**Examining the Acquisition of Information Technology for
Texas Municipal Governments**

By

Berdell E. Lindsey Jr.

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Faculty Approval:

_____
Dr. Patricia M. Shields

_____
Kolette Palacios

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ABSTRACT

Texas municipalities information technology spending has soared in a very short time span. Municipalities have placed more emphasis on information technology, (IT) spending to addressed the needs of the government and the public. Technology spending was estimated at one billion dollars in 2004 for Texas municipal governments. Texas municipal governments and employees are purchasing IT to be more efficient. Many governments and employees are guilty of purchasing technology that becomes obsolete six months later. The purpose of this research is threefold: (1) to access the state of acquisitioning information technology in Texas municipal governments; (2) to examine Texas municipal governments' IT acquisitioning processes and compare the results of each; (3) to compare the five Texas municipal governments with the practical ideal type model and suggest recommendations. The methodology used was survey addressed to Chief Information Officers, (CIOs), IT professionals, municipalities senior executives, and customers to rate satisfaction. The results gathered from the surveys were tabulated into frequency distributions. The preliminary examination from this research revealed three major findings discovered: (1) CIOs are in need of establishing a comprehensive IT acquisition policy, (2) Technical validity, "does the technology work," for critical technology was not ensured, and (3) Not enough emphasis was placed on an IT training program. This leads to the recommendation that Texas municipalities CIOs must establish an acquisition policy to understanding IT needs, obtaining IT goals, and alleviate customer dissatisfaction to reduce unnecessary information technology spending.

CHAPTER I

Introduction

Texas municipal governments are acquiring information technology, (IT) to become more efficient and to meet the public increasing needs at a rapid pace. Concerning the changes brought about by information technology, Durand (2004) notes, "The accelerated technological change has become a fact and will continue to challenge industrial and societal development into the next century. The fact that all areas of life and the economy are increasingly affected by information technology is undisputed." The Governing Source Book for the year 2004 estimated that Texas municipal governments' technology spending is estimated at one billion dollars for the year 2004. It also estimates information technology spending by Texas municipalities is predicted to double by 2006 ([1]Governing Source 2004).

"There is considerable pressure on most organizations to make their operational, tactical, and strategic processes more efficient and effective. An increasingly attractive means of improving these processes lie in today's wide variety of information technologies" (Cooper and Zmud 1990). Texas municipal governments and employees are searching for and purchasing information technology to help them be more efficient, often without following organization guidelines. Unfortunately, information technology often becomes obsolete six months after purchase. This leads to thousands of dollars worth of hardware and software wasting on shelves. Keller (2004) believed information technology can be either an albatross or an asset. The goal of any organization is to have information technology that is an asset, yet many government organizations endure failures in their acquisition process.

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[1] Governing, State and Local 2004 Source Book, pg 94.

Government Information Technology Acquisition Blunders

In Texas, it is the responsibility of the municipal chief information officer (CIO) to prevent IT acquisition blunders. Municipalities should have acquisition procedures in place to prevent the purchase of unneeded technology. These procedures guide the CIO, the project management team and the information technology staff in assessing IT needs and potential solutions. Improper planning can lead to a series of costly mistakes.

An Associated Press article dated January 29, 2005, reported that The Federal Bureau of Investigation (FBI) is in the middle of a failed information technology project. The FBI's attempt to expand its computer system to assist agents' investigations of criminals and terrorists failed miserably. Experts blame poor planning, rapid industry advances, and the massive scope of some complex projects whose price tags run into the billions. Brubaker (2005), former deputy (CIO) at the Pentagon, states "There are very few success stories. Failures are very common, and they've been common for a long time." Harvey, chief executive of TenFold Corp (a small Utah-based company that builds specialized computer systems) notes that "government technology blunders frequently make the headlines." Failure to understand the agency's needs and the absence of a need analysis could lead to an array of problems.

Brown and Brudney (1998) revealed in the *National Performance Review* that the literature is replete with examples of failed projects following the adoption of innovative technologies. They believed many of the failed projects experienced significant schedule delays or excessive cost growth. The Associated Press article dated January 29, 2005 also reported that congressional investigators said "the Internal Revenue Service (IRS) Business System Modernization $1.7 billion program was seeking an additional $388

million and is 15 months behind schedule. The Business System Modernization purpose is to modernize the IRS systems for collecting taxes, auditing returns and helping taxpayers with questions."

A Texas municipality senior executive was interviewed concerning the purchase of law enforcement software to replace old information technology. The municipal agency had been struggling with a new computer-aided design (CAD) system. The technology was purchased to assist law enforcement personnel and dispatchers in responding to crime reports and knowing the whereabouts of officers. During the CAD project planning, the vendor and CIO agreed the technology would be an asset to law enforcement. However, after speaking to an anonymous senior executive whose organization used user technology, a different picture was painted. The senior executive reported the CAD system would crash weekly and was filled with problems. The product had been purchased to increase efficiency; however, it did not operate as envisioned. It failed to meet the users' operational standards, and did not meet the senior executives' expectations.

Keller (2004) argues information technology spending often expands in reaction to the "next new thing" in technology. He adds that fads come and go, but they consume lots of money in the process. This research paper examines whether CIOs are developing an information technology acquisition model to test the water before taking the plunge.

Municipal government CIOs must ensure that IT acquisition guidelines are in place and are followed. These CIOs have a fiduciary responsibility to the public to scrutinize information technology budgets. CIOs must also ensure that IT purchases are really needed, and that every dollar spent on information technology is worth spending. As the

quarterback of a football team, the CIO is where all information technology projects should or must begin.

Purpose of the Research

The purpose of this research is to access the relevant literature to build an ideal model that can be used to assess the information technology acquisition process for Texas municipal governments. The final purpose is to compare Texas municipal governments with the practical ideal type model and develop recommendations that will improve the information technology acquisition process. The resulting information technology acquisition model is divided into categories that the literature identifies as components that lead to a successful project.

Chapter Summaries

This applied research paper consists of six chapters. Chapter 2 provides an overview of background information on the increased need for information technology and the problems that can occur in the acquisitions process. Chapter 3 describes the ideal information technology acquisition model, and the scholarly literature used to build the model is discussed. Chapter 4 discusses the construction and implementation of the survey as well as sampling issues. The results chapter, chapter 5, examines the findings of the survey and interviews. Each acquisition component is discussed and Texas municipalities are assessed to determine their degree of efficiency in acquiring information technology.   Chapter 6 concludes the study with a summary of the applied research project and recommendations for future research. The appendices contain reference charts and the survey instruments.

CHAPTER II

BACKGROUND

Introduction

The purpose of this chapter is to provide an overview of Texas municipalities and their information technology acquisition process. Information technology can be found at every level of Texas municipalities, and has enabled those municipalities' employees to be more efficient, provide services to their citizens, and increase productivity. Struckman, (2005) "described the next public to be served by government as "millennials"—young people who grew up with technology, and use it in everything they do. Children of baby boomers are an IT-oriented generation, and they expect information technology to be a part of their lives. Texas municipalities are investing billions of dollars on ever-expanding IT systems to meet the needs and demands of their employees and public. Government will be required to meet higher expectations as the demographics change. And government is striving to be more efficient and will have less staff to work with. Information technology acquisition and spending is growing at a phenomenal pace. But are Texas municipalities moving too fast in IT acquisition?

This chapter addresses (1) Information technology definition, 2) Our technological society today, and 3) Describes how the public is served through the use of information technology.

Information Technology Definition

The Interoperability Clearinghouse Glossary, (2005) defined Information technology as the furtherance of computer science technology, with the design, development, installation, implementation of information systems and applications. Information

technology has logical and technical components. Logical components include mission, functional and information requirements, system configurations. The technical components include information technology standards and rules that will be used to implement the logical architecture.   Tech Target, (2005) web site concludes information technology encompasses every form of technology used to create, store, exchange, and use information in its various forms such as motion pictures and still images just to name a few. Information technology is often called "the information revolution."

Our Technological Society Today

The information technology revolution has forced Texas municipalities to reexamine their IT needs. Huff and Munro (1985) believed microchip improvements in manufacturing have paved the way for an astounding variety of new information-related products, services, and processes. The rapid change is largely due to the affordability and increasing capabilities of information technology. These factors have provided new opportunities for organizations to improve their efficiency and productivity by updating older information handling methods. Today, Texas municipalities have opportunities to increase organizational effectiveness using new ways to improve revenues and reduce costs. The results of the information technology choices made by CIOs and managers will dramatically affect individuals' and municipalities' futures.

According to Turban (2004), "The major role of information technology is to provide organizations with strategic advantage by facilitating problem solving, increasing productivity and quality, increasing speed, improving customer service, enhancing communication and collaboration, and enabling business process restructuring." The use

of information technology has allowed Texas municipal employees to be more efficient

and provide valuable services through information technology, via the Internet.

