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It Strategy and Web-Based Transaction Technology in Small Organizations

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FLORIDA STATE UNIVERSITY
COLLEGE OF SOCIAL SCIENCES

IT STRATEGY AND WEB-BASED TRANSACTION
TECHNOLOGY IN SMALL ORGANIZATIONS

By

RISSETTE POSEY

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For Sugar and Ray

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ABSTRACT

This dissertation examines the spread of web-based transaction technology and usage in small organizations and the strategic technology planning practices of those organizations. This dissertation views organizations as capable, desirous, and self-motivated in the performance of accurate self examination in the form of strategic planning and strategic technology planning. It views strategic planning and strategic technology planning as organizationally advantageous while recognizing that planning strategically can take various forms, use different processes, and utilize diverse resources depending on the individual planning organization's needs analysis, resourcefulness, and experience. Additionally, this dissertation views information technology as the nucleus from which the organization derives the ability to execute and measure its technical, core, mission-critical and strategic actions.

This study was undertaken to examine the extent to which web-based transaction technology has diffused in small North Florida nonprofit organizations and to study what, if any, relationship exists between the adoption of web-based transaction technology and the adoption of other technologies in these organizations. The study also examined the nature and frequency of strategic technology planning in these organizations, and their relationship to the adoption of web-based transaction technology. This work is important and necessary as a means of understanding how popular, useful, and potentially powerful technologies are introduced and used in small organizations, to understand what, if any, technological complexities may be associated with the adoption of this potentially powerful technology. We also seek to understand the different formal and informal means by which these nonprofit organizations consider, then move to introduce and

set permanently into organizational habit patterns, new technologies.

The study sample consisted of small nonprofit organizations in North Florida, selected to provide geographic, economic, political and social diversity from the study population (Brower and Berry, 2004). The study utilized two separate types of analyses and data collection efforts of the same population at two different time intervals, 2003 and 2006. The first analysis consisted of a survey of 262 nonprofit organizations in Northern Florida, spanning the Panhandle from Jackson County on the West to St. Johns County on the East coast. A variety of statistical tests, including descriptive statistics, bivariate correlations, and logistic regression, were performed to explore factors that elucidate relationships among technology choices in the population. The empirical results revealed a statistically significant relationship - that is, an organizations' use of web-based transaction technology increases as software becomes more specialized and organizational technology infrastructure becomes more complex.

The second analysis consisted of a series of interview questions posed to managers in a specific, targeted subset of the original population. The data was collected by using a telephone interview of a high level IT staff member. The purpose of the interview was to extend the knowledge base of how small nonprofits plan for and come to select the technology in use. This was done by asking a series of questions about the planning methods and technologies in use. Specific questions were asked about when web-based transaction technologies were introduced in the organization, and what impacts the technology and the act of planning have on the organization.

Conclusions showed strategic technology planning (68%) and web-based transaction technology (68%) were used in a high percentage of the nonprofit organizations that were

interviewed, strategic technology planning is strongly linked to organizational planning, and nonprofit organizations undertake strategic technology planning because of its valuable contributions to technology infrastructure and management.

CHAPTER ONE

INTRODUCTION AND PROBLEM STATEMENT

Organizations exist to provide goods and services to the public, and they employ a broad array of management tools and methods to adequately achieve these ends. Planning the direction of the organization, determining the most efficient use of its resources, and executing these decisions constitute strategic planning and strategic management. By doing so, managers at every organizational level can have a shared understanding of organizational purpose, values and standards. This jointly held understanding is especially important in the strategic planning and management of information technology.

When properly conceived and implemented, strategic technology management can reinforce and shape organizational strategy, help an organization establish and maintain competitive advantage, create large-scale performance efficiencies and greatly mitigate geographic barriers. Technology and its effective implementation can alter the overall structure and outcome of work by relieving workload, integrating information silos across agency units, compressing work processes, increasing communication, and enabling new products and services.

Like organizational strategic planning and management, strategic technology planning and management consume considerable organizational resources of time, money and personnel. Although there is evidence that the technology planning process is worthwhile, controversy continues regarding its merits. Questions remain regarding whether:

- the resource expenditure exceeds the benefits,
- the organizational benefit would be achieved without the planning process over time given the

diffusion of technology and the isomorphism of institutions, or

- the benefits of technology are limited to certain sectors or organizations with particular characteristics

Furthermore, the latest use of information technology and web-based technologies in nonprofit organizations is not well defined or documented.

Study Rationale

While a large body of research exists on strategic technology planning (Antoniou and Ansoff, 2004; Hirschheim and Sabherwal, 2001; Earl, 1993; Walsham, 1993; Jarvenpaa and Ives, 1990; King, 1978) and technology diffusion (Stoneman and Diederer, 1994; Rogers, 1995; Cooper and Zmud, 1990), a variety of factors are important in supporting the need for this study. First, there remains a great deal of unexplored territory regarding strategic technology planning and technology diffusion. Because technology strategy may be applied at any and all levels, such as strategic (e.g. primary or master strategies) or operational (e.g. product or division strategies), the research possibilities are vast and diverse. Additionally, the existing research tends to focus heavily on large corporations or large for-profit firms and their experiences in technology diffusion and technology planning. This radically uneven distribution of the research leaves a chasm in the literature between what we know about private and public organizations and nonprofit organizations. Without formal research on technology in small organizations and nonprofits, executives in these types of organizations work from speculation, assumptions and extrapolations rather than formal research findings. Second, even with the number of research studies that have been undertaken, some research has been inconclusive or contradictory, so controversy remains on

the merits of strategic planning for technology. Third, with the addition of new studies, the literature on the diffusion of technology continues to mature, exposing new perspectives and contexts that bring richness and depth to the existing body of research.

Small nonprofit organizations are ideal organizations for examining the diffusion of technology and the strategic technology planning process. Small nonprofit organizations tend to operate autonomously or semi-autonomously and strongly desire to capitalize on the efficiencies technology and technology planning can produce. They also experience constraints, e.g. limited resources, that are very different than those experienced by for-profit firms. Small organizations, though, have some characteristics that may lend themselves to high levels of agility. Reduced numbers of organizational members and a lack of nested bureaucratic layers can provide ready accessibility to appropriate decision-makers and knowledgeable staff.

The Purpose of the Study

This study is being undertaken to examine the nature of the diffusion of a specific technology (e.g., web-based transaction technology) in small nonprofit organizations, and to study how (and whether) technology diffusion relates to strategic technology planning in those same small nonprofit organizations. Additionally, this research examines strategic planning, and strategic technology planning catalysts and practices of small nonprofits.

Research Questions

1. How does IT adoption and diffusion occur in small nonprofit organizations? To what extent do nonprofits learn about IT (or are forced to use certain IT) from government and govt. contracts?

2. Do nonprofits use IT strategic planning (SP)? How has IT SP helped or hindered (been useful or not) to small nonprofits? Why do nonprofits start using IT SP? (Board, mandates, contracts, Ex Dir, etc.)
3. How does the complexity of technological infrastructure affect the diffusion of web-based transaction technology? Is there a correlation between organizational networks (inter or intra) and web-based transaction technology in small nonprofits? Is there a correlation between organizational security systems that stop unauthorized access and the diffusion of web-based transaction technology?
4. How does the complexity of telecommunications infrastructure and telecommunications-based services affect the diffusion of electronic transactions services? Is there a correlation between internet capability and diffusion of web-based transaction technology? Is there a correlation between the use of high speed/broadband services and diffusion of web-based transaction technology?
5. How does strategic technology planning occur in small nonprofit organizations? How is IT SP linked to the agency's SP?
6. Is the adoption and diffusion of information technology in small nonprofits a result of strategic technology planning in those organizations?
7. Does web-based transaction technology identification and investment follow formal or informal strategic technology planning? Does it make a difference which process is followed?

Scope of the Study and Research Approach

The scope of this study is limited to small nonprofit organizations in the Florida Panhandle and includes the following North Florida counties: Calhoun, Clay, Dixie, Duval, Franklin, Gadsden, Hamilton, Jackson, Jefferson, LaFayette, Liberty, Leon, Madison, Nassau, St. Johns, Suwannee, Taylor and Wakulla. The panhandle is diverse in its geographic personalities. Florida's capital city, Tallahassee is located in the region, as are several military bases. Large, heavily populated cities such as Jacksonville; small, rural farm communities; and desirable beaches and tourist destinations are contained in Florida's western peninsula. Originally, the study data was collected in 2003 for research on small nonprofits and their technology practices. Use of the data for this study enhances and extends the scope of research on small and nonprofit organizations, broadens the data's utility to focus on (1) web based transaction technology and (2) the intersection of organizational and technology strategic planning, and minimizes the data collection resource expenditure. Using data that was collected in 2003 provides the researcher with a pool of survey participants who are willing and supportive of this type of research, and it makes an excellent backdrop and recent frame of reference for conducting a follow-up study.

Definition of Terms

1. Adoption: Rogers outlines five stages of the adoption process, "the mental process through which an individual passes from first hearing about an innovation to final adoption": (1) awareness, (2) interest, (3) evaluation, (4) trial, and (5) adoption.
2. Broadband Services: A type of data transmission in which a single medium (wire) can carry several different types of transmissions, frequencies or channels simultaneously (Webopedia, Friday, 21 April 2006). Data

rates for broadband services vary based on the number of users competing for available bandwidth at any one time.

3. Complex Infrastructure: Describes an IT infrastructure characterized by a planned system of physical and/or process interdependencies that relies on standard operating, management and recovery practices in day to day IT routines. In this research, complexity is defined by routine use of computer networks, the internet and/or IT security practices.

4. Diffusion: The process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 1995). Diffusion is "the spread of a new idea from its source of invention or creation to its ultimate users or adopters."

5. High Speed Internet Services (DSL): Digital Subscriber Lines (DSL) services transfer data from telephone switching stations to a user's home or office at rates between 144Kbps to 1.5Mbps. DSL represents a huge speed improvement over traditional dial-up modem technology and does not tie up the user's telephone line.

6. IT: Computer hardware, software or technology which supports the organization in completing its duties.

7. IT Strategic Planning: Planning how technology will help accomplish the strategic goals of the organization.

8. Internet: A global network of computers in which every computer serves as a host.

9. Networks: Two or more computers linked together through the use of hardware, software, radio waves, frequencies, etc.

10. Nonprofit Organization: An entity organized to tender a service, not motivated by profit. Small nonprofits are defined as having revenues under \$100,000.

11. Security Systems: Computer software, hardware and policies that obstruct and report unauthorized access to organizational systems and data.

12. Technological Infrastructure: For purposes of this study, technological infrastructure means organizational security systems and organizational networks.

13. Telecommunications Infrastructure: For purposes of this study, telecommunications infrastructure means modem connections, high-speed internet connections, and broadband connection services.

14. Web: This paper will use web and internet interchangeably.

15. Web-based Transaction Technology: Web-based programs that allow a remote user to input, then send (submit) requested information to a designated server.

Summary and Overview

This chapter introduces the research undertaken in this dissertation, namely the study of web-based transaction technology and strategic technology planning in small nonprofit organizations. Chapter two reviews the literature relevant to set the foundation on which this study builds and includes research on diffusion of innovations, strategic planning, strategic technology planning, and web use in organizations. Chapter three introduces the data and methods used to examine the quantitative and qualitative hypotheses and their appropriateness in this research. Chapters four and five review the quantitative and qualitative findings (respectively), while Chapter six summarizes the major findings and implications for future research.

CHAPTER TWO

LITERATURE REVIEW

The topic of this research and the relevant literature streams are multidisciplinary, drawing from many fields (technology, business, government & public policy, innovation, sociology, psychology, strategy & strategic planning, communication) to develop an appropriate framework to capture the complexity of the research. Systems thinking, the method of framing multidisciplinary literature, considers when and how the varied elements of a whole interact. This approach tends to yield holistic results rather than narrow, reductive conclusions, making a wider application of the findings possible. This chapter describes the primary applicable literature, and is divided into the following sections:

1. Research on the adoption and diffusion of technology,
2. Relevant studies that focus on diffusion of technology in the nonprofit context and diffusion of different types of technology, including diffusion of web-based transaction technology,
3. Research studies on strategic planning and strategic technology planning and management, and
4. Literature on strategic technology planning and management in the nonprofit context.

Adoption and Diffusion of Technology

The concept of equilibrium (or quasi-equilibrium) as a social state and the process of changing from that equilibrium to another was pioneered by Sociologist Kurt Lewin (1947) in his seminal study on the effects of groups on decision-making and change. In the study, four sets of groups were presented with information on the benefits of incorporating new foods into their diets. Lewin found that change is inherently

conflictual, sustained change is easier to accomplish when individuals make the decision to change as a group member rather than as an individual, and change is accomplished in three steps: unfreezing the present level, moving to the new level, and then freezing (and thereby establishing the new equilibrium) the new level. Lewin uses *channels* to describe the series of events through which a change must survive in order to maintain locomotion, *gates* to indicate critical decision points that occur during the process, and *gatekeepers* to exemplify the powerful role of certain decision makers.

Lewin's study represents one of the primary modern studies on diffusion, but Everett Rogers' 1962 diffusion stages model formalized what then and now represents the premiere influential paradigm. Rogers, a communications scholar, was the first to conceptualize and create an amalgamation of diffusion theory from different disciplines. According to Rogers, diffusion "is the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 1995)." It is "a special type of communication, in which the messages are about a new idea (Rogers, 1995)." Both managed and spontaneous diffusion are included in Rogers' definition, and Rogers states that four ingredients are present and identifiable in all diffusion research and every campaign or program on diffusion: an innovation, communication channels, time and a social system. Others such as Pries-Heje and Tryde (2001) have proposed somewhat different, more detailed pieces of the diffusion process. These authors define diffusion as consisting of:

- (1) An innovation,
- (2) communication through certain channels over time [communication channels (mass media or personal channels) + time],
- (3) the diffusion and change it leads to in the target group [change], and

- (4) the uncertainty related to the ways the idea may be employed, the communication that may take place and the ways changes may occur [the social system] (Pries-Heje and Tryde, 2001; Rogers, 1995).

As is obvious in this model, Rogers' work is the foundation from which others build. As such, each element in Rogers' model deserves further elaboration.

An innovation is a concept, good or set of customary actions that is new or perceived as new by the individual or organization considering adoption (Rogers, 1995). Newness or perceived newness is the key characteristic of the innovation, and newness in this usage does not refer to recent availability of the innovation. Instead, newness is defined as new to the individual or organization that is considering the innovation. "Newness may be expressed in terms of knowledge, persuasion or a decision to adopt (Rogers, 1995)." This newness or perceived newness is the quality that innervates the diffusion process with uncertainty and unpredictability.

Mass media ([YouTube](#), television, radio, or newspapers) or interpersonal (person to person) channels are the communication channels or routes used to inform the population of potential interested parties about the new idea or innovation. Access to these communication channels is the first requirement in transferring messages about the innovation to prospective adopters. Absorptive capacity, or the pivotal importance of individuals and organizations to detect and digest external messages about innovation and to accurately distinguish the information and the innovations that are potentially advantageous, was proposed by Cohen and Levinthal in 1990; it is another primary ingredient in the diffusion process. In fact, the ability of individuals and firms to realize the benefits of innovation depends on their degree of absorptive capacity (Cohen and Levinthal, 1990), and lack of absorptive capacity is handicapping. Homogeneous

(homophilous) between individuals increases rates of communication, understanding and adoption, but at least some of the participants in the communication channels are heterogeneous (heterophilous), which means that individuals and organizations with diverse histories and backgrounds have higher absorptive capacities and are better able to recognize and seize a new, beneficial idea (Rogers, 1995, Cohen and Levinthal, 1990).

Time, the third element of the diffusion process, is itself measured in three components. The first measure of time is an interval which begins at the moment the individual moves from not knowing to knowing about the innovation and continues through adoption or rejection of the innovation. This time interval is also known as the innovation-decision process. The second time marker is referred to as the degree of innovativeness and is a relative measure: it is the comparison of when an individual or organization adopts a new idea compared to when the other members of the social system adopt the new idea. Rogers classifies adopters' degree of innovativeness according to the following five ideal types and their overarching trait(s) and values: innovators (wealthy and venturesome), early adopters (highly respected and respectable role models who decrease uncertainty), early majority (earlier than average adopters, but thoughtful & deliberate in making the adoption decision), late majority (skeptics who follow the average adopter) and laggards (isolated, cautious resisters).

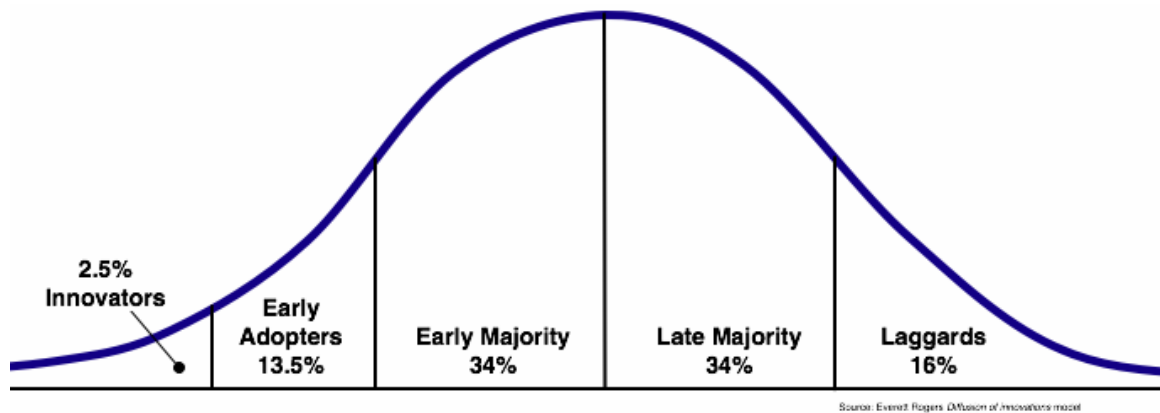


Figure 1. Rogers' Degree of innovativeness

The third diffusion time component refers to the rate of adoption for a specified period, that is, the number of members of the social system who adopted the innovation during time period x . Adoption rates are explained by five factors: (1) their perceived attributes, such as advantages and compatibility (2) who is involved in the innovation decision, (3) the types of communication channels, (4) the nature of the social system, and (5) the extent of change agent promotion efforts (Rogers, 1995). The rate of adoption is represented by an S-shaped curve, as adoption begins slowly and with a small population. The number of adopters then increases over time, as a greater population in the social system adopts the innovation. The slope of the S curve is determined by the degree of rapidity of adoption in this phase. During the last stage, the number of adoptions in the social system begins to taper off and decline. Rates of adoption can vary for the same innovation in different social systems, as values, norms and systemic elements influence the actions of system members.

