. (2009, January). Revisiting IT governance in the light of institutional theory. In System Sciences, 2009. HICSS'09. 42nd Hawaii International Conference on (pp. 1-9). *IEEE*. doi:10.1109/HICSS.2009.374

Jairak, K., & Praneetpolgrang, P. (2013). Applying IT governance balanced scorecard and importance-performance analysis for providing IT governance strategy in university. *Information Management & Computer Security, 21*(4), 228-249. doi:10.1108/IMCS-08-2012-0036

Janssen, M., & Schrenker, R. (2011). Guidelines from 80001: Maintaining a medical IT network. *Biomedical Instrumentation & Technology, 45*(4), 295-299. doi:10.2345/0899-8205-45.4.295

Kabachinski, J. (2011). Have you heard of ITIL? It's time you did. *Biomedical Instrumentation & Technology, 45*(1), 59-62. doi:10.2345/0899-8205-45.1.59

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators: Methodology and analytical issues. *Hague Journal of The Rule Of Law, 3*(2), 220-246. doi:10.1017/S1876404511200046

Kerr, D., & Murthy, U. (2013). The importance of the Cobit framework IT processes for effective internal control over financial reporting in organizations: An international questionnaire. *Information & Management, 50*(2013), 590-597. doi:10.1016/j.im.2013.07.012

Khaiata, M., & Zualkernan, I. (2009). A simple instrument to measure IT-Business alignment maturity. *Information Systems Management, 26*(2), 138-152. doi:10.1080/10580530902797524

Khatri, V., & Brown, C. V. (2010). Designing data governance. *Communications of the ACM, 53*(1), 148-152. doi:10.1145/1629175.1629210

King, J. (1983). Centralized versus decentralized computing: Organizational considerations and management options. *Computing Questionnaires, 15*(4), 319-349. doi:10.1145/289.290

Kooper, M. N., Maes, R., & Lindgreen, E. E. O. (2011). On the governance of information: Introducing a new concept of governance to support the management of information. *International Journal of Information Management, 31*(3), 195-200. doi:10.1016/j.ijinfomgt.2010.05.009

Kryzanowski, L., & Zhang, Y. (2013). Financial restatements and Sarbanes-Oxley: Impact on Canadian firm governance and management turnover. *Journal of Corporate Finance, 21*(2013), 87-105. doi:10.1016/j.jcorpfin.2013.01.007

Kuhn Jr, J. R., Ahuja, M., & Mueller, J. (2013). An examination of the relationship of IT control weakness to company financial performance and health. *International Journal of Accounting and Information Management, 21*(3), 227-240.

doi:10.1108/IJAIM-12-2011-0042

Langbein, L. (2006). *Public program evaluation: A statistical guide*. Armonk, NY: M.E. Sharpe.

Leedy, P., & Ormrod, J. (2005). *Practical research: Planning and design* (8th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Li, C., Peters, G. F., Richardson, V. J., & Watson, M. W. (2012). The consequences of information technology control weaknesses on management information systems: The case of Sarbanes-Oxley internal control reports. *MIS Quarterly, 36*(1), 179-204. doi:10.1145/1216218.1216224

Luftman, J. (1996). *Competing in the information age: Strategic alignment in practice*. New York, NY: Oxford University Press.

Luftman, J. (2000). Addressing business-IT alignment maturity. *Communications of AIS, 4*(14), 1-50. Retrieved from http://aisel.aisnet.org/cais/

Luftman, J. (2004). *Managing the information technology resources.* Upper Saddle River, NJ: Pearson Prentice Hall.

Luftman, J. (2010). Business/IT-alignment: it's all about people! Retrieved from https://businessitalignment.wordpress.com/2010/12/22/strategic-alignment-maturity-model-luftman/

Luftman, J., Ben-Zvi, T., Dwivedi, R., & Rigoni, E. (2010). IT governance: an alignment maturity perspective. *International Journal on IT/Business Alignment and Governance, 1*(2), 13-25. doi:10.4018/jitbag.2010040102

Magnusson, J., & Bygstad, B. (2013). Why I act differently: Studying patterns of

legitimation among CIOs through motive talk. *Information Technology & People, 26*(3), 265-282. doi:10.1108/ITP-10-2012-0117