Brown and Brudney (1998) believe state municipalities have incorporated information

technologies such as "electronic mail, video conferencing, geographic information

systems, database management, auditing software, record storage and imaging to

streamline operations and promote the attainment of effectiveness and efficiency."

Municipalities are also investing in decision support systems (DSS) for senior

management. Decision support systems are computer-based systems that help decision

makers confront problems through direct interaction with data and analytical models.

Inmon, "the father of data warehousing," defined a decision support system as a software

system used to support managerial decisions (Power 2003). [2] Lilley (2004) believes that

DSS constitute a considerable proportion of the information systems in use by

government organizations today. Information technology vendors are bombarding Texas

municipalities with samples of their wares.

Serving the Public Through the Use of Information Technology

Municipalities have joined the private sector by offering services to the public via

information technology. Robinett (2004), executive director of the Center for Digital

Governments, said "It is not technology for technology's sake, but technology for the

community's sake." In Texas, citizens are now able to complete permits, job applications

online, pay fees and search for municipality information. Texas municipalities such as

San Antonio and Texarkana offer web site menus that enable citizens to conduct various

routine transactions with city agencies that offered these online services for its citizens.

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[2] Power, D.J. A Brief History of Decision Support Systems. DSSResources.COM, World
Wide Web, http://DSSResources.COM/history/dsshistory.html, version 2.8, May 31,
2003

Geographic information systems (GIS) provide a great tool for government mapping

operations. Law enforcement agencies have increased their use of information technology

to better serve officers and the public. All of these applications have forced the

municipalities to scrutinize their acquisition processes and budgets.

CHAPTER III

INFORMATION TECHNOLOGY ACQUISITION MODEL

The purpose of this chapter is to review the literature relevant to information technology acquisitions and build an ideal model that can be used to achieve a successful information technology project in Texas municipalities.   The IT acquisition model is divided into seven categories that the literature identifies as components that lead to a successful project. The major categories of the model are described in the order in which they occur in the process. The IT acquisition model consists of the following components: (1) CIO responsibilities, (2) planning stage, (3) project management, (4) request for proposal, (5) vendor selection, (6) implementation, and (7) training program.

The quarterback is often view as the leader of a football team. He has the responsibility for leading his team to success each weekend. The CIO is the quarterback of the organizations' information technology team and must make every precaution to prevent the organization from fumbling the ball or making bad IT decisions. The CIO must be aware of the strengths and weaknesses of the organization's information technology assets, capabilities. Second, CIOs are responsible for the implementation of information systems (IS) that are vital to the success and survival of the firm (Enns, 2003). As the quarterback of the team, the CIO must be aware of momentary lapse of concentration from some type of weakness or attack. It is essential that the CIO request a need and cost analysis, (McKillip 1987). This will identify the organization's IT strengths and weaknesses. The third component is the formation of the project management team. This team is usually selected by the CIO and project manager (Betz 2003). The team,

along with the project manager, implements acquisitioned information technology and keep the CIO informed. The request for proposal (RFP) is the fourth component. The request for proposal (RFP) is essentially a legal document advertising for assistance in finding a solution to a certain problem. The Request for Proposal is a detailed document filled with specific instructions addressed to interested information technology vendors (Hamper 1995). It is important that the CIO and project manager provide the RFP writer with all the details and requirements needed to describe the goal of the project. The selection of the hardware and software vendor is the fifth component. The CIO and project management team create vendor selection guidelines (Dorf 2005). Normally these guidelines are included in the Request for Proposal so vendors will be aware of the elimination and selection criteria. This very important process should not be rushed because of limited funds. It is essential that the CIO or representative and the project manager conduct a thorough investigation of each bidding vendor. The implementation of the information technology or system is the sixth component. During this stage, the functionality and usefulness of the new technology is examined. In addition, its impact on organizational effectiveness is assessed (Pinto 1994). The final component is training. Training is often a component that is sacrificed due to budget constraints. The CIO needs to ensure that training for the new information technology is provided on a continuing basis (Lewis 1992).

CIO Responsibilities

Everyone has someone to answer to. Texas municipal CIOs answer to the city council and/or to the mayor. The municipal CIO is the link between the city information technology resources and top city executives. Kemper (1998) believes information

technology administration should be a top management affair. Durand observed, "The presence of technology in the boardroom reflects a top management process in which business decisions are taken with an awareness of the fundamental opportunities and risks associated with technological change" (Durand 2004).

Understanding the Organization's IT Needs

According to Martin (1982), it is the responsibility of the CIO to be aware of all information technology needs within the organization. One of the responsibilities of the CIO is to look for IT strengths and weaknesses within the organization. CIOs are also responsible for ensuring that acquisition procedures are in place and followed to prevent waste and acquisition of useless technology. If the government agency is large, and has many IT projects in progress, it is recommended that the CIO assign a senior executive to keep him or her abreast of each project. Kemper (1998) believes assigning a senior executive is essential to ensure successful productivity in all stages of the project. Problems are inevitable and often a senior executive's authority is needed to make the decisions required to resolve the problem.

Provide Authentic Support of IT Projects

Kemper (1998) argues it is essential that the CIO provide leadership and fully support any information technology issues and projects. Successful CIOs are actively involved and spend up to 45 hours per month on IT projects. In addition, he maintains that poor senior IT executives normally assign five deputy senior executives to IT management tasks which average about four hours a month to IT issues. CIOs that spend four hours a month on IT issues can only perform routine activities such as budget control or project audits (Kempis 1998). On average, successful IT organizations assign only three senior

executives to IT issues. Each executive spends about 15 hours a month on IT issues—about four times as much as their peers at laggard organizations. The advantage is obvious: 15 hours is enough time to become familiar with the real issues at hand, clarify questions in context, and – most important of all—align the use of IT to corporate strategy. A successful CIO who spends more hours on IT is able to be more knowledgeable and provide a better briefing to the CIO, the mayor, and/or the city council.

Selecting a Project Manager

Successful CIOs usually select a project manager to work with senior executives. This allows the project manager to be involved in the early planning stage of acquisition (Hallows 1998). The project manager is not a senior executive; however the manager works closely with senior executives and the CIO to monitor progress.

Planning

The second component in the IT acquisition model is planning. Pinto (1994) notes, "Organizations usually do not adopt new, often expensive technologies simply for their own sake. Rather, as a bottom line, they seek some form of return on their investment." To ensure and facilitate the best results from the IT acquisition efforts, CIOs should incorporate strategic planning in the process. According to Bryson (1995) "Strategic planning requires a broad yet effective information gathering and placing strong emphasis on future implications of present decisions."

A strong and effective project management team gathers information through need and cost analyses which yield important information for the CIO and staff. Segars and Grover, (1998) proclaim "Strategic planning activities require substantial resources in

terms of managerial time and budget. Therefore, the process must deliver benefits

beyond the resources necessary to sustain it in order to contribute positively to

organizational effectiveness." For this reason it is imperative that the CIO enforce

strategic planning, and conduct need and cost analyses before proceeding with the IT

acquisition process.

When the need for new information technology is identified, a need analysis should be

performed to determine the organization's requirements. Doll (2003) believes developing

an action plan is imperative and should involve several sessions with the CIO and project

management team to facilitate change within an organization. There are many

government agencies that purchase information technology without conducting need or

cost analyses. An IT professional was overheard saying, "Information technology is

sometimes treated like a new toy on Christmas day by a child. As the child plays with the

toy, they grow tired and bore of it. Information technology is much like that of a child

and new toy,"[3] (Jones 1999).

Need Analysis

One purpose of a need analysis is to assist CIOs and other managers in making sound

decisions. A need analysis should to determine the organization's precise needs and

identify how the technology will meet those needs. Enockson (1983) stressed that an

organization can spend months and weeks in discussion and still not know the needs of

the organization.

A need analysis should consider the reason for the study the problem the desired

results, and potential solutions. The need analysis is a valuable tool for decision making.

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[3] Martin Jones, Yolo County Communication Emergency Service Agency Information Technology
Director. Sept 1999.

McKillip (1987) identified the steps of a need analysis as: (1) identifying users and uses, (2) description of target population and service environment, (3) need identification, (4) needs assessment, and (5) communication. Enockson (1983) suggests one form of a need analysis is developing a "wish list" or a "requirements worksheet" of what the new technology should do and/ or improve in a certain area. McKillip, (1987) argues that a need analysis must also measure the target population's use of current technology and how the new technology will improve efficiency. Once the deficiency or problem is identified, the results of the need analysis must be communicated to the top executives for a final decision.

Identifying Users and Uses

McKillip (1987) argues the first step in conducting a need analysis is identifying users and uses of the analysis. This is a critical stage because neglect at this step leads to unused and unread reports. The CIOs understanding of the uses of the need analysis helps to focus on the problems and solutions that can be entertained. Gelderman 1998) provided empirical evidence for the popular assumption that users' use of the new technology is the most appropriate measure for success. It is vital for CIOs and other users of the analysis to solve problems based on the report.