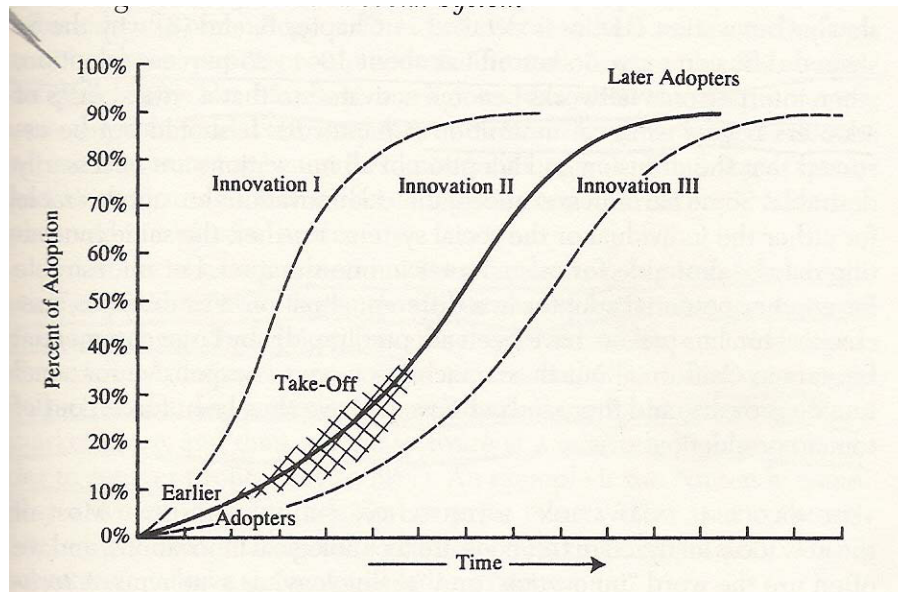


Figure 2. Rogers' Stages of Innovation Adoption

The social system through which the diffusion spreads is the fourth and final piece of the diffusion process. Social systems are "a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal (Rogers, 1995)." Members of the social system must have behavior variances (this leads to social structure), and can be composed of any distinguishable entity - individuals, groups, subgroups and organizations (Rogers, 1995). Patterned arrangements and standardized relationships in social and communication structures facilitate or obstruct the diffusion of the new idea. The decision to adopt or reject the innovation is influenced by opinion leaders (individuals internal to the social system who have some amount of influence over others' attitudes or behavior), change agents (individuals external to the social system who attempt to alter the behavior of those in a social system by promoting a set of new ideas), the type of innovation decision utilized for the new idea or innovation, and the consequences of the adoption or rejection decision (Rogers, 1995).

Innovation in Organizations

Diffusion of innovation can occur on an individual level or on an organizational level, and innovation in organizations is more complex and has different characteristics than individual innovation. Typically, organizations use two types of innovation-decisions - collective innovation-decisions and authority innovation-decisions - and in many studies on innovation in organizations, the dependent variable becomes implementation rather than adoption (Rogers, 1995), due to the difficulty inherent in studying the adoption process in organizations. Organizational leadership, structural considerations and characteristics external to the organization all influence innovation dynamics, adoption and implementation.

Rogers' five stage diffusion model (see Figure 3) clearly separates the initiation (consisting of (1) agenda setting and (2) matching) and implementation [(3) redefining/restructuring, (4) clarifying, and (5) routinizing] processes, but teasing out and correctly attributing the effect(s) of organizational structural variables on innovation proved difficult. Organizational structural variables have confounded researchers, as they could have a positive effect on diffusion during the innovation stage, and the opposite effect during the implementation phase (Rogers, 1995). In this situation, variables that helped initiation may work against implementation. Broadening the scope of the analysis by including initiation and implementation improved the explained results of organizational innovation studies (Rogers, 1995). Still other organizational innovation researchers subsequently began using an index of innovativeness to measure the degree to which an organization had progressed through the innovation process (Rogers, 1995). More recently, innovation studies have centered on the sequence of "decisions, actions and events" in organizational diffusion, on implementation rather than adoption, and on

information technology and communication innovations (Rogers, 1995).

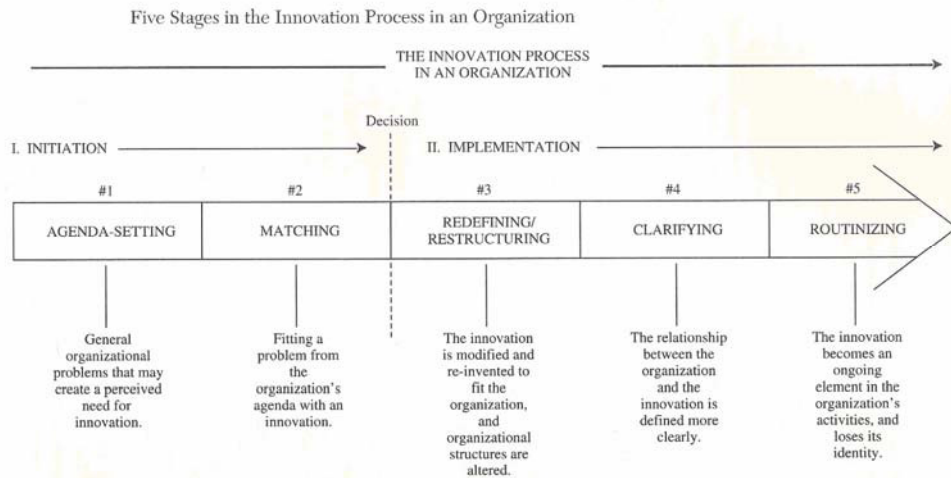


Figure 3. Rogers' Stages in the Organizational Innovation Process

Other researchers have studied diffusion and, using Lewin's, Rogers' and other studies as bases, elaborated and extended diffusion modeling and diffusion research. Of particular interest for this study are studies that center on (1) technology and the diffusion of computer innovations and (2) policy diffusion such as policies on strategy and strategic planning. Further examination of the diffusion and implementation literature is appropriate for a thorough review of the literature.

Two prominent scholarly articles on information technology diffusion are Kwon and Zmud's (1987) study on unifying and categorizing diffusion models in technology research and Cooper and Zmud's (1990) piece on diffusion/implementation research in materials research planning. These key research studies contain pivotal elements of technology diffusion research. The former analyzed, then categorized previous studies according to one of three types; the latter designated a widely accepted model of IT implementation diffusion.

Attempting to ascertain common denominators of technology implementation success, Kwon and Zmud in 1987 consolidate and examine prior information technology implementation research, then segregate information technology research into three categories: factors research, process research, and political research (Kwon and Zmud, 1987). Factors research focuses on "individual, organizational, and technological forces which are important to IT implementation effectiveness (Kwon and Zmud, 1987). These include top management support of the implementation effort, good IT design, and appropriate user-designer interaction and understanding (Kwon and Zmud, 1987). Process research on implementation "examines social change activities," and indicates successful implementation follows a commitment to change, extensive and precise project definition, and carefully guided management processes (Cooper and Zmud, 1990 and Kwon and Zmud, 1987). Political research focuses on stakeholder interests; successful implementation depends on recognizing and deftly managing those interests (Cooper and Zmud, 1990 and Kwon and Zmud, 1987).

After organizing and integrating the IT implementation research, Cooper and Zmud propose an IT diffusion model consisting of six stages, each stage containing both product and process descriptions: initiation, adoption, adaptation, acceptance, routinization and infusion (Cooper and Zmud, 1990, Zmud and Apple, 1989, Kwon and Zmud, 1987 and Lewin, 1952) (See Table 1).

A key objective of this research was to determine how and whether a specified innovation - web-based transaction technology - has been adopted among nonprofits in North Florida. As innovation brings new functionality by supporting organizational tasks, conserving resources and enhancing organizational efficiency, examining this subject will produce more knowledge about the factors that occur in nonprofits that use this valuable resource. This section reviewed seminal research on diffusion of innovation and

technological diffusion of innovation. The next section reviews diffusion of web-based transaction technology in nonprofits and other contexts.

Diffusion of Web-based Transaction Technology and Technology in Nonprofit and Other Contexts

The introduction, adoption and implementation of communication technology has changed the way organizations and their constituencies transact information-based tasks. In particular, the world wide web (web) has permanently altered the way individuals and organizations interact and work. As a technologically based, bi-directional form of explicating, initiating, securing, transacting and recording work, the web can create remotely the circumstances required to enable the completion of information-based tasks. By using the web as a mediator, organizations have been able to mitigate the constraints of business operating hours, remove the limiting effects of geography in the accomplishment of services, reduce or eliminate the need for human interaction, tailor information access to the individual, and through examining past practices, predict - to a large degree - constituents' needs, likes and dislikes. In nonprofit organizations, many activities, such as conference and membership registrations, contact information/address updates, surveys, purchases, donations and appointment scheduling lend themselves to web-based transactional technology. How this type of technology is planned, adopted and diffused in nonprofits is a largely neglected area worthy of study. In past diffusion research, academicians have tried to explain the varying speed at which innovations diffuse through social systems (Rogers, 1995). One behavioral premise of the diffusion research is as adopting firms demonstrate superior performance, non-adopting

Table 1. Six Stage Technology Diffusion Model, Cooper and Zmud, 1990.

<p>Initiation</p> <p>Process: Active and/or passive scanning of organizational problems/opportunities and IT solutions are undertaken. Pressure to change evolves from either organizational need (pull), technological innovation (push), or both.</p> <p>Product: A match is found between an IT solution and its application in the organization.</p>
<p>Adoption</p> <p>Process: Rational and political negotiations ensue to get organizational backing for implementation of the IT application.</p> <p>Product: A decision is reached to invest resources necessary to accommodate the implementation effort.</p>
<p>Adaptation</p> <p>Process: The IT application is developed, installed, and maintained. Organizational procedures are revised and developed. Organizational members are trained both in the new procedures and in the IT application.</p> <p>Product: The IT application is available for use in the organization.</p>
<p>Acceptance</p> <p>Process: Organizational members are induced to commit to IT application usage.</p> <p>Product: The IT application is employed in organizational work.</p>
<p>Routinization</p> <p>Process: Usage of the IT application is encouraged as a normal activity.</p> <p>Product: The organization's governance systems are adjusted to account for the IT application; the IT application is no longer perceived as something out of the ordinary.</p>
<p>Infusion</p> <p>Process: Increased organizational effectiveness is obtained by using the IT application in a more comprehensive and integrated manner to support higher level aspects of organizational work.</p> <p>Product: The IT application is used within the organization to its fullest potential (Sullivan 1985). (Cooper and Zmud, 1990).</p>

innovations diffuse through social systems (Rogers, 1995). One behavioral premise of the diffusion research is as adopting firms demonstrate superior performance, non-adopting firms recognize the higher level performance of adopters and are therefore encouraged to adopt the technology themselves (Venkatraman, Loh and Koh, 1994). 2006 research by Thatcher, Brower and Mason though, found preliminary evidence that diffusion among nonprofits and public organizations is more complex than earlier studies show, and that diffusion in the nonprofit sector may span all categories, from early adopters to laggards.

Diffusion and Organizational Size

Innovations are more easily diffused in large organizations, and this difference shows up in technology diffusion patterns where adoption speed has a high correlation with organizational size (Rogers, 1995, Iacovou, Benbasat and Dexter, 1995, Cragg and King, 1993). Size appears to be a surrogate for other factors that lead to innovation, such as level of technical expertise and technology sophistication; staff, money and other resources and organizational structure (Iacovou, Benbasat and Dexter, 1995). But although small organizations may adopt technological and computing innovations at a slower, lower rate than do large organizations (Rogers, 1995), there are factors that motivate small organizations to adopt (Iacovou, Benbasat and Dexter, 1995, Cragg and King, 1993). Relative advantage characterized by improved work and work processes, external and competitive pressures, managerial enthusiasm, and steady consultations with expert technical support can increase the rate of technology adoption in small organizations (Iacovou, Benbasat and Dexter, 1995, Cragg and King, 1993). Research that specifically targets small organizations and nonprofit organizations is needed to compare and distinguish the rate at

which this distinct social system adopts and diffuses web-based transactional technology.

One of the earliest studies of computer use in nonprofit organizations was done in 1989 by Robert Rubinyi. Rubinyi studied 72 small metropolitan nonprofits given computer hardware and software as part of the Apple Computer Community Affairs Program networking grant. Despite having computer hardware and software provided to them, Rubinyi found that lack of resources severely curtails full exploitation of the technology. Small nonprofits' lack of time, absence of available staff, dearth of knowledge of the technology's potential, deficit of skills for proper implementation and inability to coordinate between groups all contributed to low technology usage.

Kanayama's 2003 research specifically targets web use in small and medium nonprofit organizations in Appalachian Ohio. The author performed a content analysis on the web sites of 33 organizations and examined strategic uses of the web sites. The study focused on eight strategic web uses:

- Clear articulation of web site objectives,
- Offering products and services,
- Promoting activities and events,
- Increasing donor contributions,
- Volunteer recruitment,
- Maintaining relationships,
- Using visual presentations, and
- Introducing and quoting those involved in the organization,

The findings showed most organizations did not use the web strategically, and that how nonprofits evaluate their needs has an impact on how they approach using the technology tools they have.

Simpson's 2005 research on the use of web technology in local government planning agencies studied 1,432 U.S.

municipalities with populations of 25,000 or more. The purpose of this study was twofold; his study was undertaken to evaluate the extent to which web technology is used in local government organizations and to provide a benchmark for future studies on the impact of local government use of technology. Key aspects of Simpson's findings include:

- A relationship exists between the number of organizational staff and the depth and sophistication of the use of the web as a tool to help transact agency business,
- Most (96%) planning agency staff have access to email and computers,
- Most planning agencies (95%) have a web presence,
- Sixty per cent of the web sites are not maintained by planning department staff, and
- Web technology tools increase as the population increases, indicating that community size may be a driver of web technology adoption by compelling the agency to adopt more complex technology either directly (explicit requests from the community being served) or indirectly (agency desires for greater economies and efficiencies).

Strategic Planning/Strategic Technology Planning

Organizations are under pressure to increase efficiencies in their strategic processes (Cooper and Zmud, 1990). Cooper and Zmud (1990) Although Itami and Numagami (1992) assert "Technology is the most fundamental of the core capabilities of a firm," for many years technology planning was limited not by inherent technology functionality, but by human conceptualizations of technology's usefulness (Pyburn, 1983). Technology planning was considered at the unit level or implemented as steps in project development, and focused on enhancing processing speed, improving efficiency, reducing

errors, and increasing data integrity rather than as a strategic means of supporting the mission and basic objectives of the organization (Pyburn, 1983; King, 1978).

Organizational strategy and information technology were perceived as related, but technology was considered at the operational rather than the strategic level.

In 1978, King proposed a practical method of developing information technology strategy based on an organization's overall strategy. King's operational methodology represented one of the first attempts to position and apply information technology at a high level and link it to the organization's overall business strategy. King proposed "an operationally feasible approach for identifying and utilizing the elements of the organization's "strategy set" to plan for the MIS" (King, 1978); this process involved transforming mission, objectives, strategy, and other strategic organizational attributes into system objectives (purpose of the information system), system constraints (internal and external rules and regulations that must be observed, such as budget limitations [internal] and industry regulations (external)), and system design strategies (explicit or implicit desires for the system and/or standards by which the operation of the system will be measured) (King, 1978). However, the link between the organizational strategy set and the MIS strategy set may not be easy to make. Informal or public relations focused organizational strategic planning tends to yield fewer, less comprehensive or less sophisticated reference documents for the MIS designer to access (King, 1978). This increases the amount and complexity of the analysis IT strategists must make while simultaneously reducing directly perceived, factual information on which to base decisions. Additionally, Mintzberg and Waters (1985) posit that strategies may not always be deliberate or intended. According to these authors, strategy formulation and implementation is not necessarily a result of a previously considered and deliberately thought out

planning process. Strategies can be realized in spite of, or in the absence of conscious intentions. Mintzberg and Waters write, "Planning suggests clear and articulated intentions, backed up by formal controls to ensure their pursuit, in an environment that is acquiescent." These are conditions that may not exist, yet strategic planning and implementation may occur through emergent strategies rather than through intended strategies.

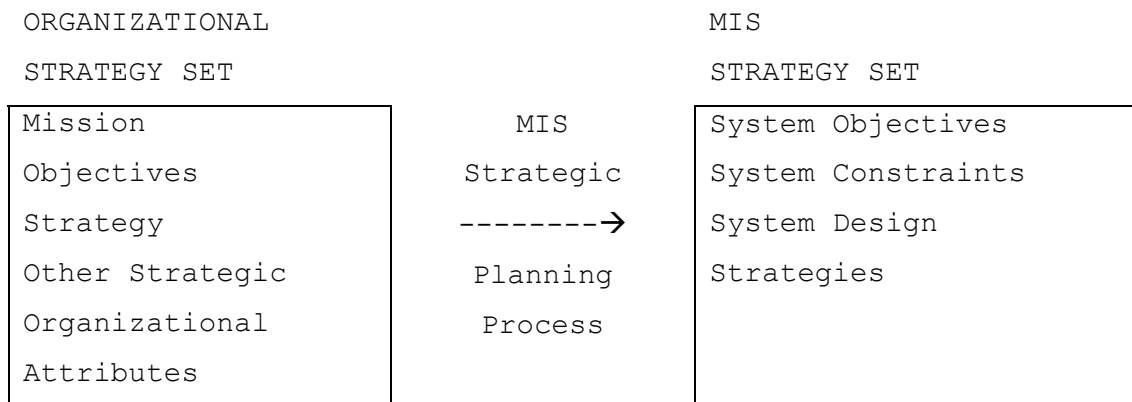


Figure 4.: Overall MIS Strategic Planning Process (King, 1978)

After King's publication in 1975, research relating organizational strategy to information technology strategy began to proliferate. Recognizing the strategic ability of technology, studies focused on the possibilities (Henderson and Venkatraman, 1999; Wiseman, 1985; Benjamin, Rockart, Morton and Wyman, 1984; McFarlan, 1984; Porter, 1980) and difficulties of applying technology strategically (Lederer and Mendelow, 1988; Clemens, 1986). Although authors examined the contributions and interactions of technology and strategy on large-scale organizational objectives, such as achieving and sustaining competitive advantage, improving organizational performance, and increasing organizational effectiveness, findings in the research on strategic planning and technology strategy are contradictory. For example, in examining formal

planning systems and performance in large banks, Wood and LaForge (1979) found that when reinforced by the appropriate technology, formal organizational planning helps performance. Conversely, Robinson and Pearce's 1983 research on small banks found that formal planning had no impact on performance.

