WIRING THE WIREGRASS: A CASE STUDY OF INFORMATION TECHNOLOGY SUCCESS FACTORS' ROLE IN WEST GEORGIA ECONOMIC DEVELOPMENT

by

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Abstract

The focus of this case study is to look information technology critical success factors (CSFs) in west central Georgia organizations. In particular, it looks at what role they play in west central Georgia organizations and their possible influence in assisting in the economic development within the region. The research looks at whether these CSFs are present in local organizations and if these are similar to what exists today in the information technology literature. The study assesses CSFs in four areas. The first two areas concentrate on strategic planning CSFs, innovation, and technology transfer CSFs. The next two areas of the study focus on information technology worker motivational CSFs and critical success factors that assist a company with technology diffusion of innovation. The goal was to determine whether local organizations utilize CSFs in their planning processes and if so, are they unique to the area or are they similar to what exists in current IT literature. The research design is the case study method utilizing personal interviews with those IT individuals responsible for strategic planning and input at their organizations. The study found that local organizations indeed do utilize IT CSFs yet provide uniqueness to the west central Georgia area.

Dedication

This dissertation is dedicated to my wife, Myongyo, the most influential and caring person in my life. Her constant support, love, and advice during this entire endeavor have meant everything to me. I would be remiss if I did not also dedicate this to my two sons, Brian and Joseph. They have grown up understanding far too much of this process than someone of their age is required to. All three members of my family have given up vacations, events with Dad, and other opportunities in order for me to proceed with this process. I will forever be in their debt.

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In addition, I would like to thank Dr. John Whitlock. When I first took his research course I found that here was an individual that not only wanted to make you a researcher, but a practitioner-researcher. His common sense approach to the Capella and traditional models have not only benefited me, but also every other student currently at Capella. When I first met him in person, I fully expected him to be too busy to understand my doctoral needs. On the contrary, he bought me a beer, told me to relax, and truly paid attention to what I needed from the doctoral program. I have sought his

advice on many matters since then and value his tutelage. I believe anyone who gets to work with this man finds a friend for life.

I would like to personally thank Dr. Mary Robinson for agreeing to be on my committee. When I first met her through the comprehensives process, I found we had many similar interests and she has offered lots of advice and comments. Dr. Robinson, I thank you.

The last person I would like to thank is Dr. Michael Daniels and is the most influential person on my chosen career. Dr. Daniels has been the most influential person to me I have known since coming to Columbus State University. His personal, professional, and common sense advice have been invaluable to me throughout the years I have had the honor to know him. A frank speaker, he pulls no punches when giving advice or recommending a better solution. My abilities in the classroom are a direct reflection of his advice and scholarly teachings. He has been there for me during this entire process, during personal events, and I value him as a friend and colleague. Dr. Daniels, I thank you for all you have done for and provided to me over the years.

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

This dissertation will address a case study method analysis of the role information technology plays in economic development in West Central Georgia. Because of the research, this researcher expects to discover critical success factors centering on information technology that local and regional economic development entities can utilize in their economic development assistance efforts. In addition, the study will examine the role Columbus State University and local companies have in the adoption and diffusion of information technology in affecting economic development within the region.

Current literature concerning information technology critical success factors center on not only what is critical for successful implementation of IS and enterprise resource planning (ERP) systems but additionally focus on chief information officers' perception of these factors (Fui-Hoon Nah,2003; Rosacker, 2005). The criticality of success factors vary by technology implementation and industries yet this dissertation seeks to compare how businesses in west Georgia strategically utilize those factors (Lee, 2003). Additionally the study will analyze the effectiveness of these factors in the acceptance and adoption of technology changes in the businesses (Landberg, 2006). Finally, areas of assessing technology investment will be examined to measure the adopted technology's performance (Sanders, 2005).