Markovic, V., & Maksimovic, R. (2012). A contribution to continual software service improvement based on the six-step service improvement method. *International Journal of Software Engineering and Knowledge Engineering, 22*(04), 549-569. doi:10.1142/S0218194012500143

Martin, L. L., Levey, R., & Cawley, J. (2012). The "new normal" for local government. *State and Local Government Review, 44*(1 Suppl), 17S-28S. doi:10.1177/0160323X12440103

Meyer, N. D. (2004). Systemic is governance: An introduction. *Information Systems Management, 21*(4), 23-34. doi:10.1201/1078/44705.21.4.20040901/84184.3

Millar, J. A., & Bowen, B. W. (2011). Small and large firm regulatory costs: The case of the Sarbanes-Oxley Act. *Corporate Governance, 11*(2), 161-170. doi:10.1108/14720701111121038

Miller, D. (2006). Strategic human resource management in department stores: An historical perspective. *Journal of Retailing and Consumer Services, 13*(2006), 99-109. doi:10.1016/j.jretconser.2005.08.012

Mohamed, N. (2012). A conceptual framework for information technology governance effectiveness in private organizations. *Information Management & Computer Security, 20*(2), 88-106. doi:10.1108/09685221211235616

Moore, T. (2007). Competent to rule: Qualifications of church leadership. Retrieved from http://www.breakpoint.org/features-columns/archive/1289-competent-to-rule

Myers, B. (1998). A brief history of human-computer interaction technology. *Interactions, 5*(2), 44-54. doi:10.1145/274430.274436

Newman, I. (1998). *Qualitative-quantitative research methodology: Exploring the interactive continuum*. Carbondale, IL: Southern Illinois University Press.

Norton, D. W., & Pine II, B. J. (2013). Using the customer journey to road test and refine the business model. *Strategy & Leadership*, *41*(2), 12-17. doi:10.1108/10878571311318196

Palczewska, A., Fu, X., Trundle, P., Yang, L., Neagu, D., Ridley, M., & Travis, K. (2013). Towards model governance in predictive toxicology. *International Journal of Information Management. 33*(3), 567-582. doi:10.1016/j.ijinfomgt.2013.02.005

Pena, I., & Villasalero, M. (2010). Business strategy, human resource systems, and organizational performance in the Spanish banking industry. *The International Journal of Human Resource Management, 21*(15), 2864-2888. doi:10.1080/09585192.2010.528670

Raghupathi, W. (2007). Corporate governance of IT: A framework for development. *Communications of the ACM, 50*(8), 94-99. doi:10.1145/1278201.1278212

Reddick, C. (2011). Information technology and emergency management: Preparedness and planning in U.S. states. *Disasters, 35*(1), 45-61. doi:10.1111/j.0361.2010.01192.x

Rhodes, R. A. W. (1996). The new governance: Governing without government. *Political Studies, 44*(4), 652-667. doi:10.1111/j.1467-9248.1996.tb01747.x

Robinson, N. (2005). IT excellence starts with governance. *Journal of Investment Compliance, 6*(3), 45-49. doi:10.1108/15285810510659310

Röglinger, M., Pöppelbuß, J., & Becker, J. (2012). Maturity models in business process management. *Business Process Management Journal, 18*(2), 328-346. doi:10.1108/14637151211225225

Rosacker, K., & Rosacker R. (2010). Information technology project management within public sector organizations. *Journal of Enterprise Information Management, 23*(5), 587-594. doi:10.1108/1741039101083047

Schwartz, K. (2007). *CIO*. Retrieved from http://www.cio.com/article/111700/IT_Governance_Definition_and_Solutions

Schwarz, A., & Hirschheim, R. (2003). An extended platform logic perspective of IT governance: Managing perceptions and activities of IT. *Journal of Strategic Information Systems, 12*(2003), 129-166. doi:10.1016/S0963-8687(03)00021-0

Shapiro, E., & Benenson, Y. (2006). Bringing DNA computers to life. *Scientific American, 294*(5), 44-51. doi:10.1038/scientificamerican0506-44

Shavarini, S. K., Salimian, H., Nazemi, J., & Alborzi, M. (2013). Operations strategy and business strategy alignment model (case of Iranian industries). *International Journal of Operations & Production Management, 33*(9), 1108-1130. doi:10.1108/IJOPM-12-2011-0467