Description of Target Population and Service Environment

A description of the target population and the existing service environment is the second step in a need analysis. Geographic dispersion, transportation, demographic characteristics of the target population, eligibility restrictions, and service capacity are important. McKillip (1987) argues it is essential to understand client analysis, which is the comparison of those who use services with those who are eligible to use services.

Enockson (1983) reiterates that a solid need analysis include an understanding of prospective users and their information technology experience levels. The use of an 'User Checklist' should contain an array of questions to help provide a better assessment of users. A solid client analysis should prevent the acquisition of unnecessary information technology.

Needs Identification

A thorough need identification is the third step in the process. Usually more than one source of information is used. Organizations could elect to visit information technology fairs where companies display their wares. This is an excellent means to search for the latest technology; wealth of information is available, as well as a means to establish contacts with other IT users and companies.

Needs Assessment

Once problems and their solutions have been identified, needs are evaluated. Questions such as: What is most important for the target population? What is most relevant to the mission and experiences of the sponsoring agency? How are multiple and conflicting indicators to be integrated? The need analysis will be most useful for decision making if identified needs are evaluated against explicit and appropriate criteria. This is the task of needs assessment, (McKillip 1987).

The CIO and staff are encouraged to use the needs assessment to prioritize their actions. Klein and Beck (1987) believe "a procedure named an implicit enumeration procedure based on properties of preference theory, requires no formal optimization procedure, and would be simple to implement in an interactive decision setting involving selection from among a set of known alternatives." However, the need assessment must provide the CIO and staff with known alternatives to select the best option for the organization.

Communication

   "Finally, the results of need identification must be communicated to decision makers,
   users, and other relevant audiences. The effort that goes into communication should
   equal that given the other steps of the need analysis. In practice, need analysis is an
   iterative and satisfying activity: the cycle of decision, data gathering, and data analysis
   repeats until further cycles are judged unnecessary. Though the description so far
   implies an orderly and incremental process, this rarely happens. Questions are raised
   about potential problems and /or solutions; information is gathered and evaluated.
   Analysis leads to further questions, data gathering, and evaluation. The process ends
   when those engaged are satisfied that additional information would not be worth the
   cost of gathering and analysis. Distinctions between identification and assessment are
   blurred. Analysis may involve multiple identifications and assessments," (McKillip
   1987).

Munro and Davis (1977) state that decision makers will often use a decision flowchart to
assist in managerial decisions. These critical decisions, once defined, are thoroughly
discussed with the responsible manager.

   Need analysis reports might include a comparison of expectations with outcomes. The
discrepancies are generally viewed as a problem (McKillip 1987). For example, a need
analysis might reveal that a law enforcement agency might take three to four hours, or
days, to verify a criminal's fingerprint. Our laws allow law enforcement agencies to
detain suspects for no longer than 48 hours for certain alleged crimes (Texas Code). [4]The
need for a faster system of processing fingerprints is identified in that particular need
analysis.

Cost Analysis

   Government agencies often work with limited budgets. Once a budget for the
information technology project is allocated, an overall estimated cost of an IT project is

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[4] Texas Code of Criminal Procedure Chapter 14 section 14.06 and Chapter 15 section
15.17, 2004.

required. A properly conducted cost analysis will provide the CIO with the information

needed to make a solid decision. Sethi and King (1994) argue efficiency is often referred

to as a means for the organization to maintain its overall cost leadership or its cost

advantage. The use of information technology can reduce the cost of product design,

development, operations, and administration. But McKillip (1987) believes,

> "The first step in estimating costs is selecting a time frame. Usually a one-year period is appropriate. Cost of equipment and facilities that have a longer life than this period should be adjusted accordingly. The next step is listing the resources necessary for the solution to operate during the period. Resources can be estimated from comparable efforts currently under way or from previous experience with the intervention. The next phase is determining the cost of each of the resources. If program budgets are consulted for this information, some resources may not be covered, because costs might have been borne in a different year or by a different account" (McKillip 1987, p 13).

Thorough need and cost analyses will provide the project management team an

opportunity to develop a sound plan of action.

Project Management

This leads to the third component in the acquisition model, Project Management.

Hallows (1998) argues that every successful IT project begins with a project management

team dedicated to obtaining a specific goal. The project management team should

evaluate the scope of the system to alleviate problems and define and manage risk. The

team goal of defining scope means coming to a common understanding of the major

goals and functions.

Building a Project Management Team

A successful project manager is only as good as his or her team members. The

project management team, not managers, executes projects. Thus, one of major tasks for

CIOs and project managers is assembling a project management team, (Hallows 1998)

(Kerzner 1979). Unfortunately, most projects are staffed not by a team, but by a group of

people who happen to be working on the same thing. There is a vast difference between

a team and a group of people, not the least of which is performance. Building a team is

therefore the most important aspect of running a project. A team is a group of people

committed to a common goal. There are two concepts in this definition: a common goal

and commitment. The job of the CIO and project manager is to secure both (Hallows

1998). The project management team staffing effort has four steps: recruiting developing

the subculture of the project team, organizing the activities, and coordinating and

developing shared supervision of team members between the project and the functional

homes of the team members (Betz 2003). According to Hallows,

> "One of the things project managers are supposed to do is to meet the schedule-
> which, of course, implies having a schedule to meet. The schedule is one of the two
> major parts of the project plan, and complex as it is, it is a by-product of the work that
> has already been done. Putting together a schedule requires a list of activities and their
> dependencies and durations," (Hallows 1998, pp139-140).

Organizing Activities

Organizing activities is simply the assigning of the project team members' work tasks

and responsibilities. Projects are normally broken down into small tasks, and generally

specific team members are assigned certain activities (Hallows 1998) and (Betz 2003).

According to Hallows,

> "Producing the schedule is a three-stage process. First, create the initial schedule
> (using project management software) based solely on the activities and their durations
> and dependencies. Second, assign resources to each activity. This will probably cause
> some problems, with some people being double-booked or worse. Finally, you will
> need to align the schedule to the client's expectations and requirements" (Hallows
> 1998 139-140).

Predicting Project Success

Predicting project success is often difficult. Traditionally success is measured by results such as meeting the budget, keeping to the schedule, and completing the scope of work (Hallows 1998). All these are measured by "actions" of CIOs, project managers and the team, and users of the new information technology. Project managers can stimulate project success by insisting on selecting key project team members to develop commitment and sense of mission from the outset, and select team members with proven track records (Kerzner 1979).

Request for Proposal, (RFP)

Seeking a Solution to a Problem

The fourth phase in the IT acquisition model is writing the request for proposal. The RFP is a document that request a solution to a problem. A properly conducted need analysis provides the necessary information to produce an effective RFP. Bowman argues that:

> "The writer is responsible for ensuring that the description of the services or process is sufficiently accurate to preclude misunderstandings. Any specifications or special requirements believed necessary should be well documented. The reader must understand specifications with appropriate quality on schedule. The RFP normally has a deadline to respond, to include a date and time," (Bowman 1992 p 4).

Bowman asserts that the RFP is a legal document. The main objective of RFPs is to elicit competition among information technology vendors (Tammemagi 1995).

Clear and Concise RFP

The writer must have a sound understanding of the problem to produce a clear and concise RFP and prevent any misunderstandings (Bowman 1992). Writing a successful RFP begins with a clear understanding of the problem.

> "Most RFPs provide a number of specific directions listed in sections to include topics to cover and formats to follow. Time restraints and the use of second and third parties or sub- contractors' instructions must be explicit. Each of these directions needs to be followed to the letter. The RFP should generate feedback from companies who have an understanding of your organization's needs or problems," (Bowman 1992, p 4). "

> "The two most common reasons cited for rejecting proposals are that (1) the proposal wasn't received by the deadline and (2) the instructions weren't followed," (Bowman 1992, p 38).

RFP Format

The RFP may have as many as 12 sections with numbered pages and paragraphs. These sections are often titled: cover letter, table of contents, introduction and detail problem statement, description of the problem or need, specific project deadline, specific RFP due date, statement methodology, project management statement, statement of qualifications, penalties for delivery failure statement, technical validity, and organization effectiveness. (Bowman 1995) and (Tammemagi 1995).

Vendor Selection

The Vendor Selection process is the fifth component and most critical stage. Selection of appropriate software is probably one of the most important decisions an agency will make. There are many types of products available; some are relatively inexpensive, while others can, and do, become quite expensive. Other aspects of the selection to be considered include licensing issues and warranty support, to name a few. Dorf, asserts:

> "Licensing is a contractual method of exploiting intellectual property by transferring

rights to other firms without transfer of ownership. A license is a grant to another firm to make use of the rights of the intellectual property. This license is defined in a contract and usually requires the licensee to pay a royalty or fee to the licensor. Licensing is used to provide cash flows to the owners of intellectual property by enabling others to exploit their patents, copyrights, and trade secrets," (Dorf 2005, pp226-227).