Lederer and Mendelow (1988) give voice to an implicit assumption in the literature that information systems planning is a precursor to the development of information systems with strategic impact. Tavakolian's 1989 survey of large computer organizations found that the amount of centralization (decentralization) of the IT function is strongly correlated with organizational strategic conservativeness (aggressiveness). User departments in organizations with aggressive organizational strategies have more control over their information technology function than do users in organizations with more conservative information technology functions, thereby enabling greater risk-taking, fostering more creativity and supporting the concept that organizational competitive structure, information technology and organizational fit are part of successful IT diffusion and implementation (Tavakolian, 1989). All of these studies help advance strategic technology research, but much unexplored territory remains.

Summary

This chapter provided a review of the major literature streams in the diffusion of innovations and the strategic planning research. It examined the research origins and historical beginnings of the diffusion research, and moved to diffusion of innovations. The chapter then specifically discusses research more targeted and relevant for this dissertation, including the diffusion of technological innovations and its theoretical underpinnings, web-based transaction technology diffusion, WBTT in nonprofits,

strategic planning, and strategic technology planning. In the next chapter, the hypotheses and methods will be presented.

CHAPTER THREE

METHODOLOGY

The purpose of this research is to study nonprofit organizations, and specifically:

- 1) to examine the relationship between complex organizational technology infrastructure and the adoption of web-based transaction technology,
- 2) to test the relationship between complex telecommunications technology and the adoption of web-based transaction technology,
- 3) to investigate the relationship between strategic technology planning and the adoption of web-based transaction technology,
- 4) to explore the relationship between organizational strategic planning and strategic technology planning,
- 5) to study the effect of governmental grant and contract influence on technology adoption, and
- 6) to examine other select variables that may impact strategic technology planning in small nonprofits.

Hypotheses

A web-based transaction program is a complex, high-level application of technology. Complexity is both a perception experienced by those who encounter the technology and a descriptor of the ingredients or elements of the technology; it is "the degree to which the innovation is perceived as difficult to understand and use" (Rogers, 1995) and it is a composite of multiple smaller, interrelated elements or systems that when combined, produce a fresh concept and/or new functionality (Rogers, 1995). Web transactions require both internal and external hardware and software components, a

common interface, networks and network access, specific policies, rules, permissions, and a means of including and excluding appropriate populations, a common language(s) and transfer protocols. Examining whether nonprofits are adopting advanced technology is important to understanding whether nonprofit organizations match, exceed, or continue to lag behind other types of organizations (Guthrie, 1999) in embracing and utilizing technology. Because nonprofits tend to provide services that are unavailable or difficult to obtain elsewhere to community members in crisis or upheaval, and technology can improve services or service delivery efficiency, research on nonprofits and technology strategy and adoption is an important undertaking.

Web-based programs often are structured in layers, or self-contained parts, so program developers can make amendments to one layer (or tier) without needing to make changes to the entire application. The figure below provides a graphic visualization of the infrastructure of a typical web-based transaction application.

The presentation GUI (graphical user interface) is the visual layout and page structure a user sees and interacts with when using the application.

- The Logic Tier mediates commands and data transfer between the user's computer and a server.
- The Business Tier contains rules that specify how the application will operate. For example, the business tier specifies levels of access of particular users, so allows or restricts access to certain applications or data.
- The Data Access Tier contains stored procedures for accessing the data.
- The Data Tier physically houses the data.

The structure of web-based transaction technology is important to this research because the questions raised in the next section are, in part, predicated on the impact

complexity has on technology adoption in the sample population.

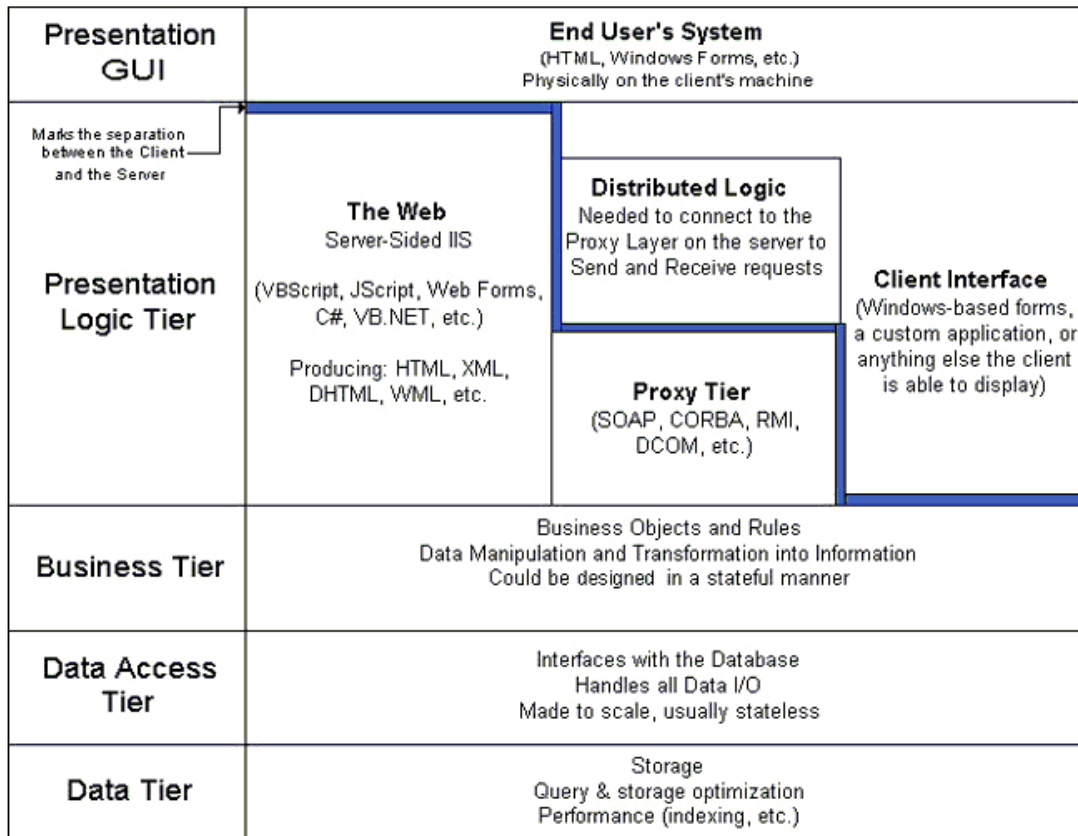


Figure 5.: Web Application Structure (Webopedia, www.webopedia.com)

Quantitative Hypotheses

General Office Hardware and Software

Hypothesis 1:

Small nonprofits adopt web-based transaction technology at a lower rate than they adopt other types of general office hardware such as personal computers, laptops, copiers and fax machines.

There is an implicit requirement that certain technologies are required in operating an office. Telephones, desktops and laptop computers, copiers and fax machines are at a critical mass. Critical mass is a state in which each organization, stakeholder or potential constituent assumes the

technology is used by all organizations (Rogers, 1995). This makes the technology, or in this case, technologies, self-sustaining and expected to be part of any office (Rogers, 1995). For nonprofits, however, web-based transaction technology may not have achieved the same self-sustaining level due to a variety of factors such as scarce resources or lack of perceived need. Therefore, I hypothesize that nonprofit organizations purchase and utilize general office hardware such as fax machines, copiers, desktop and laptop computers at higher rates than they adopt web based transaction technology.

Hypothesis 2:

There is no relationship between general office software use, such as word processing, spreadsheet, database presentation, and desktop publishing for nonprofits and the adoption of web-based transactional technology.

Pressures in the task or political environment are the primary reason organizations adopt an innovation such as specific software or the web (Rogers, 1995, Cooper and Zmud, 1990). The decision to adopt any technology, therefore, is specific to the organization itself and the reasons for the adoption can be varied. The relative advantage (Rogers, 1995), environmental or political pressure (Cooper and Zmud, 1990) and other factors may lead to adoption and use of general office software or web technology. In the case of nonprofits, the primary task is often direct delivery of human services. These services often include hands-on or person-to-person communication based tasks, such as counseling services, recruiting volunteers, after school programs, or meal provision. Small nonprofits also have competing needs and limited resources, so they attend to core, mission-based activities first.

In Rubinyi's 1989 study, the most highly desired benefits of computing for small nonprofit organizations were internal efficiency and communications networking, but of the two,

communications networking was much more difficult to implement. A later study of nonprofits found that most are using communications networking tools such as the web and electronic mail; these nonprofits did not consider themselves particularly technologically progressive for doing so (Society for Nonprofit Organizations and Fundware, 1996). Conversely, in examining 1996 data from 712 medium and large U.S. organizations, Guthrie (1999) found that organizational size and resources have a statistically significant impact on the adoption and diffusion of internet technology (presence of organizational web pages), as do high levels of education among employees. Guthrie's research also revealed that of the three sectors, nonprofits were less likely than private firms or government organizations to have a web presence and use the web. Guthrie suggested that nonprofits may lag the other sectors because of lack of resources or perceived lack of need.

Internal efficiency and communications networking are important to small nonprofits, and the cost and difficulty of successfully implementing communications networks have abated. It follows that these two computer uses would either move in a one to one relationship (because organizations would have both) or be unrelated to one another, as organizations (especially those with limited resources) would choose the one that provides the more valuable benefit. Finn, Maher and Forster's (2006) research on information and communication technologies in small, medium and large nonprofits found that small-size and small-budget nonprofits led large-size and large-budget nonprofits in using communication technology. From these counterintuitive findings, they posited that adoption of communications technology may be difficult to discern and may be driven by forces outside the organization, such as expectations on the part of stakeholders or low cost. Based on the evolving research on small nonprofit communications technology, the wide variety of possible

approaches to technology, and the reduced cost and complexity of implementing communications and network technology such as web-based transaction technology, I hypothesize there is no relationship between general office software use and the adoption of web based transaction technology in small North Florida nonprofits.

Specialized Legislative Software

Hypothesis 3:

Small nonprofits that use specialized legislative software adopt web-based transaction technology at a higher rate than nonprofits that do not use special software.

I hypothesize nonprofits that use special legislative software need to respond to specific requirements brought on by the nature of the working environment or stakeholder demands that other nonprofits do not encounter. The reason for my hypothesis is nonprofit organizations are limited in resources, and specialized software can be quite costly, caters to a specific market, consumes additional organizational resources in learning and maintenance, and may create a single point of failure. Nonprofit organizations tend to focus on internal efficiency and communications networking when selecting technology (Rubinyi, 1989) and I hypothesize specialized legislative software helps the nonprofits that have it provide information-based services rather than goods or human services. Aligning IT strategy with organizational needs is critical for nonprofit organizations (Gleason, 2007; Alexander, 2000). Because information-based service providers with a legislative focus are a subset of education service nonprofits that must function fluidly in the intense legislative arena, they may be more likely to embrace the web for core mission-oriented tasks such as research and communicating with constituencies through web based transactions.

Specialized Personal Equipment

Hypothesis 4:

Nonprofits with staff that use personal digital assistants (PDAs) adopt web-based transaction technology at a higher rate than nonprofits that do not have PDAs adopt web-based transaction.

Personal Digital Assistants provide convenient and portable access to electronic mail, internet access, calendars, contacts, and general office software such as word processing and spreadsheet programs. I hypothesize managers in nonprofit organizations using this form of constant connectedness are more interested in pushing the boundaries of their current technological landscape and would be more likely to use the web for information-based transactions.

Other Web Use

Hypothesis 5:

Nonprofits whose staff have access to the internet are more likely to adopt web-based transaction technology than nonprofits whose staff do not have access to the internet are likely to adopt web-based transaction technology.

Two specific elements of diffusion of innovation are relevant to this hypothesis. The first, communication channels, is the method by which information about innovation is spread. The second is observability, the ability a potential adopter has to see the results of an innovation. As the innovation decision process is underway, available media channels provide information about the innovation to potential adopters. Visibility or observability of an innovation is positively related to diffusion, as the easier it is for "individuals to see the results of an innovation, the more likely they are to adopt. Such visibility stimulates peer discussion of a new idea..." (Rogers, 1995) In this case, web exposure is the media channel that provides awareness-knowledge to the nonprofit (Rogers, 1995), while at the same time supplies an observability conduit. And because computing

in small organizations is enhanced by enthusiasm and inhibited by lack of education (Cragg and King, 1993), staff can become educated and energized about the potential the web and WBTT have for the organization and its constituency by indirect and unobtrusive means using regular daily work processes. Providing internet services to staff also seems to indirectly confirm the use of this tool as both appropriate for accomplishing work and accepted by the organization. If so, it would follow that this type of endorsement encourages further exploitation of the technology, and eases the resistance inherent with technological changes, especially when staff can clearly see additional potential in how other organizations productively use the application.

Infrastructure Complexity

Hypothesis 6:

Nonprofits with high speed DSL or broadband internet connections are more likely to adopt web-based transaction technology than nonprofits without high speed DSL or broadband internet connections.

Hypothesis 7:

Nonprofits with complex telecommunications technology adopt web-based transactional technology at a higher rate than nonprofits that do not have complex telecommunications technology.

Organizations can have a multitude of technology and technological capability without ever entering the arena of executing transactions online. Often, organizations begin adopting computers and technology to assist in the accomplishment of internal work processes such as word processing for everyday correspondence, housing data in databases for documenting and storing personnel records, creating presentations for meetings and training seminars, transacting and recording accounting and bursar activities for receivables and disbursements, and other routine organizational tasks (Gleason, 2007; Rubinyi, 1989). These

tasks can be accomplished with a minimal amount of computer technology, e.g. a personal computer and a few software packages or a software suite. Networking computers together introduces some additional complexity, but allows users to communicate on a different level by passing files back and forth or allowing data access (Burt and Taylor, 2000; Rubinyi, 1989). Email is a common technology that requires a more sophisticated and higher level of organizational knowledge, technology and computer equipment, and accompanying staff support. Electronic mail introduces communication between networks.

Before an organization can perform web-based transactions, however, there must be some additional complexity in the organizational policy and technology structure, and a higher level of sophistication of technology staff (Burt and Taylor, 2000). I hypothesize this applies even in the case of outsourcing the web-based application, as organizations that recognize the propensity of technology to help them in a more sophisticated way cultivate that type of thinking through its current systems, including its technology systems. Organizations that use the web as a transaction tool are likely exposed to and use technology in daily operations at a higher level, experiencing the use of networks and security systems (technology infrastructure), and internet capability with modem, high speed DSL or broadband services (telecommunications services).

Qualitative Hypotheses

Strategic Planning/Strategic Technology Planning

Hypothesis 8:

There is a relationship between a nonprofit's knowledge of current technology and its use in the development of its organizational strategy.

Hypothesis 9:

Strategic technology planning occurs more frequently in organizations that have an organizational strategic plan than in organizations that do not have an organizational strategic plan.

In much of the prevailing research, technology is treated as a factor used by planners to assist with organizational strategy (Itami and Numagami, 1992). Organizational strategic planning and strategic technology planning identify issues and opportunities so solutions can be proposed and researched (Podolsky, 2003; Itami and Numagami, 1992). Itami and Numagami interpret technology in three ways: as a weapon, as a constraint or as a threat. When used in the weapon context, technology can help an organization gain competitive advantage over other firms. As a constraint, technology serves as the boundary for beginning to conceptualize strategic actions. In the threat context, technology requires "a firm to match competition and the industry trend" (Itami and Numagami, 1992), and the organization must push to adopt a certain technology.

I hypothesize (1) that each person who enters the organizational strategic planning forum with some knowledge of technology draws on that knowledge to conceptualize and propose the framework of future strategic projects, and (2) that organizations that use planning in one context are more likely to use it in other contexts. As "the most fundamental of the core capabilities of a firm" (Itami and Numagami, 1992), technology serves as one of the pivotal building blocks of conceptualizing and implementing organizational strategy. Technology and technology planning, therefore may be linked to organizational strategic planning, as each incorporates and assists in manifesting the other.

Strategic Technology Planning/Technology Diffusion

Hypothesis 10:

Nonprofit organizations begin strategic technology planning because of internal catalysts such as (board members or technology staff) rather than as a result of any contractual or external requirements (e.g. government regulations).

Hypothesis 11:

Web-based transaction technology is used more often in nonprofits that engage in strategic technology planning than in nonprofits that do not strategically plan for technology.

One behavioral premise of the diffusion research is as adopting firms demonstrate superior performance, non-adopting firms recognize the higher-level performance of adopters and are therefore encouraged themselves to adopt (Rogers, 1995; Venkatraman, Loh and Koh, 1994). Both web-based transaction technology and strategic technology planning are likely to yield high-level benefits to organizations that implement them and, over time, entice other organizations to implement them as well (Alexander, 2000; Rogers, 1995). Web-based transaction technology offers the promise of increased efficiency, remote task completion, lower personnel costs, and higher availability (Alexander, 2000; Burt and Taylor, 2000). Strategic technology planning can yield competitive advantage, increased technology efficiencies, better process flow and linkages, fewer problems and higher levels of organizational creativity and predictability (Gleason, 2007; Podolsky, 2003; Itami and Numagami, 1992; Lederer and Mendelow, 1987). Organizations that engage in strategic technology planning are, therefore, more likely to actively consider, promote and engage the benefits of web-based transaction technology as a normal cultural practice and they do so because of the anticipated benefits to the organization.

Model Specification

Two methods of undertaking this research - statistical methods and interviews -- will be employed. This dual methodological approach will add validity, richness and depth to the final research product.