Shleifer, A., & Vishny, R. W. (1997). A questionnaire of corporate governance. *The Journal of Finance, 52*(2), 737-783. doi:10.1111/j.1540-6261.1997.tb04820.x

Simonsson, M., Johnson, P., & Ekstedt, M. (2010). The effect of IT governance maturity

of IT governance performance. *Information Systems Management, 27*(1), 10-24. doi:10.1080/10580530903455106

Slater, S. F., Olson, E. M., & Finnegan, C. (2011). Business strategy, marketing organization culture, and performance. *Marketing Letters, 22*(3), 227-242. doi:10.1007/s11002-010-9122-1

Sledgianowski, D., Luftman, J. N., & Reilly, R. R. (2006). Development and validation of an instrument to measure maturity of IT business strategic alignment mechanisms. *Innovative Technologies for Information Resources Management, 19*(3), 18-33. doi:10.4018/irmj.2006070102

Tiwana, A., Konsynski, B., & Venkatraman, N. (2013). Special issue: information technology and organizational governance: The IT governance cube. *Journal of Management Information Systems, 30*(3), 7-12. doi:10.2753/MIS0742-1222300301

Tsai, W. H., Hwang, E. T., Chang, J. C., & Lin, S. J. (2011). The Relationship between team risk factors and IT Governance under ERP environment. *International Journal of Business and Management, 6*(11), 21-26. doi:10.5539/ijbm.v6n11p21

Van de Ven, A. (2007). *Engaged scholarship: A guide for organizational and social research*. Oxford, NY: Oxford University Press.

Van Grembergen, W., & De Haes, S. (2010). A research journey into enterprise governance of IT, business/IT alignment and value creation. *International Journal on IT/Business Alignment on Government, 1*(1), 1-13. doi:10.4018/jitbag.2010120401

Weill, P., & Ross, J. (2004). *IT governance: How top performers manage IT decision rights for superior results*. Watertown, MA: Harvard Business School Press.

Wong, T., Ngan, S., Chan, F., & Chong, A. (2012). A two-stage analysis of the influences of employee alignment on effecting business-IT alignment. *Decision Support Systems, 53*(2012), 490-498. doi:10.1016/j.dss.2012.03.008

Zmud, R. (1984). Design alternatives for organizing information systems activities. *MIS Quarterly, 8*(2), 79-93. doi:10.2307/249345

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January 31, 2015

To Walden University:

The purpose of this letter is to grant Leslie D'Anjou permission to use my Strategic Alignment Maturity Model (SAMM) Instrument for the sole purposes of his Dissertation research at Walden University. If you have any questions and/or concerns, please feel free to contact me. Good Luck, Leslie!

Jerry Luftman **Ph.D.**
Professor & Managing Director
Global Institute for IT Management LLC