Licensing is an important issue when closing a deal with a vendor. The CIO must ensure there are enough software licenses to protect the organization from future law suits. Vendors normally offer different packages for their software. License packages are often offered based on how many users are within an organization. In addition questions, about future upgrades, whether the previous licenses will be active, or the need to purchase additional licenses should be asked. Never assume anything when dealing with a software vendor. The license issues must be specific in the contract.

Enockson, (1983) believes it is imperative that a hardware and or software maintenance contract be considered during the selection period. The specifics of and such a contract can be a deal breaker. There are many details to be considered, such as 24-hour support, the length of the contract, and the warranty. Some other options are purchase or lease option, and lease to purchase. An attorney should review the contracts and provide legal support during vendor selection. Off site visits, where vendors have an application or hardware installed is encouraged.

Software vendors vary from a sole individual to a large company. A sole individual or a small group might be more inclined to work with a small business or small government organization. The organization might get more immediate attention and will more likely meet project goals, in a shorter period of time. The biggest drawback in using these smaller firms is that the attrition rate is extremely high.

With the larger established firms there is the security that they will most likely be around for awhile. One disadvantage in using these larger firms is that they probably won't provide the on-site assistance needed. Moreover, modifications will cost more and take longer to get installed. In the end, there is a greater chance of not getting what is really wanted.

Three Off-Site Visits

Weinberger (2003) strongly suggests that the project management team make a minimum of three off-site visits. The purpose of the visit is to actually see the IT product in operation and to confer with users.

Minimum of Three References

According to Kempis (1998), when successful organizations farm out IT tasks, senior executives do not do so for efficiency reasons but in order to increase effectiveness. Senior executives also rigorously monitor providers, assessing their performance through external benchmarks and meticulous goal setting. The project management team must gather a minimum of three references of their group of vendor finalists to present to senior executives and/or the CIO (Enockson 1983).

Meet the User's Requirement

The project management team ensures that the IT product under consideration meets their organization's requirements. The project management team is responsible for providing the CIO with enough data to make the final selection decision. Enockson (1983) suggests that the CIO and project management team ask themselves, and the software vendors, the following set of questions:

- Does their software meet your requirements?
- Do they have a multi-business capability?

- Do they provide simply a base package?
- Are individual package pieces available?
- Will they modify their package?
- Have you determined the requirements of the modifications?
- Is there a separate contract for modifications?
- Have you determined a fixed cost for the modifications?
- Have you determined a time frame for modifications?
- If they modify the programs will they update the documentation?
- Can you review their documentation before signing the contract?
    - Is their documentation consistent?
    - Is their documentation clear?
    - Is there a guarantee that the system will do what the documentation says?
    - Will they modify any inconsistencies?
    - Is there a section devoted to error detection and recovery?
    - Are all output reports defined?
    - Are system enhancements and updates free?
    - Who installs these free enhancements?
    - Is the software company local or do they have a local representative?
    - Is phone consultation available?
    - What type of telephone service and/or response can I expect?
    - Do they have back-up support?
    - Do they have a "starter-pac" of forms?
    - Do they provide conversion forms?
    - Do they provide conversion assistance?
    - What kind of maintenance contracts do they provide?
    - Does their system provide for automatic back-up procedures?
    - Do they provide or will they assist you in establishing an implementation plan?
    - Have they provided you with all contracts?
    - Have you obtained the three references?

Implementation

The sixth component is the implementation stage. At this point, CIOs and project

managers determine the success or failure of the IT acquisition. One of the enduring

problems with the implementation of new information systems is gaining a clear idea of

their impact on the organization (Pinto 1994). "Many writers in the field have discussed

implementation in a general sense, paying little

regard to the type of implementation effort being performed, perhaps in the belief that

there exists little or no real difference between various forms of organizational

implementation (information systems, projects, OR/MS models, etc)" (Pinto 1994, p 22).

Pinto suggested that "an organization engage in the activities necessary to put the

innovation into practice and incorporate it into existing and developing operations,"

(Pinto 1994, p 30). The successful implementation of new information technology

includes three steps: technical validity, organizational validity, and organizational

effectiveness (Pinto 1994).

Technical Validity

Assessing a product's technical validity means determining whether the new

acquisition performs as required. This is a good time to reevaluate the implementation

action plan and examine whether the new technology can achieve the organization's

goals (Doll, 2003). In the event of a problem Pinto (1994) suggests it is logical to

perceive a solution for the problem first. Obviously, should a new software system be

contaminated or fail to function properly, it will be regarded as a failure. Brainstorming

between the CIO and heads of departments will help identify problems that should be

reported to the vendor for a solution.

Organizational Validity

The organizational validity stage evaluates whether the IT is correct for the

organization and its users. Pinto (1994) believes the organizational validity stage is the

time to ask "Will the new system be accepted and used by its intended clients? Does the

system alternative take into account organization and behavioral considerations such as

the organization's culture, power and political realities, comfort level with

computerization, and so forth?" Kempis (1998) believes IT users are critical in adding to

the success of implementation projects. Gelderman (1998) argues that user's ability to

access the value of the new technology is a means to measure its success and benefits. This rationale assumes that usage is highly correlated with other criteria, and that more usage is better.

Organizational Effectiveness

Pinto (1994) explains the organizational effectiveness stage by asking the question, "Does the new system influence the organization's ability to perform its work more effectively and make its decisions more accurately?" This stage assesses the bottom line value of the new IT acquisition, not only in terms of cost-benefit analysis, but also in relation to its impact on organizational operations. The basis for this view is that it is not sufficient to regard the process as successful merely because the acquisition causes personnel to change their way of doing things in order to make use of the new system model. Cooper and Zmud (1990) argue, "Factors research focuses upon a variety of individual, organizational, and technological forces which are important to IT implementation effectiveness," (pp123-124) One factor that has a significant impact is top management's support of the implementation effort. Successful implementation requires that the results lead to improved decision making. A new information system that does not improve decision making (i.e., lead to enhanced organizational effectiveness) would not be considered successful (Pinto 1994).

Training Program

The seventh and final component of the model is the training stage. The CIO should provide organization users the opportunity to be trained to use the new information technology effectively. Training is essential, and users must understand the potential benefits of the new IT acquisition. Users must be taught the most effective way to use the

technology to meet their individual needs. This is not to say that users must become technical experts; on the contrary, the interface between the user and the technology should be basic, easy to understand, and unthreatening (Diebold 1985).

Training can become very expensive if the organization hires the vendor to train everyone. The cost will increase if materials must be provided as well. Time spent and the amount of people being trained is also a concern. Training is an element that is often overlooked and not taken seriously. The CIO top management and staff must have a commitment to training. Appointing a training officer can assist in offsetting the cost of training (Berkeley 1984).

Training Officer Selection

According to Berkeley, the selection of the training officer is the first step in creating a successful training program. The CIO has the responsibility of selecting a training officer. The training officer should mediate between users and senior management. Berkeley (1984) recommends that the training officer have IT experience and a strong training background. Senior executives should look for additional qualities such as being able to design instructional material and experience as an instructor. A senior computer technician should not be appointed as training officer.

The training officer ensures "the training program interface between user and the technology will be basic, easy to understand, and utilized it to meet their individual needs" (Diebold 1985, p.42). One of the many duties of the training officer is to establish a training policy. The training policy should address training objectives and reflect management's commitment to training (Berkeley 1984).

Training Need Analysis

If the organization decides to conduct training instead of using the vendor, there are many issues that must be addressed. Does the organization have a training officer? Does the organization have the staff to train every employee? Does the organization have, or does the software vendor provide a lesson plan? What percentages of the organization employees are computer literate? What percentages are not computer literate? How do you plan to train the non-computer literate user? Such questions can be answered by conducting a need analysis. The need analysis steps are the same steps described earlier in this paper: (1) identify users and uses of the need analysis, (2) description of target population and service environment, (3) need identification, (4) needs assessment, and (5) communication (McKillip 1987).

Training Cost Analysis

The training staff has the responsibility to conduct a training need and cost analyses to understand the needs of the organization and users (McKillip 1987). Vendors may offer extended training; however, it comes at a cost. Often agencies will select the vendor to train ten to twenty employees, normally IT and training staff, and they in turn are responsible to train the remaining employees.

McKillip (1987, p. 13) suggests, "The first step in estimating costs is selecting a time frame." The training staff should use the "implementation date" for the IT product to develop a training time line. The results of the need analysis should reveal pertinent details such as how many users will require training, location of the training, and how many users per class to be effective. If the organization does not have a training facility, perhaps an agreement can be reached with a local university or college for the use of their facility.

Adult Learning Traits

The training officer and staff must create an effective training plan that will meet all

users' needs. The training plan must consider adult learning traits. Lewis ((1992) claims

that:

> "a common mistake made by instructors of adults is to extrapolate what they know
> about teaching children, and what they remember about their own educational
> experiences, to their work with peers. It results in many mishandled and ineffective
> situations and techniques."