Survey data collected from small North Florida nonprofit organizations was used to test the hypotheses in this research study which seeks to identify the role of nonprofits' technological infrastructure and telecommunications complexity in predicting their propensity to implement a certain innovation, specifically, web-based transactional technology. For purposes of this research, logit analysis, correlations and paired sample t-tests will be used to test hypotheses one through eight.

A portion of the survey respondents will be selected to participate in exploratory research data collection in the form of a semi-structured telephone and/or face-to-face interviews. This data collection method will be used to increase clarity of terminology, encourage high response, and allow a mixture of specific and elaborate answers to questions about the organization's strategic technology planning process, its characteristics, and its relation to web-based transactional technology.

The attached survey was pre-tested by telephone with a set of local, willing IT professionals at Florida State University, the Florida Department of Education and the Agency for Workforce Innovation; their feedback was included in the final version. An advance postcard with introductory language and a proposed date and time for the telephone interview was sent to twenty (20) nonprofit managers who completed the written survey questionnaire. The purpose of the interview was to encourage nonprofit IT managers to discuss the relationship between organizational strategic planning and strategic

technology planning procedures and influences. The pool of nonprofit managers interviewed was selected by nonrandom purposive selection to ensure diversity of location and organizational size, and to target organizations that had web based transactional technology during the first survey in 2003 and those that did not.

The advance introductory post included the following language:

Dear IT Manager,

In September 2003, your organization completed a survey from Florida State University of the computer needs and capabilities of North Florida's nonprofit organizations. Recently, your organization was selected to participate in a follow-up survey on your technology procedures and practices. During the week of August 7-13, an interviewer will telephone you to conduct a 5-10 minute survey. All of your answers and comments will be confidential and your participation is desired, but completely voluntary. Your input is very important, and greatly appreciated. If you have any questions about this survey, please call Rissette Posey at 850.XXX.XXXX.

Sincerely,

Rissette Posey, FSU Doctoral Candidate

Summary

This chapter discussed the primary questions the dissertation seeks to study and the premise and prior research on which each question is based. The hypotheses are categorized into quantitative and qualitative sections. The chapter concludes with the study's proposed research methods

and rationale for their selection, and the communiqué sent to the pool of prospective interview participants. The next chapter explains the quantitative hypotheses and research results.

CHAPTER FOUR

QUANTITATIVE DATA COLLECTION/RESULTS

The quantitative analysis began with an examination of 251 responses collected from 2003 survey research data. After examination, some observations were excluded from the analysis as unusable.¹ After removing the unusable survey responses, 235 survey responses remained for the analysis.

I conducted the quantitative analysis using logit analysis, correlations and paired sample t-tests. Logistic regression analysis is the appropriate test for predicting the effect of the independent variable(s) on the dependent variable when the dependent variable is dichotomous and the independent variable is either dichotomous or continuous. This type of analysis eliminates the problems of functional form and additivity, and mitigate the reduction in efficiency that would be introduced with the use of linear regression.

Correlations measure the strength and direction of a linear relation between variables. Correlations can range from -1 (perfect negative relationship) to +1 (perfect positive relationship) and show how variables move together. Paired sample t-tests measure the differences in means between groups. The resulting data provide correlation coefficients, correlation p-values, t-values, and t-test p-values. P-values of less than 0.05 are considered statistically significant for all tests.

Hypothesis Testing

The first hypothesis asserts that small nonprofits purchase and use office and computing hardware that has

¹Responses were not included because the data entered was outside the scope of possible responses (e.g., a response of **3** when the only viable responses were **0** or **1**) or key data fields were empty.

reached critical mass. They do so because they need basic office functionality and because stakeholders and others with whom they interact expect them to have it for basic communications. The variables selected for this analysis include basic equipment -- personal computers, laptops, copiers and facsimile machines. The rate at which the organizations adopted web-based transaction technology was compared to the organizations' adoption rate of each of the basic types of computing equipment.

Hypothesis One

Small nonprofits adopt web-based transaction technology at a lower rate than they adopt other types of general office technology such as personal computers, laptops, copiers and fax machines.

$H_0: WB \geq PC$	$H_0: WB \geq LT$	$H_0: WB \geq F$	$H_0: WB \geq \text{Copier}$
$H_1: WB < PC$	$H_1: WB < LT$	$H_1: WB < F$	$H_1: WB < \text{Copier}$

The data show consistent high levels of adoption of general office technology for the population, and the t-statistics indicate general office technology was adopted at higher levels than web-based transaction technology was adopted. Mean rates of adoption for desktops (89.63%), laptops (46.38%), facsimile machines (83.83%), and copiers (86.81%) were higher for the sample population than were mean rates of adoption for web-based transaction technology (26.81%). The standard deviation for the analysis is 44.391%. The pairwise comparisons are significant at the .05 level.

T-Test

Table 2: Paired Sample Statistics

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	desktops capable to conduct transaction online	.8936	235	.30899	.02016
Pair 2	laptops capable to conduct transaction online	.4638	235	.49975	.03260
Pair 3	fax machine capable to conduct transaction online	.2681	235	.44391	.02896
Pair 4	copier capable to conduct transaction online	.8383	235	.36896	.02407
		.2681	235	.44391	.02896
		.8681	235	.33912	.02212
		.2681	235	.44391	.02896

Table 3: Paired Sample Correlations

		Paired Samples Correlations		
		N	Correlation	Sig.
Pair 1	desktops & capable to conduct transaction online	235	.115	.078
Pair 2	laptops & capable to conduct transaction online	235	.227	.000
Pair 3	fax machine & capable to conduct transaction online	235	.135	.038
Pair 4	copier & capable to conduct transaction online	235	.151	.021

Table 4: Paired Samples Test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	desktops - capable to conduct transaction online	.62553	.51077	.03332	.55989	.69118	18.774	234	.000
Pair 2	laptops - capable to conduct transaction online	.19574	.58833	.03838	.12013	.27136	5.100	234	.000
Pair 3	fax machine - capable to conduct transaction online	.57021	.53745	.03506	.50114	.63929	16.264	234	.000
Pair 4	copier - capable to conduct transaction online	.60000	.51640	.03369	.53363	.66637	17.812	234	.000

Hypothesis Two

The basis of this hypothesis is that general office software and communications networking technology both are needed by nonprofit organizations, and with limited resources, nonprofits are likely to select the type of technology most valuable to accomplishing their core goal(s).

There is no relationship between general office software use, such as word processing, spreadsheet, database, presentation, and desktop publishing for nonprofits and the adoption of web-based transactional technology.

The data show that the strength of the association between organizations that regularly use web-based transaction technology and organizations that regularly use presentation software is weak ($r=.142$), and that the correlation coefficient is significantly different from zero ($P<.05$). Only 2% ($.142 \times .142$) of the variation is explained by the model. No

other significant correlations exist between web-based transaction technology and general office software. Some associations between other variables, however, are strong and significant at the .01 level. Between word processing and spreadsheet software the association is strong and positive at $r = .718$; other associations are strong and positive as well - between word processing and database software, $r = .488$, between database and spreadsheet software, $r = .528$, between spreadsheet and presentation software, $r = .535$.

Table 5: Hypothesis 2 Correlations

Correlations

		capable to conduct transaction online	regularly use word processing	regularly use database/membership management	regularly use spreadsheet/budget & finance	regularly use presentation	regularly use desktop publishing
capable to conduct transaction online	Pearson Correlation	1	.016	.051	.062	.142*	.057
	Sig. (2-tailed)	.	.805	.433	.342	.030	.383
	N	235	235	235	235	235	235
regularly use word processing	Pearson Correlation	.016	1	.488**	.718**	.399**	.379**
	Sig. (2-tailed)	.805	.	.000	.000	.000	.000
	N	235	235	235	235	235	235
regularly use database/membership management	Pearson Correlation	.051	.488**	1	.528**	.460**	.421**
	Sig. (2-tailed)	.433	.000	.	.000	.000	.000
	N	235	235	235	235	235	235
regularly use spreadsheet/budget & finance	Pearson Correlation	.062	.718**	.528**	1	.535**	.366**
	Sig. (2-tailed)	.342	.000	.000	.	.000	.000
	N	235	235	235	235	235	235
regularly use presentation	Pearson Correlation	.142*	.399**	.460**	.535**	1	.422**
	Sig. (2-tailed)	.030	.000	.000	.000	.	.000
	N	235	235	235	235	235	235
regularly use desktop publishing	Pearson Correlation	.057	.379**	.421**	.366**	.422**	1
	Sig. (2-tailed)	.383	.000	.000	.000	.000	.
	N	235	235	235	235	235	235

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Specialized Legislative Software

Hypothesis three posits nonprofits that use specialized legislative software need it to access accurate information quickly and would likely need other technology such as WBRR for similar purposes.

Hypothesis Three

Small nonprofits that use specialized legislative software adopt web-based transaction technology at a higher rate than nonprofits that do not use specialized legislative software.

Logistic regression was conducted to assess whether the predictor variable - specialized legislative software - significantly predicted whether or not a small nonprofit organization adopted web-based transaction technology. The predictor variable significantly predicts whether or not a small nonprofit adopted web-based transaction technology. The odds ratio [Exp(B)] suggest that the odds of estimating correctly which small nonprofit organizations that adopt web-based transaction technology increase by a factor of 8.194 if one knows whether the nonprofit has special legislative software.

Table 6: Hypothesis 3 Logistic Regression Summary

Variable	β	SE	Exp (B)	p
Specialized Leg SW	2.1	.695	8.194	.002
Constant	-1.123	.155	.325	.000

Table 7: Hypothesis 3 Sample Population

Statistics

used specialized software

N	Valid	235
	Missing	0

Table 8: Hypothesis 3 Frequencies

used specialized software

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	224	95.3	95.3	95.3
	yes	11	4.7	4.7	100.0
	Total	235	100.0	100.0	

Table 9: Hypothesis 3 Crosstabs Case Summary

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
capable to conduct transaction online * used specialized software	235	100.0%	0	.0%	235	100.0%

Table 10: Hypothesis 3 Crosstabulation

capable to conduct transaction online * used specialized software Crosstabulation

Count

		used specialized software		Total
		No	yes	
capable to conduct transaction online	No	169	3	172
	yes	55	8	63
Total		224	11	235

Table 11: Hypothesis 3 Logistic Regression Unweighted Cases

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	235	100.0
	Missing Cases	0	.0
	Total	235	100.0
Unselected Cases		0	.0
Total		235	100.0

a. If weight is in effect, see classification table for the total number of cases.

Table 12: Hypothesis 3 Logistic Regression Variable Coding

Dependent Variable Encoding

Original Value	Internal Value
No	0
yes	1

Table 13: Hypothesis 3 Logistic Regression Classification

Classification Table^{a,b}

Observed			Predicted		
			capable to conduct transaction online		Percentage Correct
			No	yes	
Step 0	capable to conduct transaction online	No	172	0	100.0
		yes	63	0	.0
Overall Percentage					73.2

a. Constant is included in the model.

b. The cut value is .500

Table 14: Hypothesis 3 Variables in the Equation, Step 0

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-1.004	.147	46.514	1	.000	.366

Table 15: Hypothesis 3 Variables not in the Equation

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	no15	12.401	1	.000
	Overall Statistics		12.401	1	.000

Table 16: Hypothesis 3 Omnibus Tests of Model Coefficients

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	10.636	1	.001
	Block	10.636	1	.001
	Model	10.636	1	.001

Table 17: Hypothesis 3 Predicted and Observed Classification

Classification Table^a

Observed			Predicted		
			capable to conduct transaction online		Percentage Correct
			No	yes	
Step 1	capable to conduct transaction online	No	169	3	98.3
		yes	55	8	12.7
	Overall Percentage				75.3

a. The cut value is .500

Table 18: Hypothesis 3 Variables in the Equation, Step 1

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	no15	2.103	.695	9.171	1	.002	8.194
	Constant	-1.123	.155	52.291	1	.000	.325

a. Variable(s) entered on step 1: no15.

Specialized Personal Equipment

The basis of hypothesis four is that nonprofits that use PDAs are capitalizing on the latest communications networking technology, and are likely to use WBTT in addition to personal digital assistants.

Hypothesis Four

Nonprofits with staff that use personal digital assistants (PDAs) are more likely to adopt web-based transaction technology than nonprofits that do not use PDAs.

A logistic regression model found that use of personal digital assistants was a significant predictor of adoption of web-based transaction technology by small nonprofit organizations, and the odds of estimating correctly if a nonprofit adopts web-based transaction technology increase by a factor of 2.435 if one knows whether the organization's staff members use personal digital assistants.

Table 19: Hypothesis 4 Logistic Regression Summary

Variable	β	SE	Exp (B)	p
PDAs	.886	.347	2.435	.011
Constant	-1.199	.172	.301	.000

Table 20: Hypothesis 4 Sample Population

Statistics

palm pilots		
N	Valid	235
	Missing	0

Table 21: Hypothesis 4 Frequencies

palm pilots

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	190	80.9	80.9	80.9
yes	45	19.1	19.1	100.0
Total	235	100.0	100.0	

Table 22: Hypothesis 4 Crosstabs Case Summary

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
capable to conduct transaction online * palm pilots	235	100.0%	0	.0%	235	100.0%

Table 23: Hypothesis 4 Crosstabulation

**capable to conduct transaction online * palm pilots
Crosstabulation**

Count

		palm pilots		Total
		No	yes	
capable to conduct transaction online	No	146	26	172
	yes	44	19	63
Total		190	45	235

Table 24: Hypothesis 4 Logistic Regression Unweighted Cases

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	235	100.0
	Missing Cases	0	.0
	Total	235	100.0
Unselected Cases		0	.0
Total		235	100.0

a. If weight is in effect, see classification table for the total number of cases.

Table 25: Hypothesis 4 Logistic Regression Variable Coding

Dependent Variable Encoding

Original Value	Internal Value
No	0
yes	1

Table 26: Hypothesis 4 Logistic Regression Classification

Classification Table^{a,b}

Observed			Predicted		
			capable to conduct transaction online		Percentage Correct
			No	yes	
Step 0	capable to conduct transaction online	No	172	0	100.0
		yes	63	0	.0
	Overall Percentage				73.2

a. Constant is included in the model.

b. The cut value is .500

Table 27: Hypothesis 4 Variables in the Equation, Step 0

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-1.004	.147	46.514	1	.000	.366

Table 28: Hypothesis 4 Variables not in the Equation

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	no7c	6.739	1	.009
	Overall Statistics		6.739	1	.009

Table 29: Hypothesis 4 Omnibus Tests of Model Coefficients

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	6.295	1	.012
	Block	6.295	1	.012
	Model	6.295	1	.012

Table 30: Hypothesis 4 Logistic Regression Summary

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	266.937 ^a	.026	.038

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Table 31: Hypothesis 4 Predicted and Observed Classification

Classification Table^a

Observed			Predicted		
			capable to conduct transaction online		Percentage Correct
			No	yes	
Step 1	capable to conduct transaction online	No	172	0	100.0
		yes	63	0	.0
	Overall Percentage				73.2

a. The cut value is .500

Table 32: Hypothesis 4 Variables in the Equation, Step 1

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	no7c	.886	.347	6.502	1	.011	2.425
1	Constant	-1.199	.172	48.640	1	.000	.301

a. Variable(s) entered on step 1: no7c.

Other Web Use

Communications channels and observability increase awareness-knowledge and technology adoption. Hypothesis five posits that greater exposure to the internet and its capabilities lead nonprofits to use the web for higher level uses.

Hypothesis Five

Nonprofits whose staff have access to the internet are more likely to adopt web-based transaction

technology than nonprofits whose staff do not have access to the internet.

Logistic regression showed that the predictor variable significantly predicts whether or not a small nonprofit adopted web-based transaction technology, and the odds of estimating correctly which nonprofits adopt web-based transaction technology increase by a factor of 2.52 if one knows whether the nonprofit's staff has internet access.

Table 33: Hypothesis 5 Logistic Regression Summary

Variable	β	SE	Exp(B)	p
Staff w/web access	.924	.340	2.520	.007
Constant	-1.638	.292	.194	.000

Table 34: Hypothesis 5 Sample Population

Statistics

most org pc used for internet

N	Valid	235
	Missing	0

Table 35: Hypothesis 5 Frequencies

most org pc used for internet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	86	36.6	36.6	36.6
	yes	149	63.4	63.4	100.0
	Total	235	100.0	100.0	

Table 36: Hypothesis 5 Crosstabs Case Summary

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
capable to conduct transaction online * most org pc used for internet	235	100.0%	0	.0%	235	100.0%

Table 37: Hypothesis 5 Crosstabulation

capable to conduct transaction online * most org pc used for internet Crosstabulation

Count		most org pc used for internet		Total
		No	yes	
capable to conduct transaction online	No	72	100	172
	yes	14	49	63
Total		86	149	235

Table 38: Hypothesis 5 Logistic Regression Unweighted Cases

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	235	100.0
	Missing Cases	0	.0
	Total	235	100.0
Unselected Cases		0	.0
Total		235	100.0

a. If weight is in effect, see classification table for the total number of cases.

Table 39: Hypothesis 5 Logistic Regression Variable Coding

Dependent Variable Encoding

Original Value	Internal Value
No	0
yes	1

Table 40: Hypothesis 5 Logistic Regression Classification

Classification Table^{a,b}

Observed			Predicted		Percentage Correct
			capable to conduct transaction online		
			No	yes	
Step 0	capable to conduct transaction online	No	172	0	100.0
		yes	63	0	.0
Overall Percentage					73.2

a. Constant is included in the model.

b. The cut value is .500

Table 41: Hypothesis 5 Variables in the Equation, Step 0

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-1.004	.147	46.514	1	.000	.366

Table 42: Hypothesis 5 Variables not in the Equation

Variables not in the Equation

	Score	df	Sig.
Step 0 Variables no13	7.664	1	.006
Overall Statistics	7.664	1	.006

Table 43: Hypothesis 5 Omnibus Tests of Model Coefficients

Omnibus Tests of Model Coefficients

	Chi-square	df	Sig.
Step 1 Step	8.074	1	.004
Block	8.074	1	.004
Model	8.074	1	.004

Table 44: Hypothesis 5 Model Summary

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	265.158 ^a	.034	.049

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Table 45: Hypothesis 5 Classification Table

Classification Table^a

		Predicted		
		capable to conduct transaction online		Percentage Correct
Observed	No	yes		
Step 1 capable to conduct transaction online	No	172	0	100.0
	yes	63	0	.0
Overall Percentage				73.2

a. The cut value is .500

Table 46: Hypothesis 5 Variables in the Equation, Step 1

		B	S.E.	Wald	df	Sig.	Exp(B)
Step	no13	.924	.340	7.382	1	.007	2.520
1 ^a	Constant	-1.638	.292	31.433	1	.000	.194

a. Variable(s) entered on step 1: no13.