Appendix B: SAMM Survey Questions

Item	Question	Level1: With Process (No Alignment)	Level2: Beginning Process	Level3: Establishing Process	Level4: Improved Process	Level5: Optimal Process (Complete Alignment)
Communication maturity (COMM)						
COMM1	Degree of understanding of the business by the IT function	IT management lack understanding	Limited understanding by IT management	Good understanding by IT management	Understanding encouraged among IT staff	Understanding required of all IT staff
COMM2	Degree of understanding of IT by the business	Managers lack understanding	Limited understanding by IT management	Good understanding by managers	Understanding encouraged among staff	Understanding required of all staff
COMM3	Degree of richness of methods used for organizational learning	Casual conversation and meetings	Newsletters, reports, group e-mail	Training, departmental meetings	Formal methods sponsored by senior management	Learning monitored for effectness
COMM4	Communication style used within the organization	Business to IT only: formal	One-way, somewhat informal	Two-way, formal	Two-wy, somewhat informal	Two-way, informal and flexible
COMM5	Degree of knowledge sharing throughout the organization	Ad hoc	Some structured sharing emerging	Structured around key processes	Formal sharing at all levels	Formal sharing with partners
COMM6	Use of IT business liaisons	None or use only as needed	Primary IT-Business link	Facilitate knowledge transfer	Facilitate relationship building	Building relationship with partners
Competency and value maturity (COMP)						
COMP1	Focus of the metrics and processes to measure IT's contribution	Technical only	Technical cost; metrics rarely reviewed	Review, act on technical, ROI metrics	Also measure effectiveness	Also measure business ops, HR, partners
COMP2	Focus of the metrics and processes to measure business contribution	IT investments measured rarely, if ever	Cost/unit; rarely reviewed	Review, act on ROI, cost	Also measure customer value	Balanced scorecard, includes partners
COMP3	Degree of and orientation of integrated IT and business measures	Value of IT investments rarely measured	Business, IT metrics not linked	Business, IT metrics becoming linked	Formally linked; reviewed and acted upon	Balanced scorecard, includes partners
COMP4	Degree of service level agreements	Use sporadically	With units for technology performance	With units; becoming enterprisewide	Enterprisewide	Includes partners
COMP5	Frequency and formality of benchmarking practices	Seldom or never	Sometimes benchmark informally	May benchmark formally, seldom act	Routinely benchmark usually act	Rotinely benchmark, act on, and measure results
COMP6	Frequency and formality of IT assessments and reviews	Do not assess	Only when there is a problem	Becoming a routine occurrence	Routinely assess and act on findings	Rotinely assess, act on, and measure results
COMP7	Degree of continuous improvement practices	None	Few;effectiveness not measured	Few; starting to measure effectiveness	Many; frequenctly measure effectiveness	Practices and measures well-established
COMP8	Contribution of IT to strategic goals	Ad hoc	Basic planning at the unit level	Some inter-organizational planning	Managed across the enterprise	Integrated across and outside the enterprise
Governance maturity (GOV)						
GOV1	Degree of business strategic planning with IT involvement	Not done, or done as needed	At unit functonal level, slight IT input	Some IT input and cross-functional planning	At unit and enterprise, with IT	With IT and Partners
GOV2	Degree of IT strategic planning with business involvement	Not done, or done as needed	At unit functonal level, slight business input	Some business input and cross-functional planning	At unit and enterprise, with business	With Partners
GOV3	Basis of budgeting IT resources	Centralized or decentralized	Central/decentral; some collocation	Central/decentral or Federal	Federal	Federal
GOV4	Basis of IT investment decisions	CIO reports to CFO	CIO reports to CFO	CIO reports to COO	CIO reports to COO or CEO	CIO reports to CEO
GOV5	Frequency formality, and effectiveness of IT steering committees	Cost center spending is unpredictable	Cost center by unit	Some projects treated as investments	IT treated as investment	Profit center
GOV6	Integration of IT project prioritization	Reduce costs	Productivity, efficiency	Also a process enabler	Process driver, strategy enabler	Competitive advantage, profit
GOV7	IT function's responsiveness to changing business needs	Do not have	Meet informally as needed	Formal committees meet regularly	Proven to be effective	Also includes external partners