Lewis further suggests that training officers and staff should remember some traits

that the adult learner possesses:

- o Adults are task-oriented
- o Adults see learning as a means to an end; not an end in itself.
- o Adults want to know what's expected of them, both in the classroom and back on
  the job.
- o Adults want to integrate what they already know with what they are learning.
- o Adults want to be valued, respected, and shown that their ideas and opinions have
  worth.
- o Adults learn best when they recognize that what they're learning is worth
  learning.
- o Adults want to know why it's important to learn what they're learning, (i.e., to
  themselves, their jobs, and their futures).

Teaching "Tech" to "Non-Techies"

Although forms of IT are everywhere, many people consider themselves to be "non-

techies." These people often have preconceived notions about technology that must be

addressed. Lewis (1992) argues,

> "No matter what the source or the reason, these misconceptions must be examined and
> modified. Under close scrutiny, technology will be seen for what it really is – a
> powerful tool- and not what it's purported to be – an overpowering invader and
> people-replacer. Some people may think that these old notions aren't still around. For
> the disbelievers among you, an informal survey of non-technical users of computers
> revealed that learning about computers and learning new software applications is still
> a frightening and intimidating experience,"(Lewis 1992, p.121).

Conceptual Framework

The conceptual framework for this research is the practical ideal type. The literature supports the existence of a practical ideal type information technology acquisition model. The information technology acquisition components were created from the literature with its foundation adopted from various sources. To reiterate, the ideal type acquisition information technology model consist of 1) Chief Information Officer; (CIO) awareness of information technology needs; 2) planning stage; 3) project management; 4) request for proposal; 5) software and hardware vendor selection; 6) implementation; and 7) training program. The ideal type categories are organized to follow a logical sequence of events that will lead to obtaining a successful information technology project, (See table 3.1).

Chief Information Officer Responsibilities

**1.	Must Understand and be Aware of the Organization IT Needs.**

All information technology projects begin with the Chief Information Officer, (CIO). It is the responsibility of the CIO to understand the information technology needs within the organization, (Martin 1982).

**2.	Provide Authentic Support**

The CIOs leadership and authentic support concerning any information technology project is essential. Successful top managers are actively involved and spend up to 45 hours per month on information technology projects (Kempis 1998).

**3.	Selects a Project Manager in Advance**

In addition, successful agencies will select a project manager well in advance to allow the project manager to be involved in the early planning stage (Hallows 1998).

Planning Stage

The second step in acquisitioning information technology model is planning. The Chief Information Officer should examine the need for new information technology within his organization. CIOs must incorporate strategic planning effectively to gather information and place strong emphasis on future implications of present decisions (Bryson 1995). For this reason it is imperative that the CIO order a need and cost analyses before acquisitioning information technology.

1.   Need Analysis

The purpose of a need analysis is to assist CIOs and other managers in making sound decisions. The need analysis is viewed as a tool for decision making, (McKillip 1987). The steps of a need analysis are:

1. Identifying Users and Uses
2. Description of Target Population and Service Environment
3. Need Identification
4. Needs Assessment
5. Communication

2.   Cost Analysis

A properly conducted **cost analysis** can provide the CIO with the information needed to make a solid decision. "The first step in estimating costs is selecting a time frame." (McKillip 1987).

Project Management

The Project Management Team, not managers, executes projects. Thus, one of the major tasks for CIOs and Project Managers is assembling a Project Management team, (Hallows 1998: 5) (Kerzner 1979).

1.   Building and Selecting a Project Management Team

Building and selecting a Project Management team can be the difference between failure and success. The skills and experience of a Project Management Team facilitate the success or failure of an information technology project, (Betz 2003).

2.   Organizing Activities

Organizing activities is simply assigning the Project Team members work assignments. Projects are normally broken down into small tasks, assigning specific team members with certain activities, (Hallows 1998) (Betz 2003).

3.   Predicting Project Success

Project success is measured by "actions" of CIOs, the Project Manager and his team, and users of the new information technology. Project managers can stimulate project success by insisting on selecting key project team members, developing commitment and sense of mission from the outset; and selecting team members with proven track records. (Hallows 1998); (Kerzner 1979).

Request for Proposal

1.   Request for Proposal

Joel Bowman (1992) said "a Request for Proposal is a recommendation, plan, or suggestion offered by one party to another." A RFP is a document that requires a solution to a problem for an organization. Johnson-Sheehan (2002) suggests the proposal writer

should ask "What changed?" Meaning, what elements has changed the currently situation and created the problem. The RFP should also provide responses from outside sources with a solution to a problem (Bowman 1992). Thus, the main objective of RFPs is to elicit competition among information technology vendors, (Tammemagi 1995).

2.   Clear and Concise RFP

One type of proposal used by a government agency is a solicited proposal to seek assistance for their problem (Hamper 1995); (Johnson-Sheehan 2002)The writer must have a sound understanding of the problem to provide a clear and concise RFP to alleviate any misunderstandings, (Bowman 1992). The RFP may be written in the correct format. If the problem is not clearly stated and understood by the reader, costly mistakes between the vendors and government agency could cause delays.

3.   RFP Format

The RFP format consists of as many as 12 sections. These 12 sections of the RFP are entitled: Cover Letter, Table of Contents, Numbered Pages, Number Paragraphs, Introduction, Detail Problem Statement, Description of the Problem or Need, Specific Project Deadline, Specific RFP Due Date, Ask for a Statement Methodology, Ask for Project Management Statement, Ask for Statement of Qualifications, Provide a Penalties for Delivery failure Statement, Technical Validity, and Organization Effectiveness. (Bowman 1995) (Tammemagi 1995).

Vendor Selection

The Software Vendor Selection process is a very critical stage. It is a long and tedious process to arrive at the selection stage.

1. **Three off Site Vendors Visits**

The Project Management Team should visit a minimum of three off site vendors. The purpose of the visits is to actually view the software in operation and to confer with users.

2. **Gather Three References**

It is also important to gather a minimum of three references of your group of vendor finalists, (Enockson 1983). Software information technology normally comes through proprietary or standard software packages, (Kempis 1998).

3. **Meeting User's Requirements**

The Project Management Team must ensure the new information technology meet the user's requirements. It is the responsibility of the Project Management team to supply the CIO with enough data to make the final selection decision.

Implementation

The implementation of new information technology and its success process includes three steps. Those steps are Technical Validity, Organizational Validity, and Organizational Validity

1. **Technical Validity**

Technical Validity assesses whether or not the new system technology works.

2. **Organizational Validity**

Organizational Validity asks the question, "Will the new system be accepted and used by its intended clients?"

3.   **Organizational Effectiveness**

Organizational Effectiveness asks the question "Does the new system influence the organization's ability to perform its work more effectively and make its decisions more accurately?" (Pinto 1994)

Training Program

The CIO must ensure a commitment to training and define a training policy statement, (Berkeley 1984) (Lewis 1984).

1. Selection of the Training Officer

The selection of the training officer is the first step in creating a successful training program. The training officer will mediate between users and senior management. (Berkeley 1984) (Lewis 1984) The training officer ensures that the training program interface between user and management and that the technology will be basic, easy to understand, and utilized to meet their individual needs," (Diebold 1985).

2. Training Need and Cost Analyses

The training staff must establish a training need and cost analyses to understand the needs of the organization and users, (McKillip 1987).

These steps will not assure success on every information technology project or acquisition; however they will broaden your awareness concerning pitfalls that may occur. Every project is different, and every project brings different obstacles and problems to be addressed.

Table 3.1 links the conceptual framework, the model components and the literature. The step for each component is identified and separated. Each component has different supporting elements that help validate its existence. The elements validate the

importance of CIO involvement, planning, building a project management team, writing a

RFP, software and hardware selection procedures, implementation, and training.

Table 3.1 Links the Practical Ideal Components to the Literature, Conceptual Framework

Conceptual Framework Link to Literature	
Ideal Type Categories	**Literature**
CIO responsibilities toward IT: • Must understand and be aware of the organization information technology needs. • Provide authentic support for the benefit of a successful project. • Selects a project manager in advance	Durand, T, (2004) Enns, H.G. 2003) Kempis, R.D. (1998) Hallows, J. (1998) Martin, J. (1982)
Planning Stage: CIO ensure 2 types of analyses are conducted: • Need Analysis • Cost Analysis	Doll, W.J. (2003) Segars, A. and Grover, V. (1998) Bryson, J (1995) Pinto (1994) McKillip, J. (1987) Enockson (1983) Munro, M and Davis, G (1977)
Project Management • Building a successful project management team. • Organization Activities • Predicting Project Success	Betz (2003) Hallows, J. (1998) Pinto, J.K. (1994) Kerzner, H. (1979)
Request for Proposal • Request for Proposal is seeking a solution to a problem. • Clear and Concise RFP • Format of the RFP	Johnson-Sheehan, R. (2002) Hamper, R. (1995) Tammemagi, H.Y (1995) Bowman, J (1992)
Vendor Selection • Minimum of Three Off Site Visits • Obtain at Least Three References • Meet Users Requirements	Dorf, R (2005) Weinberger (2003) Kempis, R (1998) Enockson (1983)
Implementation Process • Technical Validity • Organizational Validity • Organizational Effectiveness	Doll, W.J (2003) Kempis, R (1998) Gelderman, M (1998) Pinto, J (1994) Cooper, R and Zmud, R (1990)

Training Program
   • Select Training Officer
   • Training Need Analysis
   • Training Cost Analysis
	Lewis, C.S. (1992)
	McKillip, J (1987)
	Diebold, (1985)
	Berkeley, P (1984)
	Enockson (1983)

CHAPTER IV

Methodology

Purpose

The purpose of this chapter is to describe the methodology used to examine how Texas municipalities acquisition information technology. The assessment is based on the practical ideal model type developed in Chapter Three. The assessment components should indicate how close Texas municipalities' information technology acquisition process aligns with the practical ideal model base on the literature review.