Infrastructure Complexity

Hypothesis 6:

Nonprofits with high speed DSL or broadband internet connections are more likely to use web-based transaction technology than nonprofits without high speed DSL or broadband internet connections.

Logistic regression results indicate that the odds of predicting whether a nonprofit adopts web-based transaction technology increased by a factor of 2.3 if one knows whether the nonprofit has a high speed or broadband internet connection.

Table 47: Hypothesis 6 Logistic Regression Summary

Variable	β	SE	Exp (B)	p
High Speed Connection	.832	.322	2.299	.010
Constant	-1.536	.267	.215	.000

Table 48: Hypothesis 6 Sample Population

Statistics

high speed/broadband internet connection

N	Valid	235
	Missing	0

Table 49: Hypothesis 6 Frequencies

high speed/broadband internet connection

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	96	40.9	40.9	40.9
yes	139	59.1	59.1	100.0
Total	235	100.0	100.0	

Table 50: Hypothesis 6 Crosstabs Case Summary

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
capable to conduct transaction online * high speed/broadband internet connection	235	100.0%	0	.0%	235	100.0%

Table 51: Hypothesis 6 Crosstabulation

capable to conduct transaction online * high speed/broadband internet connection Crosstabulation

Count

		high speed/broadband internet connection		Total
		No	yes	
capable to conduct transaction online	No	79	93	172
	yes	17	46	63
Total		96	139	235

Table 52: Hypothesis 6 Logistic Regression Unweighted Cases

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	235	100.0
	Missing Cases	0	.0
	Total	235	100.0
Unselected Cases		0	.0
Total		235	100.0

a. If weight is in effect, see classification table for the total number of cases.

Table 53: Hypothesis 6 Variable Coding

Dependent Variable Encoding

Original Value	Internal Value
No	0
yes	1

Table 54: Hypothesis 6 Logistic Regression Classification

Classification Table^{a,b}

Observed			Predicted		
			capable to conduct transaction online		Percentage Correct
			No	yes	
Step 0	capable to conduct transaction online	No	172	0	100.0
		yes	63	0	.0
Overall Percentage					73.2

a. Constant is included in the model.

b. The cut value is .500

Table 55: Hypothesis 6 Variables in the Equation

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-1.004	.147	46.514	1	.000	.366

Table 56: Hypothesis 6 Variables not in the Equation

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	no7h	6.850	1	.009
Overall Statistics			6.850	1	.009

Table 57: Hypothesis 6 Omnibus Tests of Model Coefficients

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	7.094	1	.008
	Block	7.094	1	.008
	Model	7.094	1	.008

Table 58: Hypothesis 6 Model Summary

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	266.138 ^a	.030	.043

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Table 59: Hypothesis 6 Predicted and Observed Classification

Classification Table^a					
Observed			Predicted		
			capable to conduct transaction online		Percentage Correct
			No	yes	
Step 1	capable to conduct transaction online	No	172	0	100.0
		yes	63	0	.0
	Overall Percentage				73.2

a. The cut value is .500

Table 60: Hypothesis 6 Variables in the Equation, Step 1

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	no7h	.832	.322	6.662	1	.010	2.299
	Constant	-1.536	.267	33.016	1	.000	.215

a. Variable(s) entered on step 1: no7h.

Hypothesis Seven

Nonprofits with complex telecommunications technology adopt web-based transaction technology at a higher rate than all nonprofits adopt web-based transaction technology.

Logistic regression showed that organizations with networked computers and organizations with computer security infrastructure significantly predicted whether or not a small nonprofit organization adopted web-based transaction technology. The predictor variables significantly predicts whether or not a small nonprofit adopted web-based transaction technology.

Neither networking computers nor computer security was significant in predicting whether nonprofit organizations adopted web-based transaction technology.

Table 61: Hypothesis 7 Logistic Regression Summary

Variable	β	SE	Exp(B)	p
Networked Computers	.557	.385	1.746	.147
Computer Security	.352	.360	1.422	.328
Constant	-1.556	.276	.000	.000

Table 62: Hypothesis 7 Sample Population

Statistics

		computers networked to each other	security system in place
N	Valid	235	235
	Missing	0	0

Table 63: Hypothesis 7 Frequencies

computers networked to each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	117	49.8	49.8	49.8
	yes	118	50.2	50.2	100.0
	Total	235	100.0	100.0	

Table 64: Hypothesis 7 Frequencies

security system in place

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	93	39.6	39.6	39.6
	yes	142	60.4	60.4	100.0
	Total	235	100.0	100.0	

Table 65: Hypothesis 7 Crosstabs Case Summary

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
capable to conduct transaction online * computers networked to each other	235	100.0%	0	.0%	235	100.0%
capable to conduct transaction online * security system in place	235	100.0%	0	.0%	235	100.0%

Table 66: Hypothesis 7 Crosstabulation

capable to conduct transaction online * computers networked to each other Crosstabulation

Count

		computers networked to each other		Total
		No	yes	
capable to conduct transaction online	No	93	79	172
	yes	24	39	63
Total		117	118	235

Table 66: Hypothesis 7 Crosstabulation

capable to conduct transaction online * security system in place Crosstabulation

Count

		security system in place		Total
		No	yes	
capable to conduct transaction online	No	76	96	172
	yes	17	46	63
Total		93	142	235

Table 67: Hypothesis 7 Logistic Regression Unweighted Cases

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	235	100.0
	Missing Cases	0	.0
	Total	235	100.0
Unselected Cases		0	.0
Total		235	100.0

a. If weight is in effect, see classification table for the total number of cases.

Table 68: Hypothesis 7 Logistic Regression Variable Coding for WBTT

Dependent Variable Encoding

Original Value	Internal Value
No	0
yes	1

Table 69: Hypothesis 7 Logistic Regression Classification

Classification Table^{a,b}

Observed			Predicted		
			capable to conduct transaction online		Percentage Correct
			No	yes	
Step 0	capable to conduct transaction online	No	172	0	100.0
		yes	63	0	.0
Overall Percentage					73.2

a. Constant is included in the model.

b. The cut value is .500

Table 70: Hypothesis 7 Variables in the Equation, Step 0

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	-1.004	.147	46.514	1	.000	.366

Table 71: Hypothesis 7 Variables not in the Equation

Variables not in the Equation			Score	df	Sig.
Step 0	Variables	no20	4.707	1	.030
		no21	5.706	1	.017
Overall Statistics			6.677	2	.035

Table 72: Hypothesis 7 Logistic Regression Summary

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	266.362 ^a	.029	.042

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Table 73: Hypothesis 7 Predicted and Observed Clasification

Observed		Predicted			
		capable to conduct transaction online		Percentage Correct	
		No	yes		
Step 1	capable to conduct transaction online	No	172	0	100.0
		yes	63	0	.0
Overall Percentage					73.2

a. The cut value is .500

Table 74: Hypothesis 7 Variables in the Equation

Variables in the Equation		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	no20	.352	.360	.958	1	.328	1.422
	no21	.557	.385	2.100	1	.147	1.746
	Constant	-1.556	.276	31.694	1	.000	.211

a. Variable(s) entered on step 1: no20, no21.

Summary

This chapter discussed the statistical methods used to examine the quantitative hypotheses in the dissertation and the results of those tests. Chapter five explains the qualitative data, hypotheses, and research results.

CHAPTER FIVE

QUALITATIVE DATA COLLECTION/RESULTS

The appropriate application and supporting documents requesting permission to conduct research involving human subjects were obtained from the Florida State university website and submitted to the Institutional Review Board in October 2006. Twenty-two small nonprofits were selected to participate in the study; sixteen interviews were successfully conducted. Organizations selected to participate in the study were initially contacted by mail; one week later, they were contacted by phone. The initial contact document was addressed generically to the IT Manager, as the researcher did not have the name of any participant before initiating phone calls. Upon calling each organization's main number, the researcher asked to speak to the IT manager, IT director, Technology Officer or 'the person in your organization who handles your computing needs or knows the most about computers.' Three IT managers requested the survey be emailed to them for prior review, then scheduled appointments for the actual interview. One IT manager requested proof of university affiliation be mailed to him prior to committing to the interview. One IT manager was willing to do the interview, but was unable to schedule the interview during normal working hours. After several unsuccessful attempts to find a time that was convenient, the IT manager agreed to be interviewed at her home at 8pm. This interview was the single exception; all other interviews were conducted between the hours of 8am and 5pm eastern standard time on site at the organization's offices. Upon consenting to the interview, each participant was asked a definitive series of questions, but the structure of each interview was unique, based on participant responses. The researcher asked (1) additional unplanned but relevant questions to obtain more in-depth information as needed and

according to the participant's desire, time constraints and knowledge, and (2) additional clarifying questions regarding information provided by the participants. Six organizations declined to participate, leaving a total of sixteen total participants.

At the end of each interview, all interviewees were thanked for their assistance and participation and asked whether they would like a copy of the survey results. All those who were interested in the study results were then asked for their email addresses, so a final report could be sent to them following the conclusion of the research. All interviews were either typewritten directly into word processing program software on a computer or hand written, then typewritten into a word processing computer program within 24 hours.

Participants

Each person interviewed represented a high level technology officer at their respective organization. As might be expected, larger organizations had a greater number of high-level technology and a greater segregation of duties among and between technology staff. Often, the smallest organizations had a single person with a very broad set of duties and skills devoted to the technology needs of the organization. Participants' technology job titles were very diverse, ranging from Technician or Network Administrator to IT Director or Chief Information Officer. A few organizations either had no one on staff devoted to technology needs (position vacancy) or no one exclusively devoted to technology.

Website Review

To augment the information collected, the researcher conducted Google and Dogpile online searches for a website for

each organization in the selected interview pool. Although the original survey respondents provided website information, more up-to-date information was available on the web for all sixteen organizations, enabling (1) an analysis of how and whether each organization used web technology, and (2) a thorough review of the presence of web-based transaction technology in use. First, a Google search was implemented using the complete name of the organization and the city in which the organization is located. If a Google search was unsuccessful, the Dogpile search engine was used. Each website was reviewed and analyzed for links to web-based transaction technology such as secure or non-secure donation links; strategic technology planning documents, mission statements containing technology issues or organizational strategic plans containing technology goals or objectives; and terms related to technology strategy, such as technology, information, information technology, strategy, and strategic. This step provided an additional confirmation of the use of WBTT for the organizations, and their strategic use of the web.

Interview Responses and Analyses

Interview One - NPOrg1

The first agency interviewed (NPOrg1) provides early childhood education and child care assistance to low income, often single parent families in seven North Florida counties. The organization has a central office and several satellite offices to assist in providing its clients with services without introducing the hardship of long distance travel. Although both the name, size and the location of the organization have changed over the years, its mission has remained constant for its 35 year history.

The information technology needs of the organization are outsourced to a vendor and provided by a private individual who has worked with the organization for several years. Because technology services are outsourced, the vendor was accessible by email only. After several exchanges over a period of days, and after consulting with the organization's chief officer, the vendor agreed to an after hours, at home interview.

The organization started planning strategically for technology on a regular, albeit ad hoc and informal basis when the vendor arrived and at the vendor's suggestion. Although there is no formal, written strategic technology plan with a past assessment and future objectives, planning does occur as needed. With the vendor's assistance, the organization has begun to put together some written technology documents that show the location and names of servers, routers, and other network schematics.

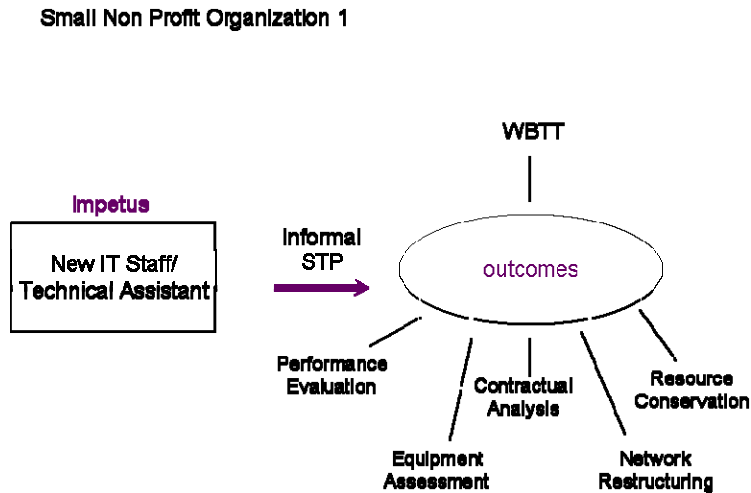


Figure 6: Small Nonprofit 1

Strategic technology planning is done with the joint efforts of the vendor (the vendor's title is Network Administrator) and each of the three members of the Executive Board. The organization started strategic planning in 2003 as a means of assessing the then current technology requirements, equipment, contractual obligations, and performance gaps. Their primary goal was to conserve financial resources by shoring up and restructuring the network, determining what equipment was necessary for efficient operations and to reduce overhead costs. Having a series of previous technology staff with varying skills, goals and technology contacts had left the network in much need of repair and in unfavorable and unnecessary leasing contracts. The strategic planning process is typically tied in with the annual budgeting process, but there are other times they engage in the planning process.

For this organization, planning strategically for technology has proved to be very helpful, and according to the interviewee, has saved substantial sums (when compared to previous technology expenditures for similar items) and triggered awareness of low, nonprofit pricing levels available from many software providers.² Additionally, planning the network schematic proved to be very worthwhile. Once the equipment decisions were made and the right hardware purchased and set up, network hardware paid for itself within six months.

NPOrg1 began using web-based transaction technology (online registration for two types of secure transactions -- registering and paying for continuing education and collecting donations) as a means of accomplishing several strategic objectives - to streamline classroom registration, facilitate an easy way to make a donation, increase income, and increase community awareness. They provide these online applications

² Software is sometimes available for very low rates for nonprofits. This fact is not often advertised, so the person inquiring about the software purchase must know to ask the question.

with the help of a local university. The agency uses the information from their informal strategic technology planning when they plan strategically for the agency; when the vendor was brought in to the agency strategic planning process, the technology strategic planning process was a natural follow on.

Interview Two - NPOrg2

NPOrg2 is a mainstream denominational church which provides spiritual food, support and guidance to its parishioners. The church has experienced growth in its membership coupled with limited space and resources for expansion.

This organization has been working on an informally planned, phased approach to updating its technology resources for about twelve years. Internal expertise within the church served as the catalyst for strategic technology planning, and now there's a standing technology group that interacts with other standing committees and workgroups to gather information on technology needs and report them to the IT Director. When the current IT Director arrived six years ago, he continued planned system enhancements; they now have a completely renewed, modern and sophisticated network. NPOrg2 took advantage of falling hardware prices to systematically introduce powerful new equipment to its network. Currently the church has the capability of providing a host of services to its members, such as highly developed video and graphics presentations. Their membership includes a computer support company owner who ably and consistently serves as a knowledgeable consultant and chair of the church's technology ministry group. This member and the IT Director come together annually and do the strategic technology planning for the organization. Because of the organization's size (40 full time employees), off the shelf software products serve their needs.

Small Non Profit Organization 2

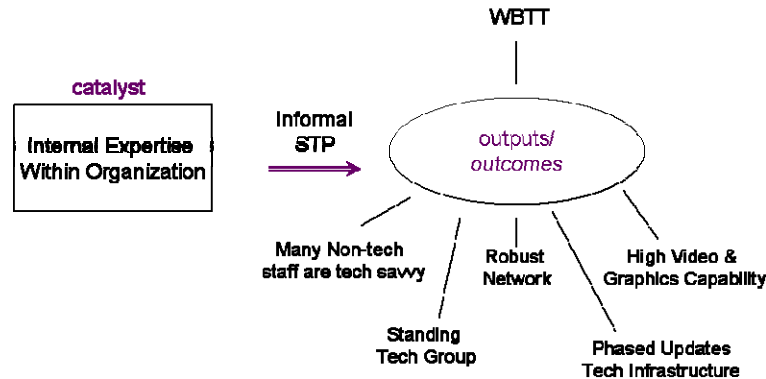


Figure 7: Small Nonprofit 2

Planning strategically for technology has been very helpful for this organization. The IT Director is assured of the best equipment (the infrastructure is better than any other he's ever experienced in another organization), forward thinking, creative risk-taking, educational opportunities, and excellent working conditions in a communication-centered environment. One quote that summarizes the IT infrastructure, "We just have an awful lot of things we can do well." For NPOrg2, the most significant obstacle to implementing technology plans has been money. Lack of immediate availability of sufficient funds is the reason the organization adopted a phased approach to its long-term network upgrade plan. Now that the network is operating at full capacity, the technology planning process is reduced to shorter term goals and requires a few meetings each year in conjunction with the budget cycle.

NPOrg2 uses several web-based transaction applications. They planned each of these applications strategically as a natural outgrowth of using their sophisticated network equipment, i.e. as the network increased in capability, staff began to think less in terms of repair and more in terms of possibilities. The IT Director at NPOrg2 stated, "Our ability

to think on our feet was honed over time, and this gave us the ability to try this type of technology implementation. When we got our web page going and we were able to take information submitted online. We were ready and it was easy." IT staff and the church's members have become more technology literate and are better trained. The staff currently "operates on a higher level" using technology to replace manual processes and perform tasks they previously could not perform.

A primary goal of the organization's strategic plan is to increase the church's outreach in other areas. NPOrg2 has a Building for Community committee that has as one of its primary goals to pursue a location where they could have worship simulcasts. The idea is to have more than one congregation at the same location simultaneously engaged in a single sermon [two different rooms] or develop an offsite campus where the pastor's message would be simulcast in a distance ministry format. This would allow the church to have a satellite campus in the suburbs or in another town, while maintaining the growth they desire. Their current technology infrastructure and technology planning are poised to help them accomplish this goal.