Item	Question	Level1: With Process (No Alignment)	Level2: Beginning Process	Level3: Establishing Process	Level4: Improved Process	Level5: Optimal Process (Complete Alignment)
Partnership maturity (PART)						
PART1	Business' perception of the role of IT	React to business or IT need	Determined by IT function	Determined by business function	Mutually determined	Partners' priorities are considered
PART2	Role of IT in strategic business planning	Cost of doing business	Becoming an asset	Enables future business activity	Drives future business activity	Partner with business in creating value
PART3	Integrated sharing of risks and rewards	Not involved	Enables business processes	Drives business processes	Enables or drives business strategy	IT, business adapt quickly to change
PART4	Formality and effectiveness of partnership programs	IT takes all the risks, receives no rewards	IT takes most risks with little reward	IT, business start sharing risks, rewards	Risks, rewards always shared	Managers incented to take risks
PART5	Perception of trust and value	IT-business relationship is not managed	Managed on an ad hoc basis	Processes exist but not always followed	Processes exist and complied with	Processes are continuously improved
PART6	Reporting level of business sponsor/champion	Conflict and mistrust	Transactional relationship	IT becoming a valued service provider	Long-term partnership	Partner, trusted vendor of IT services
Technology scope maturity (SCOPE)						
SCOPE1	Technological and strategic sophistication of primary systems/applications	Usually none	Often have a senior IT sponsor or champion	IT and business sponsor or champion at unit level	Business sponsor or champion at corporate level	CEO is the business sponsor or champion
SCOPE2	IT standards articulation and compliance	Cost of doing business	Becoming an asset	Enables future business activity	Drives future business activity	Partner with business in creating value
SCOPE3	Degree of architectural integration	Not involved	Enables business processes	Drives business processes	Enables or drives business strategy	IT, business adapt quickly to change
SCOPE4	Degree of infrastructure transparency	IT takes all the risks, receives no rewards	IT takes most risks with little reward	IT, business start sharing risks, rewards	Risks, rewards always shared	Managers incented to take risks
SCOPE5	Degree of infrastructure flexibility	IT-business relationship is not managed	Managed on an ad hoc basis	Processes exist but not always followed	Processes exist and complied with	Processes are continuously improved
Skills maturity (SKILLS)						
SKILLS1	Degree of an innovation culture	Discouraged	Somewhat encouraged at unit level	Strongly encouraged at unil level	Also at corporate level	Also with partners
SKILLS2	Degree of integrated locus of power in IT-based decisions	Top business and IT management at corporate	Sam with emergin functional influence	Top business and unit management; IT advises	Top business and IT management across firm	Top management across firm and partner
SKILLS3	Degree of a change readiness culture	Tend to resist change	Change readiness programs	Programs in place at functional level	Program in place at corporate level	Also proactive and anticipate
SKILLS4	Degree of opportunity for skills enrichment through job transfer	Job transfers rarely occur	Occasionally occur within unit	Regularly occur for unit	Regularly occur at all unit levels	Also at corporate level
SKILLS5	Degree of opportunity for skills enrichment through cross-training or job rotation	No opportunities	Decided by units	Formal programs run by all units	Also across enterprise	Also with partners
SKILLS6	Degree of interpersonal interactions across IT and business	Minimal IT-business interaction	Strictly a business-only relationship	Trust and confidence is starting	Trust and confidence achieved	Attained with customers and partners
SKILLS7	Ability to attract and retain IT staff with technical and business skills	No retention program; poor recruiting	IT hiring focused on technical skills	Technology and business focus; retention program	Formal program for hiring and retaining	Effective program for hiring and retaining

Questions

Comm1	To what extent does IT understand the organization's business environment (e.g., its customers, competitors, processes, partners/alliances)
Comm2	To what extent do the business organizations understand the IT environment (e.g., its current and potential capabilities, systems, services, processes)
Comm3	The following statements pertain to methods (e.g., intranets, bulletin boards, education, meetings, e-mail) in place to promote organizational education/learning (e.g., of experiences, problems, objectives, critical success factors). Organizational learning occurs primarily through
Comm4	The following question pertains to communications protocol. The IT and business communication style (e.g., ease of access,

	familiarity of stakeholders) tends to be
Comm5	The following statements pertain to the extent in which there is knowledge sharing (intellectual understanding and appreciation of the problems/opportunities, tasks, roles, objectives, priorities, goals, direction, etc.) between IT and business
Comm6	The following statements pertain to the role and effectiveness of IT and business liaisons
Comp1	The following statements pertain to the metrics and processes used to measure IT's contribution to the business
Comp2	The following statements pertain to the use of business metrics to measure contribution to the business
Comp3	The following statements pertain to the use of integrated IT and business metrics to measure IT's contribution to the business
Comp4	The following statements pertain to the use of service level agreements (SLAs)
Comp5	The following statements pertain to benchmarking practices. Informal practices are such things as informal interviews, literature searches, company visits, etc., while formal practices are such things as environmental scanning, data gathering and analysis, determining best practices, etc.
Comp6	The following statements pertain to the extent of assessment and review of IT investments
Comp7	The following statements pertain to the extent to which IT-business continuous improvement practices (e.g., quality circles, quality reviews) and effectiveness measures are in place
Comp8	The demonstrated contribution that the IT function has made to the accomplishment of the organization's strategic goals is
Gov1	The following statements pertain to strategic business planning with IT participation
Gov2	The following statements pertain to strategic IT planning with business participation
Gov3	The following statements pertain to IT budgeting. Our IT function is budgeted as a
Gov4	The following statements pertain to IT investment decisions. Our IT investment decisions are primarily based on IT's ability to
Gov5	The following statements pertain to IT steering committee(s) with senior level IT and business management participation
Gov6	The following statements pertain to how IT projects are prioritized. Our IT project prioritization process is usually
Gov7	The ability of the IT function to react/respond quickly to the organization's changing business needs is
Part1	IT is perceived by the business as
Part2	The following statements pertain to the role of IT in strategic