Introduction to Methodology

Survey and document analysis research were the methods of data collection used to assess the information technology acquisition process of Texas municipalities. The survey was based on the information technology acquisition model components (practical ideal type) developed in Chapter Three. The survey instrument was developed from the conceptual framework. The Survey was an appropriate methodology tool to examine the research purpose.

Document analysis was chosen to compare the existing Texas municipal government information acquisitioning guidelines against the ideal type. The American Heritage Dictionary (2004) defines document analysis as an examination of written or printed information that bears the original, official, or legal form and can also be used to furnish decisive evidence.

Data Collection Method

Survey research was used to access data received from five Texas municipalities. According to Babbie (2004), survey research is the method of choice available to the social researcher who is interested in collecting original data for describing a population too large to observe. Also questionnaires were used to solicit information appropriate for analysis. The use of a questionnaire to conduct survey research is the most appropriate method to use when time and money constraints and sensitive subject nature are a consideration.

Surveys have been used in research over the past centuries. Although surveys are popular and can be found in the old testament of the Bible (Numbers 26: 1-2) they do have weaknesses. According to Babbie (2004), surveys have many weaknesses. A couple of weaknesses are: 1). Surveys are inflexible. Research involving direct observation can be changed as field conditions warrant, but surveys typically require that an initial study design remain unchanged throughout. 2). Survey research is generally considered to be weak on validity but strong on reliability. This is because responses are limited to certain categories that cause observations to be more artificial.

To address some of these inherent weaknesses, certain techniques were employed to collect the data. First, to encourage a higher response rate, responses were structured into "yes" or 'no" categories, since the ultimate goal was to determine whether or not a particular information technology acquisition component was being used. Babbie (2004) suggested the researchers provide clear and short questions that will not be misinterpreted under certain conditions.

Secondly, surveys were emailed February 28, 2005, to Chief Information Officers of twenty Texas municipalities. There were a few municipalities that refused to participate due to that municipality's rules forbidding participation in any study. Numerous follow-up emails and phone calls were attempted but only five (5) Texas municipalities CIOs returned surveys, producing a poor 25% response rate. Babbie, (2004: 261) believed a response rate of at least 50% is "adequate for analysis and reporting." He further adds that a low response rate is a danger signal, because those non-respondents are likely to differ in ways other than just their willingness to participate in the survey. Because of the anticipated response of municipality CIOs concerning their responsibilities, an additional survey was sent to fifteen local and county customers of CIOs to rate their responsibilities. Those employees consist of senior executives, IT professionals, and front line personnel.

Table 4.1 illustrates the linking of the survey instrument to the conceptual frame work. The table lists each component of the conceptual frame work. The table lists the corresponding survey questions for those components addressed to the five municipalities.

Document analysis was chosen for this research to access data received about five Texas municipalities. All five municipalities reported having an information technology acquisition policy. Unfortunately only two of the five municipality respondents provided information about their information technology acquisition policy.

Table 4.1: Linking the survey to the Conceptual Framework

Category and Ideal Type Components	CIO Survey Question (yes/no) responses were used
CIO Responsibilities • Understand the IT needs of the organization • Provide authentic support of the project • Select a Project Manager in advance	1. Do you measure your organization needs assessment? 2. Do you provide authentic support of IT projects? 3. Did you select a project manager in advance? 4. Do you assign a senior executive to IT projects? 5. Senior executive (s) attends project management meeting?
Planning Stage • Need Analysis • Cost Analysis	6. Are there written policies in place for IT acquisition? 7. Do you have a strategic IT plan in place? 8. Do you conduct a need analysis before purchasing IT? 9. Do you conduct a cost analysis before purchasing IT? 10. Did the need and cost analysis provide you a better understanding of your organization needs? 11. Did you create a "wish list" of IT components wanted?
Project Management • Building a successful project management team. • Organization Activities • Predicting Project Success	12. Do you have written guidelines for the selection of the Project Management Team? 13. Were you involved in the selection of the project management team? 14. Were project management team members selected on their experience? 15. Did team members understand the project goals? 16. Did team members define the scope of the system? 17. Were team members assigned work assignments? 18. Did the Project Manager prepare a project schedule?

	19. Did the Project Management Team execute duties in a timely manner? 20. Were there regular scheduled team meetings? 21. Were there regular status meetings schedule wit the CIO?
Request for Proposal • Published RFP • RFP clear and concise • Proper RFP Format	22. Did you use a Request for Proposal? 23. Do you have written guidelines for producing a RFP? 24. Did you provide a detail problem statement within the RFP? 25. Did the RFP provide a deadline to respond, to include a date and time? 26. Did you include a penalty statement for failure to deliver the goods or services as promised by the specified date? 27. Did you include a statement about time restraints and the use of second and third parties or sub-contractors? 28. Was the RFP clear and concise?
Vendor Selection • Minimum of Three Off Site Visits • Obtain at Least Three References • Software & Hardware Meet Requirements	29. Did the Project Management Team visit a minimum of three off site vendors? 30. Did the PMT gather a minimum of three references of your group of vendor finalists? 31. Did the PMT provide the CIO and staff with enough data to make the final selection decision?
Implementation Process • Technical Validity • Organization Validity • Organization Effectiveness	32. Did you assess whether or not the new system technology work? 33. Did the new technology influence the organization's ability to perform its work more effectively and make its decisions more accurately?
Training • Select Training Officer • Training Need analysis	34. Did you select a Training Officer? 35. Did the Training Officer conduct an Training needs analysis?

Sample

The sample consisted of Texas municipalities with a population ranging from 58,000 to over 650,000. The Chief Information Officer plays a very important role in directing the municipality's IT needs and strategic goals. There were a few respondents during the process of the project who wished to remain anonymous because of possible reprisal. To protect their identity, the participating municipalities are listed with designated letters. Tables 4.2 list the participating municipalities, CIO experience and their IT personnel staff size.

Table 4.2: List of Target Municipalities and CIOs Background and Staff.

TEXAS MUNICIPALITY DEMOGRAPHICS

City	Population	CIO Experience	IT Staff Size
Municipality A	58,000	14 yrs	20
Municipality B	Over 100,000	5 yrs	48
Municipality C	Over 650,000	4 yrs	300
Municipality D	567,516	10 yrs	107
Municipality E	360,000	20 yrs	52

Statistics

This study used the simple frequency distribution statistics. Frequency distribution shows the number of times that the various attributes of a variable are observed in a sample (Babbie, 2001, p. 398). This technique for presenting data is useful in distinguishing the strengths and weaknesses in the information technology acquisition model with Texas municipalities.

Locating Texas municipality CIO respondents who had the time for an interview and/or completion of the survey was an extremely difficult task. These five municipalities were chosen simply because they responded to the request. The preliminary data was then gathered and organized to better understand the study findings. The following chapter provides a preliminary assessment of the state of information technology acquisition process in Texas Municipalities. Chapter six will use the preliminary findings to provide a conclusions and implications for the results. See Appendix A for an example of the survey instrument. Appendix B for the Background and Demographics Data profile, and Appendix C for the client survey instrument example.

CHAPTER V

RESULTS

Purpose

The purpose of this chapter is to do a preliminary assessment of the state of information technology acquisition process in Texas Municipalities. The results were organized using the conceptual framework presented in Chapter 4 and the survey instrument as presented in Appendix A. The major information technology acquisition model consisted of CIO responsibility towards IT, planning stage, project management, request for proposal, software and hardware vendor selection, implementation success and training.

Background Data

The respondents' job titles and years of experience of those who were in charge of information technology were very diverse. These titles are as follows: Chief information Officer, Director of Information Technology, and Director of Communication Information Technology. The five surveyed municipalities CIOs represent municipalities with populations of 50,000 to over 650,000 people. Their information technology staffs also range from 20 to over 300 employees.

Because of the expected response of CIOs from the survey, additional surveys were sent to Texas municipal clients who use information technology. These respondents' job titles were also diverse. Their job titles were, Deputy Director Technical Services, Project Managers, Network Administrators, Network Support Technicians, Financial Specialist, and Law Enforcement Officers.