Background of the Study

The research efforts in information technology in West Central Georgia are in the infant stages and local universities and colleges are just beginning to take advantage of

public-private partnerships when it comes to information technology. The surrounding area is continuing to develop through new economic development efforts. Technological implementation in the West Central Georgia area continues to provide opportunities for advanced research and the study for the use of information technology as an asset for economic development use. The intended purpose of this research is to provide local public/private entities additional information for their use in attracting new business investment and reinvestment in the area.

This dissertation expects to use a case study method of research based on qualitative analysis. Qualitative research in information technology needs to expand. Alavi (1992) described "48.8% of total articles researched were empirical articles with 33.4% of those field studies and 9.1% being case studies". This case study will support Alavi's practitioner-based conclusion that in the analysis of information systems articles, she revealed a "total of 679 articles were looked at with 55% or 376 articles practitioner-oriented".

Kuhn (1996) discusses and explains contributions to the constantly changing research environment. The second paradigm discussion allows scientists to base research on "historically and pedagogically units of research" (Kuhn, p. 46) fundamentally set from concrete results. The third point of paradigm research allows for research flexibility when the established paradigms become insecure and a change in research occurs. Benbasat and Weber (1996) explain where the current state of information systems/technology research is. Benbasat and Weber believe three reasons justify their claims to continue in the field. They are: "1) a greater diversity, 2) quality of diverse topics are increasing, especially in the areas of validity, and 3) there is an increase in the

use of the reference disciplines in the information systems/technology research" (Benbasat and Weber, p. 389).

This research is important to Columbus State University (CSU) and the College of Business in particular due to CSU's outreach responsibility to assist in economic development research. One of the College's missions is to provide regional assistance to local economic development entities such as the City of Columbus, Georgia, the Greater Columbus, Georgia Chamber of Commerce, and the regional entity, the Valley Partnership. CSU has taken on the responsibility of housing a regional technology incubator and utilizing the College's faculty in research assistance. Finkle (2002) discusses how many states have had to deal with issues pertaining to technology, the workforce, entrepreneurship, and other business ventures. He explains how some of these states have had to collaborate up with local universities to facilitate the public-private partnerships of entrepreneurial activities. Research demonstrates how states now "look to promote technology entrepreneurs" (Finkle, 2002) and use these new partnerships to develop ways to attract better faculty at the state universities. CSU's commitment in the training and regional economic assistance shows how emphasis is now being place on ways to keep high tech employees within the confines of the state and providing creative ways to retain them in the labor force. Partnerships between universities and industry provide skill training for future technology needs. Finkle explains how small businesses have long been the facilitator for the economy and how recent strategies such as regional incubators help develop the new small businesses. CSU's interest in the success of local businesses is both large and small.

Statement of the Problem

The problem concerns the best use of information technology investment resources by organizations in west central Georgia. This research will try to determine if local organizations apply the critical success factors previously identified in the literature on information technology. If they apply them, are the critical success factors utilized in initial strategic and investment decision-making? The lack of current qualitative research on these IT success factors demonstrates a need to assess whether these critical success factors add value to the IT operations for these west central Georgia organizations.

Purpose of the Study

The purpose of this case study is to examine some organizational information technology (IT) critical success factors and their impact on economic development on west central Georgia. Because of the research, this researcher expects to develop research questions centered on roles for Columbus State University and local public and private entities in the practical application of information technology by assisting economic development within the region.

Currently, a problem exists in west central Georgia because economic development partners do not utilize current technology adequately to assist in their marketing efforts. The cost of technology is coming down yet rural counties cannot secure funding for technological assistance. Development authorities do not have current information available on the World Wide Web for marketing purposes. The timeliness and accuracy of statistical data are inadequate for marketing the region. Are there identifiable success factors utilized by current large technology companies in the region that answer these shortfalls? Does state and local funding in community and economic

development grants affect regional educational institutions and their technology curriculums in their collaborative efforts to facilitate synergy for economic development? Why are state and local not-for-profit agencies territorial in their approach to developing technology to support economic development? This lack of documented factors here in west Georgia demands additional analysis into the use of IT as a critical factor.