	business planning
Part3	The following statements pertain to the sharing (by IT and business management) of the risks and rewards (e.g., bonuses) associated with IT-based initiatives (i.e., a project is late and over budget because of business requirement changes)
Part4	The following statements pertain to formally managing the IT/business relationship. To what extent are there formal processes in place that focus on enhancing the partnership relationships that exist between IT and business (e.g., cross-functional teams, training, risk/reward sharing)
Part5	The following statements pertain to IT and business relationship and trust
Part6	The following statements pertain to business sponsors/champions. Our IT-based initiatives
Scope1	The following statements pertain to the scope of your IT systems. Our primary systems are
Scope2	The following statements pertain to the articulation of and compliance with IT standards. Our IT standards are
Scope3	The following statements pertain to the scope of architectural integration. The components of our IT infrastructure are
Scope4	The following statements pertain to the level of disruption caused by business and IT changes (e.g., implementation of a new technology, business process, merger/acquisition). Most of the time, a business or IT change is
Scope5	The following statements pertain to the scope of IT infrastructure flexibility to business and technology changes. Our IT infrastructure is viewed as
Skills1	The following statements pertain to the extent the organization fosters an innovative entrepreneurial environment. Entrepreneurship is
Skills2	The following statements pertain to the cultural locus of power in making IT-based decisions. Our important IT decisions are made by
Skills3	The following statements pertain to your organization's readiness for change
Skills4	The following statements pertain to career crossover opportunities among IT and business personnel
Skills5	The following statements pertain to employee opportunities to learn about and support services outside the employee's functional unit (e.g., programmers trained in product/service production functions, customer service trained in systems analysis) using programs such as cross-training and job rotation. The organization

Skills6	The following statements pertain to the interpersonal interaction (e.g., trust, confidence, cultural, social, and political environment) that exists across IT and business units in our organization
Skills7	The following statements pertain to the IT organization's ability to attract and retain the best business and technical professionals

There are five maturity levels for each question: Level 1 (no alignment with business processes), Level 2 (beginning process), Level 3 (establishing process), Level 4 (improved process), and Level 5 (optimal process – complete alignment).

Appendix C: Letter of Recruitment

Leslie D'Anjou
Doctoral Candidate
School of Business
Walden University

Hello City Management Professionals,

My name is Leslie D'Anjou. I am an IT Business Analyst for the City of Goodyear and a Walden University Doctoral student. As part of my Walden University School's research project, I am requesting participation from Arizona cities, towns, and individuals to participate in a survey on IT/Business Alignment in local city government agencies.

This study will be relevant to you in several ways. Private sector organizations have been using this exact survey worldwide for over 14 years. Similarly, this survey is also applicable to local cities government agencies in terms of alignment between IT strategy and the agency's overall business strategy. As a participant, you will receive aggregate results from this study. These results will show how well a similar city of your size aligns and ways to improve alignment.

There are 41 online survey questions, which will take approximately 20 minutes to complete. We are asking participants to answer all questions based on their best judgment and perspective. Answering each survey question is valuable even if you may not know the actual answer. All participation is strictly voluntary. All personal or specific city information will remain confidential.

The target audience for this survey are City Management (CM Assistant, Deputy CM, CM, etc…), Department Heads (ITS, Finance, HR, Engineering, Economic Development, etc…), and Leaders (IT Subject Matter Experts, Supervisors, Managers, etc…). Participants will provide top management insight into what they perceive as the current alignment state of their city or town. This survey also targets a good cross section of cities and towns (small<400, medium 400<1,000, and large>1,000).

This study will show how well IT and business strategies are aligned based on five levels:

The goal of this survey is to provide you with information that may help in your organization improve misalignment. Misalignment can cause problems in IT/business strategic planning, budgeting, investment decisions, prioritization, and support.

This survey will be available at https://www.surveymonkey.com/r/ITBusAlignment. If you have any questions or concerns, please contact me.

Thank you in advance for completing the survey and your assistance with this study. Please feel free to share this survey with others as appropriate and encourage their participation.

Sincerely,

Leslie M. D'Anjou
Doctoral Candidate
School of Management
Walden University

Appendix D: Participant Reminder E-mail

Hello_____,

My name is Leslie D'Anjou, and I am a Ph.D. student in the School of Management at Walden University. I am contacting you again in hopes that you would participate in this study. I am conducting a study that examines the relationship between a city's IT/business strategic alignment and its employment size. This study focusses on the perception of business and IT professionals (BITPs), you.