Interview Three - NPOrg3

NPOrg3 is a regional blood donation, blood supply and bone marrow matching facility with multiple locations in two states. The organization both collects and supplies blood to many hospitals and health care facilities in north Florida and south Georgia. Since it began over 50 years ago, NPOrg3 has continually increased its service area and capacity.

About five years ago, NPOrg3 started formal technology planning, informal technology planning and project risk analysis. Planning occurs annually in conjunction with the budgeting process and at other, ad hoc occasions as needed throughout the year. The organization uses about one month

each year to plan. IT staff and the Chief Executive Officer always participate in technology planning; select department directors participate as appropriate for their roles and responsibilities in the organization. Written, detailed plans are done on a project basis, while long term organizational planning strategies are formulated informally through discussions about what future technologies are appropriate for the organization.

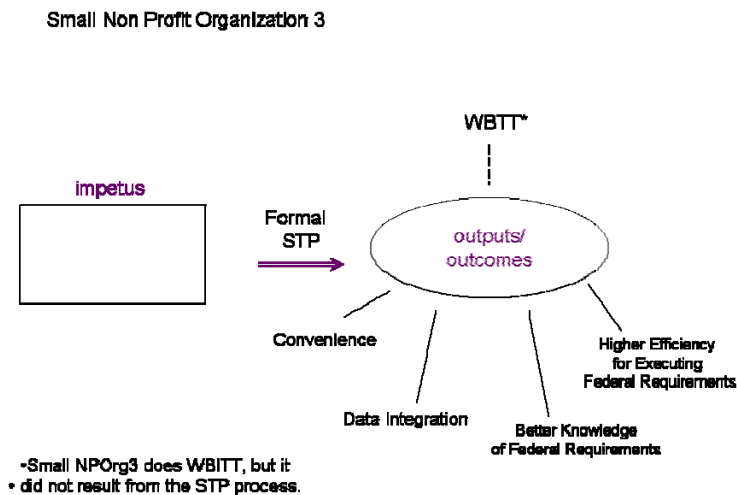


Figure 8: Small Nonprofit 3

The Food and Drug Administration and other governing agencies have stringent, specific requirements governing the collection, handling and distribution of bodily fluids such as blood. NPOrg3 started strategic planning five years ago to examine and analyze all federal mandates the FDA required them to follow. Those requirements lead the way for adopting strategic technology planning as a formal process. Once NPOrg3 recognized that they could more effectively deal with regulatory issues through planning, the organization began to “get smarter about the need for planning” and began to use it more and more over time to help them reach goals they’re working toward in a systematic and thoughtful way. The organization uses formal, written plans for large scale

technology undertakings, and informal planning for smaller projects.

For this organization, implementing strategic technology plans has been enhanced by broad support from the chief executive officer and the staff that has been affected by the changes. The CEO has been very involved and supportive, and the staff has been ready for the convenience, data integration and information access technology can bring. One inhibitor to implementing technology plans has been the need to address other issues that require immediate, concerted attention. These "crises" arise unexpectedly and require that the plan be put on hold until they can be resolved.

Interestingly, although the organization does plan strategically for their technology needs, they did not specifically plan the implementation of their current web-based transaction technologies as part of the strategic technology planning effort. The applications - online appointments, information requests, and an employment application - simply evolved over time, and are helping them accomplish the strategic objective of reaching a broader audience.

Interview Four - NPOrg4

NPOrg4 began over thirty years ago to prevent developmental disabilities in children and to assist children with developmental disabilities and developmental delay. They offer respite care, or temporary relief for families with members who are developmentally disabled, a comprehensive day care program, an early intervention program that includes training and therapy, and licensed developmental preschool centers. The organization began with one facility and now operates in eight Florida counties.

This organization does not engage in any technology planning citing that its needs are met with basic office

software such as word processing, some internet access and email only. They have no formal technology staff, and purchase internet and email service through a national provider. They have no legislative mandates that dictate any technological requirements, and while they have a strategic plan for the organization, they consider their technology needs as both fixed and met, so they don't plan technology issues as part of the organization's strategic planning process.

Interview Five - NPOrg5

NPOrg5 is a small hospital that serves four north Florida counties. It has been in operation for fifty years to service the healthcare needs of rural, medically underserved communities. The hospital recently built a new facility to better accommodate the needs of its client base.

NPOrg5 plans through both formal and informal means with the MIS Director visiting and/or meeting with various members of the organization and developing a plan from their discussions about IT needs, work process refinement and vertical and horizontal integration. Although they did not have much expertise in house to provide a framework or assistance, the organization started strategic technology planning in late 2004. Planning is performed both throughout the year and annually in conjunction with their budgeting process. As part of the annual budget process, planning requires about 8 hours. During the year, the MIS director spends about 10 hours per month in various evaluations and discussions with other staff. Planning focuses on one and five year periods. Business Office staff, the MIS Director and various department managers and administrative staff (about 20 people) participate in the planning process. The precipitating event for technology planning in 2004 was an

executive change and a subsequent realization there was a lack of direction in the IT area.

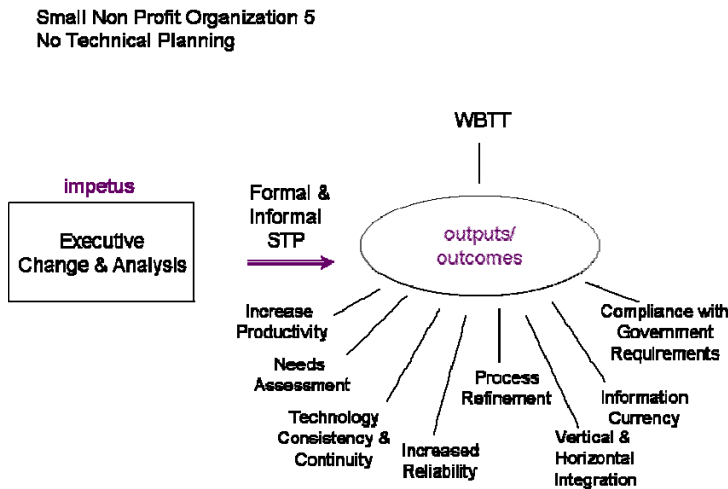


Figure 9: Small Nonprofit 5

When the current MIS Director was hired, administration asked him to develop a plan and assess the organization’s needs so they could have consistency and continuity in the IT area. Previously, each unit had their own approach to technology planning and acquisition. Their long term goal of having electronic medical records required them to begin sculpting their IT acquisitions and processes to accommodate that long term strategy. The first step toward that goal was to obtain some conformity across divisions.

NPOrg5 started technology planning by doing a full assessment which included a review of financial and clinical processes and technology. Additionally, the initial assessment included their vendors so they could determine how they were utilizing their systems. As a result of those analyses, they found many places they could streamline or better utilize their systems. Communication improved, and information transferred between staff more quickly and effectively (e. g., use and reordering of supplies were more tightly coupled). Because they’ve become more productive and

better connected, resistance to the new policies and reduced autonomy quickly evaporated.

Technology is definitely impacted by governmental requirements in the health care arena - legislation such as HIPPA is but a single example. Currently, "there's a governmental push for electronic records, so we're moving toward that with a strategic partnering with" the hospital's vendor. The vendor has to modify the system to meet government requirements such as reporting and documentation as part of NPOrg5's partnership with them.

NPOrg5 has several sophisticated web-based transaction technologies, including a Virtual Private Network (VPN) for secure transfer of patient information to clinics in the surrounding area and an imaging system that physicians and other healthcare providers use as well. Although the VPN wasn't part of the strategic planning process, the imaging system was planned in 2004 and implemented in July 2005. The organization's strategic purpose for the imaging system was to give caregivers outside NPOrg5 current information in a timely fashion and free up staff from tedious tasks, such as copying and mailing. This answered organizational needs by increasing productivity, timeliness and reliability in patient care.

The organization's overall agency strategic plan and the strategic technology planning processes are separate, but related. The organizational plan includes technology issues which in turn become part of the strategic technology plan. Organizational goals are always kept in mind when the technology plan is developed; "the community's healthcare needs are the ultimate aim of both planning processes and everything we do."

Interview Six - NPOrg6

NPOrg6 serves the social, educational, nutritional and wellness needs of the elderly. They offer a variety of onsite

and outreach activities designed to keep adults over 60 active, healthy and connected in the community. Through a central location and two satellite sites, they serve a large population of seniors in a single North Florida county.

Each year for the last eight years, NPOrg6 has used informal methods to strategically plan for technology. All directors (there are four) and managers (five) participate in the planning process, with the directors taking the lead and the managers providing input and expertise from and about their respective areas. They started planning strategically for their technology needs at the suggestion of the directors. It helped them with their long-term thinking. Strategic technology planning also helped the organizational members think of the business processes and flow. They have been able to look at their needs and try to anticipate the year's events for better management. An example of a process that has been enhanced by strategic technology planning is the donation process. Through planning, the organization became more cognizant of their upcoming needs and has been able to encourage donations in areas where they have critical or large amounts of unmet needs rather than passively waiting for and accepting any donation that arrived. Now the donation process is web-based and targeted, so more of their needs are met through outside contributions and their expenditures in certain areas are reduced. Reengineering this process helps mitigate the major obstacle to implementing their strategic technology plan - lack of resources.

Small Non Profit Organization 6

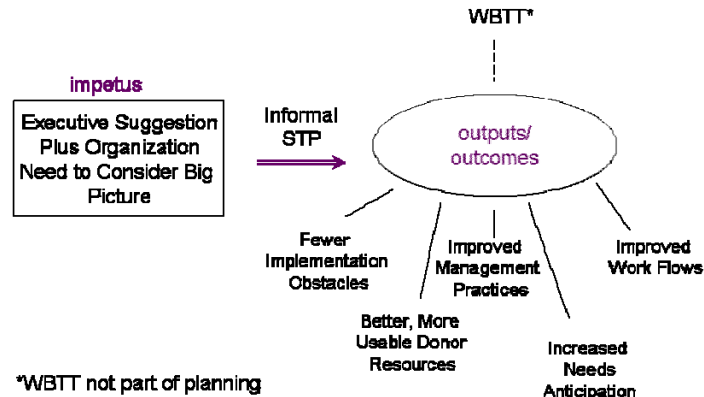


Figure 10: Small Nonprofit 6

NPOrg6 uses about five hours annually to do their planning, and have used technology to respond to government required Medicaid reporting. They have donation and volunteer web-based transaction technologies in their organization, but neither were a formal part of the strategic technology plan - they simply implemented them because they believed them to be beneficial and needed. Technology planning is linked most specifically to the agency's overall strategic plan through marketing and reporting. NPOrg6 receives federal, state and county funding, so technology is used to advance part of their marketing plan and their fulfillment of government contracts for meals, transportation and required Medicaid and Medicare reporting.

Interview Seven - NPOrg7

For almost 100 years, NOrg7 has provided a variety of employment, housing, child care, education and training to needy families, children and adult men and women in two counties. They provide shelter and transitional housing for the homeless, after school programs including tutoring,

academic enrichment and organized sports for low income elementary and secondary school students, and child abuse prevention and education programs to parents. NPOrg7 is an affiliate of a national organization of service providers; this organization serves a large city and the surrounding area.

In April 2006, NPOrg7 started to address their technology needs in a formal way by hiring the first staff member whose sole focus is the organization, implementation and maintenance of computer technology. They have begun to think in terms of revising work processes for efficiency and effectiveness and anticipate a more clear formalization of their IT structure as part of the beginning period of assessment and analysis. Presently, they have no WBTT.

Interview Eight - NPOrg8

NPOrg8 has provided shelter for sexual assault victims and battered women and their children for over twenty years. They provide a temporary safe haven, assistance with transitional needs and resources, and counseling services. The organization provides services to women and children in seven counties.

The organization is not planning strategically for technology at this time, but can see the benefit of doing so, and would like to do so in the future. The technology currently in use is not influenced by government requirements or contracts and while they do have some web-based transaction technology, its implementation was not part of a larger strategic technology plan. They are reorganizing their website, so the WBTT is not functional. There is no technology aspect of the agency strategic plan.

Interview Nine - NPOrg9

NPOrg9 is a 100+ bed nursing and convalescent home. The facility provides nursing, physician, dental, dietary, physical and occupational therapy, speech/language, social work, and mental health services to patients who live on-site at the facility and off-site at their own residences. The facility has been federally approved to provide Medicare/Medicaid services for over twelve years.

NPOrg9 has used informal processes to plan for its technology needs for the last six years. The organization has a biennial planning cycle, and a technician, the admissions director, and an administrative person participate. They have been planning long enough to recognize the need to include additional areas of expertise in the planning process, and have decided to include nurses in the next planning cycle. Keeping up with state mandates was part of the reason they began using strategic technology planning, and the process has helped make their work products much more accurate and helped with accountability in the organization by providing better checks and balances. Although there was some resistance to the changes inherent in the planning and implementation process, the technology enhancements helped them "keep up with the times" and "put them on line with everyone else. It's been a learning process for everyone."

NPOrg9 hasn't yet implemented a web-based transaction technology, but they have plans to do so, and have already decided that the first WBTT implementation will be an online job application. Technology planning and organizational planning go hand in hand, as technology helps NPOrg9 achieve organizational goals. Additionally, they are currently working on a cost/benefit analysis of technology for the organization to confirm their belief that the benefits outweigh the costs.

Interview 10 - NPOrg10

NPOrg10 is one of a consortium of health care organizations serving both large and small north Florida counties. The facility has over one hundred rooms and its staff members provide a comprehensive range of long-term hospital services, short-term hospital services, diagnostic testing and outpatient procedures. NPOrg10 provides 24-hour emergency service, diagnostic testing, inpatient and outpatient surgery, and birthing and maternity rooms. It has been operating since 1994.

Small Non Profit Organization 10

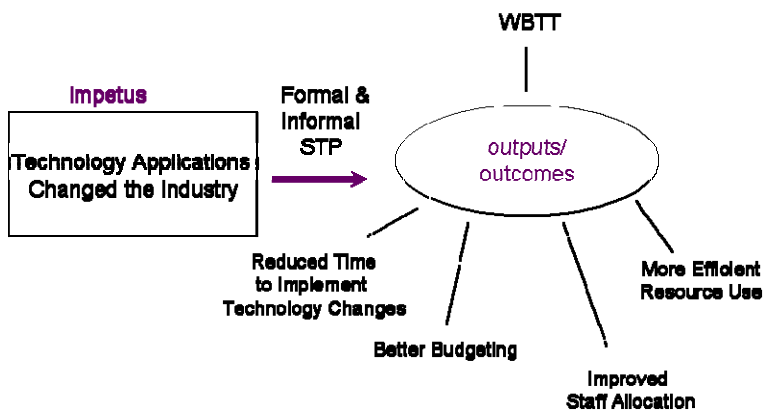


Figure 11: Small Nonprofit 10

Although NPOrg 10 has been planning strategically for its technology needs for the past five years, they've used the last two years to approach planning in a more serious, organized and concerted manner. Introducing electronic medical records technology became the impetus for executing and implementing the technology planning process in earnest. After electronic medical records were implemented, it was clear they needed a better, more structured approach to acquisitions, maintenance, upgrades, compatibility, and process engineering. The organization makes an effort to include all relevant personnel in the planning process. The

Chief Technology Officer, the Assistant Technology Chief, technical area team leaders (network services, backbone, desktop, web, help desk, etc.), and all unit directors participate in the planning meetings. The more formal portions of technology planning take place over several days during a special off-site retreat once a year. The planning process, however, is continuous, with less formal planning aspects recurring frequently throughout the year.

Strategic technology planning in NPOrg10 has helped with technology budgeting and staff allocation. Before they planned strategically for technology, more time was needed to implement changes, and more resources were used to make technology and technology-related purchases. Some issues with scheduling external, vendor-based software and hardware remain; implementation issues arise when outsourced applications and equipment are brought in, as the scheduling is more difficult to predict and control. Otherwise, the organization's strategic technology plans typically are accomplished smoothly.

Interview Eleven - NPOrg11

NPOrg11 is a refuge and safe haven for young people who are homeless. They provide mental health and psychiatric counseling, emotional and behavioral therapy, and life skills training to assist children in an appropriate transition into functional independence.

NPOrg11 started using formal strategic technology planning five years ago, and repeat the planning cycle every other year. The Chief Executive Officer, Chief Financial Officer, and Network Administrator participate in the planning process, and difficulties that arise in the implementation phase are overcome with training in the form of conferences and hands on classroom instruction. Strategic technology planning has helped them improve the IT environment; staff

interact with systems in a more confident, proficient and effective manner, and are more prepared to do their jobs. The web-based transaction technology in place was not implemented as a result of the strategic planning process. Because their technology staff is very small and their technology needs are increasing, they have outsourced their website and WBTT to a vendor specializing in nonprofit and donation websites.

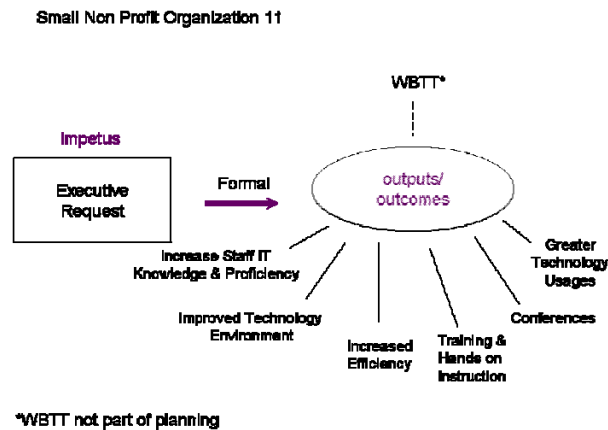


Figure 12: Small Nonprofit 11

Interviews Twelve and Thirteen

In operation for over 30 years, NPOrg12 is a multi-level care facility for retired persons over age 62. They provide independent and assisted living for their residents, including housekeeping and transportation, meals, social and recreational activities, religious services, supervised medication dispensation, and laundry, barber and beauty services. NPOrg13 provides (1) a sanctuary for homeless people of all ages and (2) homeless education, advocacy and prevention in the community. The facility has served hundreds of guests each night for over a decade.