This case study intends to illustrate the recent increases in technology utilization in the west central Georgia area and how these increases can lead to the exploration of vast sources for additional research topics. Given that information technology programs are increasing in west central Georgia, a researcher can explore and research new areas.

Rationale

The rationale for conducting this case study is to examine some organizational information technology (IT) critical success factors and their impact on economic development on west central Georgia. The results obtained from this case study will contribute to understanding how organizations rely on critical success factors when planning for and implementing information technology in west central Georgia.

The best way to obtain data on an organization's critical success factors in information technology is to conduct personal interviews at the organization. This study targets those responsible individuals in the organizations which are the key knowledge holders for IT impact within their organizations. Since there has been relatively little identification of IT critical success factors in west central Georgia in order to impact economic growth, obtaining the information requires personal research. This rationale bases itself on the need for identifying and assessing these critical success factors. Additionally, it asks how they compare to what current IT research provides.

Research Questions

As Cooper and Schindler (2003) discuss, research conducted should have a purpose or direction to it. To better develop that purpose and narrow down the area, Cooper and Schindler developed a research question hierarchy containing six basic steps. They include the management dilemma, the management question, development of several research questions, development of investigative questions for support, development of measurement questions to help validate findings, and management decision or research findings (Cooper & Schindler, p. 66). This hierarchy is a good developmental systematic walk-through to help develop a research topic.

The topic for this study generated a management hierarchy for this study that provided the framework for the following research questions:

1. What are the strategic information system critical success factors companies use for their strategic plan to assist in facilitating economic growth in west central Georgia (Laartz, Sonderegger, & Vinckier, 2000) (Sabherwal & Chan, 2001)? (Research Question 1)
2. How do local companies take advantage of corporate innovation and technology transfer success factors (Jeffery, 2004)? (Research Question 2)
3. What success factors of motivating the technology worker do the local companies utilize to keep turnover rate low in the organizations? (Research Question 3)
4. How can qualitative research into technology innovation and the diffusion of innovation give these companies competitive advantage within their business sector? (Peffers & Saarinen, 2002) (Research Question 4)

Phase 2 will consist of the Administrative, Target, and Classification questions (Cooper & Schindler, 2003) which will provide a narrower focus for the case study research. These qualitative questions are part of the Target Questions identified in Phase 2 (Cooper & Schindler, 2003). The answers will provide some basis for the more open-ended interview questions asked of the respondents.

Significance of the Study

This study is important for four main reasons. First, there has been little documentation of the use of critical success factors in strategic information technology planning in west central Georgia. Although there is a migration of the type of local economy from a manufacturing to a service economy in the metropolitan statistical area (MSA), there is little research to annotate what those possible critical success factors are. Are strategic information technology planning factors taken into consideration when looking at whether or not to start a new organization or expand one in the west central Georgia region? Does diffusion of innovation and adoption of technology in organizations affect these factors? The reason for this is a lack of understanding the breadth of influence information technology plays in local organizations. Traditionally research conducted in the local area looked only at wage and salary analyses and population shifts.

The second reason why this study was important is has there been any intrinsic motivational methods used to assist the new technology workers in this changing economy? Do some of the local organizations follow some of the current research concerning intrinsic motivation of the information technology (IT) worker? Increases in technology and the demand for technology workers place additional burdens on the

management teams at both large and small organizations. The question arises as to how to keep the IT employees motivated to the point that productivity continues to stay high. Do motivational methods lend themselves to becoming critical success factors in information technology organizations?

The third reason to conduct this study was to discover if some of those critical IT success factors are instrumental on organizational strategic planning. Other research, such as Peffers and Saarinen (2002) demonstrated that by concentrating on one sector of the local industry could provide limitations to the results. This dissertation looked at a cross section of the local metropolitan statistical area (MSA) as it changed from being a non-agricultural economy to a service economy. Would these organizations identify some of these critical success factors?