CIO Responsibilities

Responsibilities of the CIO, as discussed in Chapter 3, consisted of three areas of study. Those areas of study were: (1) understanding and being aware of the organization's IT needs, (2) providing authentic support, and (3) selecting a project manager in advance. In Table 5.1, the first area revealed that all CIOs believed they had a full understanding of their organization's IT needs and provided full authentic support of IT projects. In addition, CIOs selected a Project Manager before beginning an IT project. However, only three of five CIOs assigned a senior executive to attend project management meetings.

Table 5.1: Summary of CIO Responsibilities

CIO Responsibilities	Frequency # Indicating Yes
Do you measure your organization IT needs?	5
Do you assign a senior executive to IT projects?	5
Do senior executives attend project management meetings?	3
Did you select a project manager in advance?	5

Since the obvious responses were received from the CIOs, fifteen clients of the CIOs were asked questions concerning their IT responsibility to their organization. Their findings are found in Table 5.2. Over 70% of the client respondents felt the CIO was aware of their IT needs. Many feel their routine IT needs are being met. In the second area, ten of fifteen clients felt CIO and staff provided authentic support of IT projects. Clients believed the CIO and staff were working to meet their needs and providing whatever assistance needed. However, six of fifteen respondents argued the CIO was not providing successful information technologies that were beneficial to their department.

Respondents complained about critical information technology that was laden with problems. One municipality executive mentioned a Computer-Aided-Dispatch system which was installed riddled with problems. The system crashed weekly and the technology failed to perform needed critical features. Nine of the fifteen respondents felt they were receiving the IT solutions promised from the CIO and staff. Again, respondents were pleased with routine IT; it was the critical information technology that was unsatisfactory. Finally, five of fifteen respondents noticed information technology purchased within the year was not being used on a regular basis. Michael Searles, an IT professional [5]revealed his municipality purchased two Image Master devices which were used to install computer operating systems on hard drives while out in the field. The Image Master device never worked properly and neither were they returned for a refund or exchange. The municipality spent $4000.00 for each Image Master devices.

Table 5.2: Summary of Client Rating of CIO Responsibilities

Client Rating of CIO Responsibilities	Frequency # Indicating Yes
Do you feel the CIO is aware of your IT needs?	11
Did the CIO staff provide authentic support of IT projects?	10
Do you feel critical information technology projects have been successful and benefited your department?	6
Are you receiving IT solutions, the CIO promised?	9
Have you noticed IT acquisitions that are no longer in use six to twelve months after purchase?	5

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[5] Michael Searles is an IT network support professional with twenty-years experienced, 2005.

Planning Stage

The Planning Stage consists of two components: need and cost analyses. The initial stage stresses the importance of a need analysis and identifies how many cities are conducting a need analysis.

The survey revealed that all the CIOs said they had written IT acquisition polices in place. Only six of 15 municipality clients said they had IT acquisition guidelines in place. Two municipalities supplied a title to their policies. A document analysis was conducted on their IT acquisition policies. The analysis learned that the two municipalities used a document entitled "The State of Texas Catalog Information Systems Vendor (CISV 2004). The purpose of the State of Texas Catalog Information Systems Vendor program is to provide qualified state agencies and political subdivisions to purchase automated information systems products and /or services in an efficient and cost effective means. CISV also ensures appropriations are used wisely and in the best interest of the organization and tax payers. It is an excellent tool in assisting organizations in their search for information technology. These two municipalities matched the practical ideal IT acquisition model very well. Also the client survey revealed that municipality clients were far happier and pleased with the services the CIO and staff supplied.

The survey, in the initial need analysis stage revealed that all the cities incorporated a need and cost analyses study during their search of upgrading their information technology. The practice of conducting a need and cost analysis also led the CIOs to establish a strategic IT plan to understand the issues of information technology with the organization.

Four of five CIOs fully understood the purpose of need and cost analyses in providing a better understanding of their organization's IT needs. Also during the planning stage, four of five CIOs created a "wish list" of information technology.

Table 5.3: Summary of the Planning Stage

Planning Stage	Frequency # Indicating Yes
Are there written IT acquisition polices in place?	5
Do you have a strategic IT plan in place?	5
Do you conduct a needs analysis before purchasing IT?	5
Do you conduct a cost analysis before purchasing IT?	5
Did the need and cost analysis provide you an understanding of your organization needs?	4
Did you create a "wish list" of IT components wanted?	4

Project Management

The project management component consists of three steps. Those steps are building a successful project, organization activities, and predicting project success. The survey found that two out of five municipalities had written guidelines for the selection of a project management team, (PMT) and three of five CIOs were involved in the selection of the project management team. The CIOs scored high on the selection of PMT members based on their experience, assigning specific work assignment, and scheduling regular status meetings with CIOs.

Table 5.4: Summary of the Project Management Team

Project Management Team (PMT	Frequency # Indicating Yes
Do you have written guidelines for the selection of the Project Management Team?	2
Were you involved in the selection of the PMT?	3
Were PMT members selected on their experience?	5
Did team members define the scope of the system?	5
Were team members assigned specific work assignments?	5
Did the Project Manager prepare a project schedule?	5
Were there regular status meetings schedule with the CIO?	4
Were there regular scheduled team meetings?	5

Request for Proposal (RFP)

The responding municipalities scored high concerning the use of a RFP. The CIOs understood the importance of using a RFP as a tool. All CIOs said their respected municipalities have written guidelines for producing an effective RFP. All CIO's said they include a deadline statement for vendors to respond in the RFP. Four of five municipalities included a penalty statement for failure to deliver goods or services by a date agreed upon. All five municipalities included a statement about time restraints and the use of second and third party sub-contractors. The CIOs agreed that a properly format RFP is useless unless it is clear and concise.

Table 5.5: Summary of the Request for Proposal (RFP)

Request for Proposal	Frequency # Indicating Yes
Did you use a Request for Proposal?	5
Do you have written guidelines for producing a RFP?	5
Did you provide a detail problem statement with the RFP?	5
Did the RFP provide a deadline to respond, to include a date and time?	5
Did you include a penalty statement for failure to deliver the goods or services as promised by the specific date?	4
Did you include a statement about time restraints and the use of second and third parties or sub-contractors?	5
Was the RFP clear and concise?	5

Vendor Selection

It is interesting to note that four of five municipalities PMT scheduled a minimum of three off site visits to view vendors' technology before acquisition. A municipality PMT member revealed that a visit to an off site vendor location saved them from making a terrible vendor selection decision. On their visit they learned of a lack of customer service receive by the visiting organization. The organization has a list of unsolved problems. Many of the municipalities PMT traveled to sites outside of the state for visits.

All municipalities gathered a minimum of three references of vendor finalists before making the final decision. Finally four of the five municipalities CIOs said the PMT provided them and their staff with enough data to make a final acquisition selection decision.

Table 5.6: Summary of Vendor Selection

Vendor Selection	Frequency # Indicating Yes
Did the PMT visit a minimum of three off site vendors?	4
Did the PMT gather a minimum of three references of your group of vendor finalists?	5
Did the PMT provide the CIO and staff with enough data to make the final selection decision?	4

Implementation Assessment

Four of the five responding municipalities assess Technical Validity of the new technology. Three of five CIOs felt the new technology influenced their organization's ability to perform its work more effectively. Table 5.2 revealed 60% of the clients' surveyed were not pleased with new technology and its effectiveness. [6]Edward Harris, a senior executive recently experienced new technology he felt had not been tested properly and was not ready for implementation. His department employees are still enduring the effects of not properly assessing the operation of new system information technology

TABLE 5.7: Summary of the implementation process

Implementation Process	Frequency # Indicating Yes
Did you assess whether or not the new system technology works?	4
Did the new technology influence the organization's ability to perform its work more effectively and make more accurate	3

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[6] Edward Harris Jr. is Manager of Technical Services Bureau of the Emergency Communications/Forensics Bureau of a Law Enforcement Agency.

to perform its work more effectively and make more accurate decisions?	

Training Program

Only one of the five municipalities selected a training officer after acquisitioning new technology.

Table 5.8: Summary of the Training Process

Training Process	Frequency # Indicating Yes
Did you select a Training Officer?	1
Did the Training Officer conduct a training need analysis?	1

CHAPTER VI:

CONCLUSION

Research Summary

The purpose of this research was threefold. The first purpose was to access the acquisitioning information technology for Texas municipal governments. The scholarly literature was used to establish a foundation for the IT acquisition model. The second purpose was to develop an ideal type model for acquisitioning information technology that will assess strengths and weaknesses within Texas municipal governments. A survey was developed from the conceptual framework and sent to twenty CIOs to determine what information technology acquisition process was in place. Only five Texas municipalities responded to the survey. The final purpose was to compare Texas municipal governments with the practical ideal type model and develop recommendations that will improve the IT acquisition process. Also a survey was developed for municipality employees to examine the customer opinions of acquisition information technology and their effect in the workplace.