NPOrg12 & NPOrg13 have not used strategic technology planning, but firmly believe the benefits of technology outweighs the cost. Both organizations have HUD funding, so are required to have some governmentally-imposed technological

requirements. For NPOrg12, technology is a time saving device for both organizations, and saving time equates to saving money and other valuable resources. NPOrg13 is hoping to more fully utilize the power of technology to achieve efficiencies and strategic goals; currently they are outsourcing all technology processes, but hope to hire new technology staff to bring tech expertise back in house.

Interview Fourteen - NPOrg14

NPOrg14 is part of a larger organization that helps young people avoid delinquency and become productive citizens by reinforcing self responsibility, teamwork and active participation in group tasks and structures. The organization has been operating in Florida for 45 years.

As dedicated planners for over seven years, NPOrg14 is the most long term user of strategic technology planning of the organizations included in the qualitative portion of this study. The IT Director develops, writes and presents a formal technology plan each year to the Chief Operating Officer/Vice President of Operations. The COO/VPO then approves the plan, and reviews it with the organization's President. NPOrg14 started using strategic technology planning after (1) recognizing the need and potential for greater efficiencies that could be achieved through the use of technological infrastructure, and (2) gaining the staff expertise to accomplish the task. This helped high level staff focus the organization on maintenance and upgrades of current technology, budgeting necessities of future systems, and strategic development of organizational units through the use of technology.

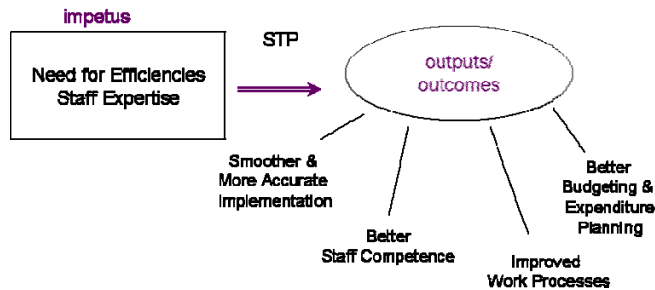


Figure 13: Small Nonprofits 12, 13 & 14

One of the most helpful things technology planning has done is reduce budgetary chaos associated with unanticipated maintenance and equipment purchases. Planning encourages dedicated resource allotments for specified purchases, improves the technology budget review and approval process, and permits scheduling timelines and greater accuracy of implementation. Although they've experienced some staff resistance, staff competency and implementation are the reasons they've had so much success. The technology planning process requires about 24 hours spread over two to three months, but the budget process requires six months, so technology and technology planning is tied to that as well.

NPOrg14 doesn't have governmental requirements that affect technology, and although they have web-based transaction technology (online donations through a third party vendor), it serves primarily as a public relations rather than strategic technology function for the organization. The organization's strategic plan and the technology strategic plan are linked, as the annual technology plan is part of the 5-year operations strategic plan to continue moving forward.

Interview Fifteen - NPOrg15

For over twenty-three years, NPOrg15 has provided intervention, counseling, transition and academic services for young women and their families. They have over nineteen locations throughout Florida to assist at-risk young women in achieving their academic and vocational goals.

The organization is new to strategic technology planning, only beginning the process in 2004 with the arrival of the current MIS Coordinator. Planning is done on an ad hoc basis and is driven by the desire for and availability of grants. The MIS Coordinator and the President participate in the planning process, and one of the first things the organization planned and funded was a wide area network that enabled all 19 locations to be connected. Planning has been helpful in other ways, as it provides the organization and staff with overall direction and benchmarks for measuring accomplishments and goals. Planning also helped the organization become more sophisticated in their interactions with vendors and obtain proposals for outsourcing.

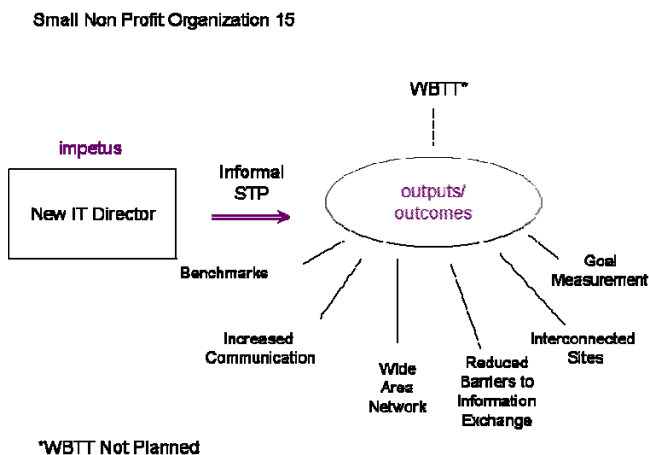


Figure 14: Small Nonprofit 15

NPOrg15 is funded by the Department of Juvenile Justice, and is therefore required to follow their guidelines. These guidelines impact the technology they use in their day to day

operations. Currently NPOrg15 uses web-based transaction technology for surveys and donations, but implementing these WBTTs was not part of the strategic planning process.

Interview Sixteen - NPOrg16

NPrgr16 is a 70-year-old private post-secondary educational organization serving students from the United States, its territories, and 50 foreign countries. The organization offers a variety of undergraduate degrees and other educational programs, including business, adult education, and arts and sciences.

NPOrg16 started using formal planning for technology about three years ago as part of the organization's long term strategy for getting more efficient and effective use of resources and revenue expenditures. There is a special technology subcommittee of their Board of Trustees, and NPOrg16 uses about two days each month to review and update their formal strategic technology plan before presenting it up to four times annually at the subcommittee's quarterly meeting. The organization began strategic technology planning in recognition of the value of technology in helping them compete in keeping and strengthening its market share. The first strategic technology assessments included an analysis of the state of their hardware and software licenses and their enterprise resource planning system. The organization was able to consolidate and incorporate all technology under a single budget, implement a new ERP system, adopt best planning practices and employ IT governance. Planning has also helped them to anticipate IT maintenance and upgrade timelines which eases hardware and software changes.

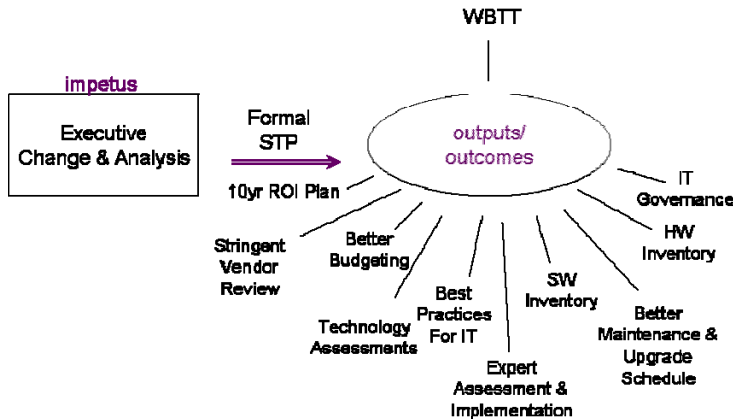


Figure 15: Small Nonprofit 16

Strategically, the organization wanted to “provide all the information to all concerned parties 24/7”, so adopted several types of web-based transaction technologies and is currently implementing online courses. NPOrg16 also did a 10-year return on investment (ROI) plan, and believes strongly in the value of going beyond the information submitted (RFPs and the like) by vendors to make a decision on outsourcing, equipment and contracting.

Cross Case Analysis

When a specific technology such as WBTT is selected in a population of organizations with similar characteristics, and the resulting scale and scope of the implementations are radically diverse, cross case analysis is desirable and appropriate. How the technology is implemented speaks to the organizations’ beliefs about themselves and their futures, their clients’ needs and requirements, and the environment in which the organization functions.

The organizations studied exhibited four levels of technology sophistication and complexity, categorized here as very high, high, moderate and low levels of technology. Organizations

with very high levels were characterized by (1) full-time technology executives or executive-level surrogates (2) a technology staff or staff equivalent, (3) structured, routine and comprehensive technology planning, (4) written technology plans, (5) a sophisticated and documented technology infrastructure, (6) daily routines and work processes tightly coupled with technology, and (7) habitual monitoring of the external environment and changes in technology. Four of the sixteen organizations interviewed were in this category. Key to the most sophisticated and complex technology implementations was the ability to accurately forecast what changes technology can bring and a desire for these changes at the highest organizational levels. When interviewed, technology chiefs in very high complex technology organizations expressed organizational strategies in urgent terms and wanted technology to propel their accomplishment.

Three nonprofits were categorized as high technology organizations. They bore some similarities to very high technology organizations, but had a somewhat reduced set of characteristics. They were typified by (1) a head technology officer devoted regularly and exclusively to technology issues (2) consistent technology planning which included high level executive or managerial input and review, (3) an integrated technology infrastructure, (4) varying amounts of documented technology inventory and networking schematics, and (5) technology-dependent daily routines and work processes. Although technology issues were central to the organization and technology was used to make the organizational process run smoothly, an essential difference existed between high technology organizations and very high technology organizations. While high technology organizations were well-organized in their technology infrastructure and planning, they had less complex applications in use, and they were less formal in their technology planning and implementation than very high technology organizations.

The highest concentration of organizations in the study demonstrated moderate (4) to low (5) level technology sophistication. Organizations at the moderate level (1) have a staff member who addressed the organization's technology needs, (2) demonstrate some kind of technology planning, and (3) have some technology use or dependence, but many client services could be and were delivered without direct technology use. Low level technology organizations either had very little to moderate interest in technology, but they had very limited money, time, staff and skills to devote to technology and its implementation.

Clients in Very High Technology Organizations

Many nonprofit services are offered at low or no-cost, and the services they provide often fill a social services gap or provide humanitarian aid. The clients who require many of these services may be of any economic level, but tend toward lower socioeconomic status. In this study, there are clear distinctions in the very high technology organizations - a university, a church and two hospitals. For the university and the church, the clients can choose to opt-out of the services of these particular providers in favor of attractive substitutes, or they may decide to forgo these services altogether. While this is the case with any service provider, clients' ability to find viable substitutes diminishes as resources decline and need increases - a common circumstance of those who use nonprofit services.

The other very high technology organizations - two hospitals - must attract and retain (one hospital must do so in a rural area) a critical mass of well-educated staff in high demand. Having high technology not only provides an attractive employment venue for these professionals, but it enhances the quality and availability of these vital

healthcare services and improves the possibility of favorable outcomes in medical circumstances. With the exception of the blood donation center, all clients in the remaining twelve organizations need to obtain services for which substitutes cannot easily be found or obtained elsewhere at the same cost.

Findings

As so few studies exist on technology in small nonprofit organizations, the research questions explored by interviewing the organizations in this portion of the study were related to strategic technology planning practices and web-based transaction technology. The questions were:

- o Is there a link between a nonprofit's knowledge of a specific current technology (WBTT) and its use in the development of organizational strategy?
- o Does the practice of organizational strategic planning increase the frequency of strategic technology planning in that same organization?
- o What are the primary reasons small nonprofits begin strategic technology planning? Are they prompted by internal needs or external catalysts such as governmental requirements?
- o Is web-based transaction technology more diffused in nonprofits that strategically plan for their technology needs than in other nonprofits?

Question One: Is there a link between a nonprofit's knowledge of a specific current technology (WBTT) and its use in the development of organizational strategy?

Small organizations are likely to conserve resources and minimize risk; this is especially true when it comes to small nonprofit organizations. Custom technology applications are more expensive than commercial off-the-shelf software.

Because their resources tend to be very constrained, technologies that are known to them and can be used to alleviate workload, reduce costs, and extend services are the most likely types to be adopted by these organizations. Additionally, web-based technologies are highly diffused, and all interviewees were familiar with the language used in the survey questions about web-based transaction technology, regardless of whether they had any in use, indicating they knew about the existence and capability of WBTT. Three of the five nonprofits who did not have WBTT expressed a desire for adopting a WBTT in the future, and many interviewees discussed the consequences of not adopting new technology, WBTT in particular. The interviewees in NPOrgs 2, 5, 10, and 16 believed strongly that adopting the latest WBTT was necessary

Table 75: Organizational Strategy & WBTT

Organizational Strategy & WBTT																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	All
WBTT	Y	Y	Y		Y	Y		Y		Y	Y			Y	Y	Y	11
Org Plan	Y	Y	Y		Y	Y			Y	Y				Y		Y	9
Planned WBTT	Y	Y			Y					Y						Y	5

for competitiveness and survival of their respective organizations. Each interviewee repeated the necessity of meeting the expectations of their respective clients and constituencies through technological means. These concerns indicate they believed WBTT was necessary for conceptualizing strategic actions and for mitigating the possible threat of organizational decline (Itami and Numagami, 1992).

Five organizations implemented web-based transaction technology without including it in the organization's strategic plan; one implemented WBTT without a strategic plan at all. For these six (6) organizations that implemented some form of web-based transaction technology but did not expressly plan the application, Mintzberg and Waters' (1985) premise of unintended or non-deliberate strategies that are realized in

Table 76: Organizational Strategy & STP

Organizational Strategy & STP																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	All
STP	Y	Y	Y		Y	Y			Y	Y	Y			Y	Y	Y	11
Org Plan	Y	Y	Y		Y	Y		Y	Y	Y	?			Y		Y	9

the absence of conscious intentions could explain the nonprofits' actions -- they knew of WBTT, and without formally planning for it, adopted and implemented it as a strategy. This evidence provides support for the hypothesis. The possibility exists that this phenomena is a function of Rogers' (1995) principal of critical mass in which an innovation becomes self sustaining after enough adoption has occurred in a group.

Question Two: Does the practice of organizational strategic planning increase the frequency of strategic technology planning in that same organization?

With few exceptions, the results of the interviews show strategic planning and strategic technology planning move in a linked relationship, with most interviewed organizations that engage in one type of planning engaging in the other. This was the case whether the organizations used formal, informal or a hybrid of formal and informal strategic technology planning.

NPOrgs 8, 11 and 15 are exceptions. The interviewee for NPOrg11 was a new employee who had been hired to handle all aspects of technology for the organization. As a new hire, she was unsure of the organizational strategy and strategic planning process, but she was definite about a strategic technology plan. NPOrg15 was recommitting to strategic technology planning after a hiatus due to staff turnover. They used formal (written) strategic technology planning methods, but did not have a current technology plan. As in NPOrg11, the interviewee was not aware of a strategic plan for the organization either, and stated this was possibly due to some organizational changes. Because she was unaware of the strategic plan for the organization, I did not record the organization as one that uses or used strategic planning for the organization. NPOrg8 reported strategic planning for the organization, but no strategic technology planning.

One additional noteworthy circumstance is that of NPOrg3. According to the interviewee, the organization engages in regular strategic technology and organizational strategic planning, but the two plans are completely independent of one another. All the remaining organizations indicated the presence of both types of plans and that the two plans are linked to each other.

These findings support the hypothesis that strategic planning and strategic technology planning are utilized in concert by small nonprofit organizations. The results support the premise that planning at one level triggers a domino effect, inculcating itself into the organizational milieu, creating efficiencies and benefits desired throughout the organization. I hypothesized there was a strong link between strategic planning and strategic technology planning for the interviewed organizations, but I also thought there would be some organizations that did strategic planning for the organization, but who did not engage in technology planning or

vice versa. Except for the outliers discussed above, the data show that the link between organizational planning and technology planning is very strong, and one seldom occurred without the other.

Question 3: What are the primary reasons small nonprofits begin strategic technology planning? Are they prompted by internal needs or external catalysts such as governmental requirements?

Of the sixteen organizations interviewed, eleven (69%) have a strategic technology planning process; nine of those eleven (82%) began that process because of internal desires

Table 77: STP Impetus

STP Impetus																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	All
STP	Y	Y	Y		Y	Y			Y	Y	Y			Y	Y	Y	11
Gov Reqmt			Y						Y								

for the benefits of planning or due to executive level recognition that changes in external environment necessitated the structure and analysis inherent in planning. Only two organizations, NPOrgs 3 and 9, began the planning process because of federal or state requirements and regulations. NPOrg 9 cited governmental regulations as only part of the reason for adopting technology planning.

The most common reasons cited for beginning the planning process were the desire for the prioritization, structure, efficiencies and predictability strategic technology planning provides. Often the IT director or IT staff recognized the inherent potential of technology but realized it could not be achieved without focusing money, time, staff, training, and organizational development more heavily into those areas in a long-term, systematic manner. This internal desire to use

technology planning to achieve these goals was present even when the technology in use in the organization had been influenced by some type of governmental requirement.

Overwhelmingly, strategic technology planning is a response to the organization's analysis of its own present and future needs, rather than an obligatory imposed response to an external regulator or funding agent.

Question 4: Is web-based transaction technology more widely used in nonprofits that strategically plan for their technology needs than in other nonprofits?

Sixty-nine percent (11 of 16) of the organizations interviewed use formal, informal or a hybrid of formal and informal methods of strategic technology planning; 69% use web-based transaction technology. Many of the organizations in the study are using similar types of WBTT. Especially common are outsourced applications that provide a vehicle for online donations, and some of the organizations use the same vendor to perform this service. A typical approach is for the nonprofit to contract with the vendor to customize a secure web page for donations, often containing the name of the organization and identifying symbols, logos or slogans. The organization then provides a link to the vendor's application through their website. There is usually a flat monthly fee for the service. Because the complexity of WBTT adoption has

Table 78: STP & WBTT

STP & WBTT																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	All
STP	Y	Y	Y		Y	Y			Y	Y	Y			Y	Y	Y	11
WBTT	Y	Y	Y		Y	Y		Y		Y	Y			Y	Y	Y	11

been mitigated by a common application and the burden of application and server maintenance are absorbed by the vendor,

the diffusion for certain web-based transaction technologies may be at or near the level of threshold technology, i.e. technology that constituents, potential donors and the organizations themselves expect to be available, and are therefore required. Much more complex web-based technologies are in use as well.

The data show STP and WBTT as strongly related. All organizations using strategic technology planning have WBTT except one; all organizations with WBTT use strategic technology planning except one.

Summary

This chapter presented the qualitative findings of sixteen organizations, each interviewed for exploratory information about their technology infrastructure and planning practices. I described the organization, its location(s), and its mission and service offerings, then included a synopsis of each interview and highlighted the individual technology practices of the organization. After describing the organizations, I analyzed the cases and assigned categories or levels of technology sophistication for each, then synthesized the data to answer the original four questions under examination:

- o Is there a link between a nonprofit's knowledge of a specific current technology (WBTT) and its use in the development of organizational strategy?
- o Does the practice of organizational strategic planning increase the frequency of strategic technology planning in that same organization?
- o What are the primary reasons small nonprofits begin strategic technology planning? Are they prompted by internal needs or external catalysts such as governmental requirements?