There are 41 online survey questions, which will take approximately 20 minutes to complete. We are asking participants to answer all questions based on your best judgment and perspective. Answering each survey question is valuable even if you may not know the actual answer. All participation is strictly voluntary. All personal or specific city information will remain confidential.

If you are interested in participating in this study, this survey was available at https://www.surveymonkey.com/r/ITBusAlignment. If you have any questions and concerns, please contact me. Thank you much for your time and you participation. Have a great day.

Yours sincerely,

Leslie M. D'Anjou
Doctoral Candidate
School of Management
Walden University

Appendix E: SurveyMonkey Acknowledgement Informed Consent Form

Welcome,

You are invited to take part in this research study based on the perception of top management in local city government agencies (LCGAs). Because you represent City Management (CM Assistant, Deputy CM, CM, etc…), Department Heads (ITS, Finance, HR, Engineering, Economic Development, etc…), or Leaders (IT Subject Matter Experts, Supervisors, Managers, etc…), your perspective is valuable in understanding business and IT alignment. This consent form allows you the opportunity to become informed of this study before taking this survey.

Leslie D'Anjou, a Business Analyst for the City of Goodyear led this Walden University research study.

Justification:
The problem researched in this study is the lack of information regarding IT/business strategic alignment level in LCGAs. The purpose of this study is to understand the perspective of top management business and IT professionals (BITPs) in local city government agencies (LCGAs). The goal is to identify the average alignment level of LCGAs by size (small <400, medium 400<1,000, large >1,000) to determine their next steps needed for improvement. This study has implications for positive social change in LCGAs by identifying maturity levels between IT and the overall business strategy.

Procedures:
· Read and accept the acknowledgment informed consent form before taking this online survey.
· Voluntarily participate in this online survey.
· Answer and complete all questions within this online survey and only complete one online survey per participant. This online survey will take approximately 20 minutes of your time.

Voluntary Nature of this Study:
All participation in this study is voluntary. Your decision to participate is entirely up to your discretion. No negative feedback was given if you decide not to take this online survey. Even if you have chosen to take this online survey and then decided that you did not want to complete it, you can stop. After submission, all completed surveys was used for this study.

Benefits and Risks:
There is no rewards or compensation for taking this survey, but there are benefits for taking this online survey. It will:
1. Provide top management insight into how IT and the business aligns.
2. Offer knowledge about several maturity measures between IT and the business.
3. Increased knowledge of how to govern IT as it relates to the overall business strategy in LCGAs.
4. Provide the alignment level based on the size of the LCGAs.

There is no obligation, physical, or emotional risk in taking this online survey. Aggregate results were provided to all participating cities and towns. Participants can also obtain aggregate results upon email request.

Payment:
No payment was given for taking this survey.

Privacy:
All information gathered in this online survey will remain confidential. This study will not identify city names or personal information. It will only identify the size of your city's full-time employees and your job position. A memory stick that is password protected will store and secure electronic data for five years.

Contacts and Questions:
If you have any questions and concerns, please feel free to contact the researcher. If there is a need to speak privately about your rights as a participant, please contact Dr. Endicott, Director of the Institutional Review Board. She is the Walden University representative in which you can contact, Irb@waldenu.edu. Walden University's approval number for this study is 08-24-15-0133424, and it expires August 23, 2016.

Statement of Consent:
I have read the information above and feel that I understand this study well enough to make a voluntary decision. Based on the complete above mentioned information, I consent by clicking next below, of my accord, to participate in this research study. I am now ready and willing to take this online survey.

Parts II through VII of this questionnaire assess your firm's current level of strategic alignment maturity by measuring your response to items related to your IT and business organizations:

Communications	(Part II)
Competency and value of IT	(Part III)
IT governance decisions	(Part IV)
Partnerships	(Part V)
IT infrastructure	(Part VI)
Skills resources	(Part VII)

For each of the questions in these sections, you are asked to choose the **one** response that most closely represents your opinion of the effectiveness of your organization's management practices and strategic choices. If you are unsure how to answer a question without guessing, or if the item is not applicable to your organization, mark the "N/A or don't know" box.

You can now print or save this consent form. Please click Next below!