Table 6.1 identifies the overall findings of five Texas municipalities IT acquisition process. The small sample makes generalization difficult. The table is listed in order of assignment as identified in Chapter 3. The results of the findings are identified by using (1) excellent support, (2) good support, (3) satisfactory support, and (4) poor support. Excellent support is when all five municipalities have the ideal IT acquisition model component in place. Good support is when four municipalities have the component in place. Satisfactory support is when three municipalities have the component in place.

Poor support is when two or less municipalities have the ideal information technology in place.

Table 6.1: Summary of Findings

Summary of Research Findings		
Model	**Component**	**Overall**
CIO Responsibilities Toward IT: • Understand the organization IT needs. • Provide Authentic Support • Select a Project Manager in Advance	Satisfactory Support Satisfactory Support Satisfactory Support	Satisfactory Support
Planning Stage • Need Analysis • Cost Analysis	Satisfactory Support Satisfactory Support	Satisfactory Support
Project Management • Build a successful Project management team • Organization Activities • Predicting Project Success	Good Support Satisfactory Support Satisfactory Support	Satisfactory Support
Request for Proposal • RFP was clear and concise • RFP formatted properly	Excellent Support Excellent Support	Excellent Support
Vendor Selection • Minimum of 3 off site visits • Obtain at least 3 references • Software & Hardware meet requirements	Good Support Excellent Support Good Support	Good Support
Implementation Process • Technical Validity • Organization Validity • Organization Effectiveness	Satisfactory Support Satisfactory Support Satisfactory Support	Satisfactory Support
Training Program • Select Training Officer • Training Need Analysis	Poor Support Poor Support	Poor Support

Recommendation

60

This is a reminder that this is only a preliminary examination of Texas municipalities' information technology acquisition process. More time and a larger sample are needed to truly understand the findings of the study. The five municipalities surveyed appeared to be close to the ideal acquisition model. However, there are some concerns the five municipalities reported in their survey actions in comparative with the ideal acquisition model. The areas of concern corresponding to the ideal model were, (1) Planning Stage; (2) Implementation Process; and (3) Training.

1) Planning Stage

The planning stage is probably the most important stage in the information technology acquisition model. The acquisition planning stage is a map to success and understanding the goal. There were concerns from the survey findings in that each CIO said they had published IT acquisition guidelines. When asked only two municipalities provided proof of published guidelines. The study learned that the two municipalities who produced published guidelines had less problems acquisitioning IT. Also, their employees seemed more satisfied with the new acquisition information technology. On the other side of the coin, one municipality that did not produce or list a publication for acquisition IT guidelines seemed to have problems with new acquisition information technology. There was customer dissatisfaction from the senior executive level down to the lowest level which leads to the problem discussed in the implementation process. Any Texas municipality seeking to improve or create an IT acquisition policy might begin by reviewing The State of Texas Catalog Information Systems Vendor program. This will provide a firm foundation for creating an in house acquisition policy.

2)   Implementation Process

Improper planning and documentation will lead to problems in the

implementation success stage, which is ensuring (1)Technical Validity; (2)

Organizational Validity; and (3) Organizational Effectiveness. The survey

suggested that under the implementation success stage four of five CIOs staffs

believed the new information technology did work. However, only three of five CIOs

felt the new technology influenced the organization's ability to perform its work

more effectively.   It was interesting to learn that 40% of customers surveyed

believed the new information technology acquisitioned met their needs while 60%

were unhappy. CIOs must ensure all defects are removed before implementation.

Conducting a need analysis and creating written plans will only increase the success

of any IT project.

3)   Training

Training is often an element that is often ignored or the first to be cut from a budget.

Out of the municipalities who purchased new technology, that only one entity

selected a training officer and incorporated a training program. If Texas

municipalities incorporated a training program, it might strengthen customers

effectiveness in using IT.

Suggestion for Further Research

This concludes this research project. A further study of the IT acquisitioning process

of Texas municipalities should be made, especially because of the low response from

Texas municipalities. Also Texas municipalities spending of billions of dollars on

information technology to improve efficiency and customer service, warrant further examination.

The contributions of the CIO, client surveys, and documents were valuable to this research. The use of these surveys and documents can assist CIOs in the assessment of a successful information technology acquisitioning process.

February 28, 2005

Dear Information Technology Director,

I am a public administration graduate student enrolled at Texas State University. I am writing my applied research project on the "Information Technology Acquisitioning Process for Texas Municipalities" to fulfill the requirements for my degree. I am asking for a little time from you or one of your assistant directors to complete the attached survey and return it to me.

I have contacted other Texas cities about their IT acquisitioning process also. If you wish to contact me, please feel free to call. Thank you for taking time out of your busy schedule to assist me

Sincerely,,

Berdell Lindsey
Network Support Technician
Austin Police Department
512-974-5189 Office

APPENDIX A

SURVEY INSTRUMENT

Information Technology Acquisition Survey of Texas Municipalities

Part 1: Introduction

The intent of this survey is to examine the information technology acquisition procedures currently in place within Texas municipalities. Due to the sensitive nature of the material, all responses and information provided will be kept strictly confidential. Thank you very much for your time and cooperation.

Part 2: Background Information

A.   What is your job title?   _____
B.   How many years of experience do you have as CIO? _____
C.   How many personnel are assigned to your organization? _____
D.   How many personnel are assigned to your computer services? (e.g. programmers, system analysts, etc.)   _____
E.   How do you go about selecting information technology? _____
F.   Does your organization have published guidelines for acquisitioning IT?
_____
G.   If so, what are the organizational guidelines entitled? _____
H.   Have you noticed a growth in information technology acquisitions? _____
I.   Have you noticed any IT acquisitions that are no longer in use six to 12 months after purchased?_____

Note: Check Yes or No unless otherwise indicated for questions 1 through 37.

Chief Information Officer Responsibilities	Yes	No
1. Do you measure your organization needs assessment?		
2. Do you provide authentic support of IT projects?		
3. Did you select project manager in advance?		

4. Do you assign a senior executive to IT projects?		
5. Senior Executive (s) attends project management meetings?		
Planning Stage		
6. Are there written policies in place for IT acquisition?		
7. Do you have a strategic IT plan in place?		
8. Do you conduct a need analysis before purchasing IT?		
9. Do you conduct a cost analysis before purchasing IT?		
10. Did the need and cost analyses provide you an understanding of your organization needs?		
11. Did you create a "wish list" of IT components wanted?		
Project Management Team		
12. Do you have written guidelines for the selection of the Project Management Team?		
13. Were you involved in the selection of project management team?		
14. Were project management team members selected on their experience?		
15. Did team members understand the project goals?		
16. Did team members define the scope of the system?		
17. Were team members assigned work assignments?		
18. Did the Project Manager prepare a project schedule?		
19. Did the Project Management Team execute duties in a timely manner?		
20. Were there regular scheduled team meetings?		
21. Were there regular status meetings schedule with the CIO?		
Request for Proposal (RFP)		
22. Did you use a Request for Proposal?		
23. Do you have written guidelines for producing a RFP?		
24. Did you provide a detail problem statement within the RFP?		
25. Did the RFP provide a deadline to respond, to include a date and time?		
28. Did you include a penalty statement for failure to deliver the goods or services as promised by the specified date?		
27. Did you include a statement about time restraints and the use of second and third parties or sub- contractors?		
28.Was the RFP clear and concise?		
Vendor Selection		
29. Did the Project Management Team visit a minimum of three off site vendors?		
30. Did the PMT gather a minimum of three references of your group of vendor finalists?		
31. Did the PMT provide the CIO and staff with enough data to make the final selection decision?		
Implementation Process		
32. Did you assess whether or not the new system technology work?		

33. Did the new technology influence the organization's ability to perform its work more effectively and make its decisions more accurately?		
Training		
34. Did you select a Training Officer?		
35. Did the Training Officer conduct a training need analysis?		
36. ADDITIONAL COMMENTS: If you have any additional comments regarding your organization's information technology acquisitioning process, feel free to comment in this section.		

APPENDIX B

CITY DEMOGRAPHICS

City	Population	CIO Experience	IT Staff Size

City A	58,000	14 yrs	20
City B	Over 100,000	5 yrs	48
City C	Over 650,000	4 yrs	300
City D	567,516	10 yrs	107
City E	360,000	20 yrs	52

APPENDIX C

SURVEY INSTRUMENT

Client Information Technology Acquisition Survey of Texas Municipalities.

The intent of this survey is to examine the customer opinions of the CIO and the information technology acquisition procedures currently in place within Texas municipalities. Due to the sensitive nature of the material, all responses and information provided will be kept strictly confidential. Thank you very much for your time and cooperation.

1.   What is your job title?

2.   How long have you been with your agency?

3.   Do you feel the CIO is aware of your IT needs?

4.   Are you provided IT acquisition guidelines or policies?

5.   Do you feel critical information technology projects are successful and benefited your department?

6.   Are you receiving the IT solutions, the CIO promised?

7.   Have you noticed any IT acquisitions that are no longer in use six to twelve months after purchased?

8.   What suggestions would you offer to the CIO, project manager, and vendor to improve information technology acquisitions?

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