- o Is web-based transaction technology more diffused in nonprofits that strategically plan for their technology needs than in other nonprofits?

The results support a link between strategic planning (either organizational or technology) and WBTT, and strategic planning and strategic technology planning. Organizations also begin strategic technology planning because they desire to improve the organization, rather than in response to governmental regulations or requirements.

CHAPTER SIX

SUMMARY AND CONCLUSIONS

Overview

The information technology literature contains many studies devoted to the necessity of organizational strategic planning, technology's strategic value, and the importance of incorporating strategic technology planning as a component of organizational strategy. The purpose of this study was to examine the technology use and strategic technology planning practices of small nonprofit organizations in relationship to a broader organization strategic planning process. The study examined a set of technology used by nonprofit organizations and the relationship of those technology choices to the adoption of web-based transaction technology. Additionally, the study examined the technology use and strategic technology planning practices of those same small organizations. The research methods included descriptive statistics, bivariate correlation and logistic regression.

Major Findings

The major findings in the study were as follows:

1. Small nonprofits adopt web-based transaction technology at a lower rate than they adopt general office technology such as personal computers, laptops, copiers and fax machines,
2. In small nonprofit organizations, there is a weak positive relationship between the adoption of web-based transaction technology and the use of presentation software, and there is no relationship between the adoption of web-based transaction technology and word processing, database

management, spreadsheet and desktop publishing software.

3. Knowing whether a nonprofit uses legislative software, personal digital assistants, internet, high-speed networks, and security practices significantly increase the odds of correctly predicting whether the organization adopts web-based transaction technology.
4. There is a link between organizational strategy and web-based transaction technology.
5. Practicing organizational strategic planning increases the frequency of strategic technology planning in small nonprofit organizations.
6. Small nonprofits begin strategic technology planning because of internal needs rather than external catalysts such as governmental requirements.
7. Web-based transaction technology is used more frequently in nonprofits that strategically plan for their technology needs than in other nonprofits.

Discussion of Major Points

Organizational and contextual variables influence the urgency, sophistication, commitment and scale of the reliance placed on technology and the technology planning effort in small North Florida nonprofits. Need appears to be the common denominator on which all types of technology choices are based, but need can take on many forms. A nonprofit's need can be due to specific services the organization must provide to clients or stakeholders (hypotheses 3-7), or can be predicated on critical mass, or an external catalyst (hypothesis 1).

Nonprofits desire to use technology to assist them both strategically and operationally, but their ability to constantly maintain technology as a priority can be precarious due to organizational staffing resources. Some of this instability can be mitigated through the use of vendors.

Finally, organizational strategy and strategic technology planning are linked, with both types of plans frequently found in practice in organizations. Sometimes organizations adopt a popular technology without specifically planning for it, but absent some type of plan, nonprofit organizations seem to refer to organizational need in determining and finalizing technology adoption practices.

Statement of Limitations

My study is limited to small non-profit organizations in North Florida, and for the qualitative analysis, a small, targeted sample was selected for interviews. Generalization to other populations is inappropriate due to the narrow geographic pool of organizations, as North Florida's population of small nonprofits may have a unique combination of characteristics. In addition, selecting particular cases for the qualitative study limits the pool of analysis according to chosen criteria, so cases with important characteristics and essential technology processes worthy of examination may have been excluded. In several cases, the person who was interviewed was a new employee, and had limited information available about past technology implementations and practices. Because an interview was used as a primary data collection method, poor recall, informant bias and poor or inaccurate articulation may have influenced the responses.

Implications for Practitioners

This research is important for practitioners as it reveals successful technology practices and effective patterns of technology adoption. By examining the technology methods of the population in this study, nonprofits and other small organizations can use these successes as a model for their own organizations. I make two recommendations for small nonprofits concerning technology use.

The first recommendation concerns technology staffing. For those organizations with very limited staff devoted exclusively to technology issues, using a vendor for some applications should be a consideration. The continuity vendors can offer reduces variability brought on by lack of expertise, absences and turnover. As demonstrated in the study, having a vendor provide some services ensured their continuation even when there was turnover in technology and other executive staff. This meant crucial applications such as web-based donations software was unaffected, and resources continued to flow into the organization.

Second, each organization should have some sort of technology plan. Even the most informal, rudimentary plan provides valuable communication and strategic advantages to the organization. Among other benefits, it provides a holistic, systems framework for improving the organization's effectiveness and assembles a statement of organizational priorities.

Future Research

This research examined some questions on small organizations, and some additional questions of interest about the technology practices of small nonprofits are appropriate for future research. First, since these organizations have frequent contact with groups that have difficulty marshalling

their collective political power, exploring ways nonprofits and their constituents can join together to address their needs could be studied. Second, research on the factors that affect the long-term continuous implementation of strategic technology planning in small organizations is needed, as some small organizations in the study had the desire to strategically plan for their technology needs, but had difficulty sustaining the planning process over time. Third, research on the effect of various actors on technology project type and implementation would increase the available research on how nonprofit organizations evolve as service providers. Finally, studies on the methods small organizations use to inform the organizational members about technology projects on the horizon is important to study as it may affect project acceptance, use and implementation success.

Conclusion

This study begins to explore a long-neglected research area and begins to uncover the nexus between technology use and strategic technology planning in small non-profit organizations. I have attempted to show the relationships between a specific set of technology variables in nonprofit organizations and begin to explore the technology planning processes of those organizations. The results indicate that nonprofits in North Florida value technology and strategic technology planning, and that based on need, nonprofits select technology applications, hardware and processes to accomplish their goals.

APPENDIX A

CONSENT FORM FOR ORAL (TELEPHONE) INTERVIEW

Consent Form
IT Strategy in Small Organizations

Hello, my name is Risetete Posey. I'm a doctoral student at Florida State University, and I'm doing a study on the technology planning practices of small nonprofit organizations in North Florida. This study is a follow up to some research done a few years earlier, and you were selected because your organization was one of the larger nonprofits that participated in the earlier study. This research is part of my doctoral dissertation, and will provide insight into the technology planning practices of small organizations.

If you decide to participate, the survey will require about 10 minutes of your time. Your responses will be (1) handwritten, then typed into a word processing program or (2) typed directly into a word processing program. The transcriptions (excluding names and other identifying details) will be analyzed as part of the study. Neither you nor your organization will be identifiable in the final report. I am the only person who knows who you are, which organization you represent, and what responses are yours.

+++++

Informed Consent

Would you like to participate?

Yes_____ No_____

Before we get started, do you have any questions?

+++++

After the survey:

Study Results

Would you like to have a copy of my results? [If the participant says yes]Ok, I'll be glad to send it to you. What's your email address?

+++++

I certify that I have reviewed the contents of this form with the subject being interviewed. I have introduced myself, explained my affiliation with Florida State University, and reviewed the proposed research. I have explained the means of keeping the subject's name and organization confidential in the final published study. It is my opinion that the subject understood the explanation.

Researcher Signature

_____Date_____

APPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL



Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 12/13/2006

To:

Risette Posey
P.O. Box 10435
Tallahassee, FL 32302

Dept.: PUBLIC ADMINISTRATION AND POLICY

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
IT Strategy and Web-based Transaction Technology in Small Organizations

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Exempt per 45 CFR § 46.101(b) 2 and has been approved by an accelerated review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If the project has not been completed by 12/12/2007 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Frances Berry
HSC# 2006.1007

APPENDIX C

WRITTEN SURVEY INSTRUMENT

(Insert LOGO
CCNL Address)

[Insert Tracking Number]

[Insert Contact]

[Insert Organization]

[Insert c/o]

[Insert Address]

[Insert City], [State] [Zip]

September 5, 2003

Dear [Insert Contact],

My colleagues, Fran Berry, Simon Andrew and I invite you to participate in a survey of the computer needs and capabilities of North Florida's nonprofit organizations. Our research objectives are to promote a greater understanding of the needs of the nonprofit sector in North Florida and to engage policy makers and business leaders in ongoing actions to foster the viability and performance of Florida's nonprofits. We would greatly appreciate your organization's participation in this survey.

We are following up with you after our first mailing of this survey back in July. Our records show we did not receive a response from you then. We know you are busy, but hope you can take the time right now to tell us how you use information technology in your nonprofit agency.

It takes approximately 15 minutes to complete the survey and your answers will be strictly confidential. We ask you to return the survey in the stamped, self-addressed we have provided as soon as possible.

If you have additional questions or comments about the survey, you can contact us at 644-3525. We look forward to receiving your returned survey, and can send you a summary of our survey's findings, if you check the box below

Sincerely,

Ralph S. Brower, Ph.D.
CCNL Director

yes, I want a copy of the survey findings.

SECTION A: INDIVIDUAL & ORGANIZATION BACKGROUND

1) Your Name (if different from above): _____

2) Your Position: _____

3) Number of Paid Staff: _____

4) Is your organization an affiliate of a national organization?

- a) NO
b) YES (please provide name of the organization below)

5) Is your organization a United Way agency?

- a) NO
b) YES

6) Approximately what percentage of your clients, customers, or patrons is from household below the federal poverty level? _____ Percent

SECTION B: GENERAL OFFICE TECHNOLOGY INFORMATION

7) Does your organization have the following technologies? (Please Check all that apply)

	NO	YES
a) Desktops	<input type="checkbox"/>	<input type="checkbox"/>
b) Laptops	<input type="checkbox"/>	<input type="checkbox"/>
c) Palm Pilots	<input type="checkbox"/>	<input type="checkbox"/>
d) Digital Scanners	<input type="checkbox"/>	<input type="checkbox"/>
e) Digital Camera	<input type="checkbox"/>	<input type="checkbox"/>
f) Fax Machine	<input type="checkbox"/>	<input type="checkbox"/>
g) Copier	<input type="checkbox"/>	<input type="checkbox"/>
h) High Speed / Broadband Internet Connection	<input type="checkbox"/>	<input type="checkbox"/>

8) If YES to those listed in question 8, how many unit(s) does your organization have?

- a) Desktop: _____
b) Laptop: _____
c) Palm Pilots: _____
d) Digital Scanner: _____
e) Digital Camera: _____
f) Fax Machine: _____
g) Copier: _____

SECTION C: COMPUTERS

9) How does your organization get computers?

	NO	YES	% of computers obtained via this method
a) Donation	<input type="checkbox"/>	<input type="checkbox"/>	_ _ _ %
b) Purchased outright	<input type="checkbox"/>	<input type="checkbox"/>	_ _ _ %
c) Other (please explain)	<input type="checkbox"/>	<input type="checkbox"/>	_ _ _ %

10. For each of the following statements which relate to the usage of personal computers for organizational work, please rate the extent of usage in your organization: (Circle the appropriate difficulty level)

	Always	Often	Sometimes	Rarely	Never
a) Our <u>staff</u> used their personal computers at home for organizational work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Our <u>volunteers</u> used their personal computers at home for organizational work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11) Our organization does not own any computers except for home computers of staff and/or volunteers. a) NO b) YES

SECTION D: E-MAIL CAPABILITIES

12) On a weekly basis, how frequently does your organization use e-mail to communicate with those listed below? (Please check the appropriate rating)

	Always	Often	Sometimes	Rarely	Never
a) Staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Board members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Volunteers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Government agency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Other funder(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION E: WEB CAPABILITIES

	YES	NO
13) Are <u>most</u> of your organization's computers used for Internet access?	<input type="checkbox"/>	<input type="checkbox"/>
14) Is your organization capable of conducting <u>transactions online</u> (e.g., accepting donations, membership fees, registrations etc?)	<input type="checkbox"/>	<input type="checkbox"/>
15) Does your organization use <u>specialized software</u> that assists in tracking legislation? (such as Lexis-Nexis or Westlaw)	<input type="checkbox"/>	<input type="checkbox"/>
16) Does your organization have a <u>website</u> ?	<input type="checkbox"/>	<input type="checkbox"/>
17) If your organization has a website, has it been <u>updated in the past 30 days</u> ?	<input type="checkbox"/>	<input type="checkbox"/>

SECTION F: NETWORK AND SECURITY CAPABILITIES

- 18) How many organizational sites does your agency have (headquarters offices, branch offices)? _____
- 19) Of the total organizational site, how many are networked to each other? _____ of _____
- 20) Are your organization's computers networked to each other? YES NO

- 21) Does the organization have security systems in place to stop unauthorized access to its computers from inside and outside the organization?
- 22) Does your organization regularly use virus protection software? (such as McAfee or Norton anti-virus)
- 23) Does your organization perform periodic backups of agency systems, software and important documents?
- 24) How often are these backups performed? _____

SECTION G: TECHNICAL SUPPORT CAPABILITIES

- 25) How many full time equivalent staff have computers assigned to them exclusively?

- | | YES | NO |
|--|--------------------------|--------------------------|
| 26) Does your organization have a staff person whose principal job is Information Technology ? (at least 50% of his or her work time) | <input type="checkbox"/> | <input type="checkbox"/> |
| 27) Does your organization have individuals with assigned responsibility for technological upkeep and updating? | <input type="checkbox"/> | <input type="checkbox"/> |
| 28) If yes, are these individuals (Mark all that apply) | | |
| a) Staff <input type="checkbox"/> | | |
| b) Volunteers <input type="checkbox"/> | | |
| c) Contracted Staff <input type="checkbox"/> | | |

SECTION H: TRAINING CAPABILITIES

- | | YES | NO |
|---|--------------------------|--------------------------|
| 29) Does your organization provide employee training on technology security issues? | <input type="checkbox"/> | <input type="checkbox"/> |
| 30) Does your organization provide periodic training for software applications and programs? (e.g., word processing, spreadsheet, or database training) | <input type="checkbox"/> | <input type="checkbox"/> |

SECTION I: TECHNICAL ASSESSMENT

- 31) Does your organization conduct periodic Technological Assessments?
 a) NO
 b) YES
- 32) If YES, how often does your organization conduct the Assessment? _____
- 33) Which of the following Software Packages does your organization use regularly?
- | | |
|-------------------|--------------------------|
| | ↓ |
| Check box if used | Name of Software Package |

- a) Word Processing _____
- b) Spreadsheet/Budget & Finance _____
- c) Database/Membership Management _____
- d) Presentation _____
- e) Desktop Publishing _____
- f) Graphic Design _____
- g) E-mail/Web Browser _____

34) Which of the following Technical Services does your organization use?

- a) Web Development & Maintenance
- b) Proj. Mgt/Org Charting/Flowcharting.
- c) Database/Membership Management
- d) Statistical Analysis
- e) Member Services & benefits
- f) Data Backup & Storage
- g) Hardware & Software Maintenance
- h) IT Training
- i) Application & Systems Development
- j) Other (describe the kind of service)

Check box
if used

35) Do you Contract Out the Technical Service?

- | | YES | NO |
|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

36) Does your organization receive funds from government agencies?

- a) Local
- b) State
- c) Federal

NO	YES	% of Fund Received
<input type="checkbox"/>	<input type="checkbox"/>	_____%
<input type="checkbox"/>	<input type="checkbox"/>	_____%
<input type="checkbox"/>	<input type="checkbox"/>	_____%

37) How do your government contracts support or hinder your use of Information Technology?

38) Do the reporting requirements lead to problems of incompatibility or redundancy of computers and software? If yes, describe briefly below.

39) How often does your organization use each of the following sources to learn about the IT products and services?

	Always	Often	Sometimes	Rarely	Never
a) IT Tradeshows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) IT Vendors/Contractors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) IT Magazines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Online Sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Board Members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Affiliated National Assoc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Sister Assoc. / Orgs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Other Nonprofits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Government Agencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Friends/Relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Other (specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

40) What are your primary obstacles to having better information technology in your agency?

	Always	Often	Sometimes	Rarely	Never
a) Money/Financial Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Lack of Staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Low Priority	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Lack of Knowledge of best practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Government Requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Other (specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

41) If you could have one wish granted in the area of information technology in your agency, what would it be?

42) Which phrase best describes your organization's experience with information technology?

Check only
ONE

- a) We either do not use any IT equipment or services or we use rudimentary IT services.
- b) We use IT and services in the conduct of our work
- c) We use IT and services and we perform such maintenance activities as frequent backups and product updates
- d) We use IT services in our work, and our IT products and services are networked and compatible with each other to maximize ease of use and efficiency
- e) We use IT services in our work and our managers and executives use our IT and services to make strategic decisions about the organization's operation and overall direction.

THANK YOU

APPENDIX D

ORAL (TELEPHONE) SURVEY INSTRUMENT

Interview Survey Instrument
for North Florida Small Nonprofits

8. Do you have a formal or informal strategic technology planning process?
FORMAL (Written, published plan which is the end result of scheduled meetings with specific, required staff.)

INFORMAL (Impromptu discussions about what future technologies are appropriate for your organization in the long term. A written plan may or may not exist.)

NONE
9. When did you begin it?
10. How often do you go through this particular planning process? Ex.: Ad Hoc basis, Annually, Every 2 years, Every 5 years.
11. Who participates in your strategic technology planning process?
12. Why did you start using IT SP? (Board suggestion, some type of mandate, government contracts, Ex. Dir., etc.)
13. How has IT SP helped or hindered (been useful or not) your nonprofit?
14. In implementing the strategic technology plan in your organization, what factors most significantly enhanced or inhibited the implementation process?
15. How much time does the planning process require?
16. Has the technology in use in your organization been influenced by government requirements and/or government contracts?
17. Have you implemented a web-based transaction technology? Example: Online conference or membership registration, online survey, online change of address form, etc.
YES Type _____ **NO**
18. Did you specifically plan this web-based technology implementation as part of your formal

or informal strategic technology planning process?

19. According to your formal or informal strategic technology plan, what strategic goal or objective is web-based technology helping you to accomplish? Example: Move organization away from spending time on processes that technology can accomplish so limited staff can work on higher-level tasks.
20. Discuss what if any linkage there is between your IT SP and your agency's overall SP? Have they been helpful to each other in any particular ways? Have they been completely independent?
21. Does the benefit of technology exceed the capital and resource outlay?

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