The fourth reason it was important to conduct this study was the growing trend in qualitative research within the information technology field and how it can assist in the strategic planning process. As Michael Porter (1985) discussed, the importance of information technology in the corporate organization is changing the face of those corporate organizations. Since past and current research methodologies targeted only those IT areas that empirically proven, there was a gap in the qualitative research of IT. Both methodologies bring great flexibility to research in this area, but as IT research expands, and especially qualitative research, the more subjective area of strategic IT competitive advantage topic areas lend themselves to an increase in the qualitative methods. Research methodology and the analysis it provides both in the intellectual and practitioner areas is useful and any additional qualitative research adds to the body of knowledge in an under annotated subject area.

Definition of Terms

Columbus State University (CSU). A regional four-year university of the University System of Georgia located in Columbus, Georgia along the west central border of the state bordering the state of Alabama.

Chief Executive Officer (CEO). The highest ranking corporate or executive officer in a corporation, company or organization.

Diffusion. The acceptance over time of some specific idea or practice by individuals or groups liked to specific channels of communication in a social structure to a given system of values.

Enterprise Resource Planning (ERP). A set of integrated programs capable of managing a company's vital business operations for an entire multisite, global organization.

Information Systems (IS). A set of interrelated components that collect, manipulate, and disseminate data and information and provide a feedback mechanism to meet an objective.

Information Technology (IT). The study, design, development, implementation, support or management of computer based information systems.

Metropolitan Statistical Area (MSA). Geographic entities defined by the U.S. Office of Management and Budget (OMB) for use by state and federal statistical agencies for the collection and use of statistics.

Motivation. The processes that account for an individual's intensity, direction, and persistence of effort toward attaining a goal.

System Development Life Cycle (SDLC). The life cycle utilized in systems development that incorporates five distinct phases – investigation, analysis, design, implementation, and maintenance and review. These guidelines assist in the creation of new or modifying of existing systems.

Assumptions and Limitations

A major assumption for this case study will be this researcher's access to the public/private organizations due to past working relationships and efforts undertaken while employed at the local university. The next assumption is that the critical success factor model developed by Rockart (1979) at MIT will provide a qualified starting point for the interviews. Another assumption is that all entities will utilize the dissertation findings to assist in business recruitment and business retention efforts. It is this researcher's assumption that each participating organization will desire to have access to the resulting data and analysis for their own planning and strategic purposes. While this is not considered a benefit for the participants in the study, allowing the participants to have access to the data and analysis should increase the participation percentages. It is further assumed that this researcher's current occupation at Columbus State University will enhance the particpation response rate since Columbus State University is such a dominant player in the economic development efforts of the region. This researcher anticipates limitation problems with the initial frequency tabulations resulting from the data gathered on the initial interview questions. This expectation bases itself on experience working with many of the entities involved that will be participants in the research study. To overcome this research bias, this researcher plans to have an unbiased external source also enter data collected from the qualitative interviews. Then this

researcher will compare results taken from both. This action will eliminate any threats to the credibility and validity of the qualitative portion of the study. The defining item will be a decision point at which to stop and allowing the initial coding scheme to keep responses within the timeline of the research. Another expected limitation will be the localization of the businesses involved in the case study. Only the larger business organizations and public organizations will be interviewed. This case study will not attempt to analyze the multitude of small businesses in west central Georgia utilizing information technology at this time.

Conceptual Framework

This conceptual framework is based on a comparison of current examples of information technology critical success factors developed from current IT literature to include its impact on assisting organizations in achieving competitive advantage such as what Peffers & Saarinen (2002) looked at in order to provide value to the organization. Their research created a framework for assessing critical IT factors but assisted in the clarification of many critical factors that other researchers expounded. In addition, current research poses the question as to how to keep the IT employees motivated to the point that productivity continues to stay high. This comparative research will center on current literature examples of successes in other information technology organizations and compare it to data gathered locally at key large technologically advanced companies. Next, there will be an explanation of the qualitative data analysis used. Qualitative software packages will assist in the analysis of data collected and analysis of qualitative studies in the literature. As applied in this study, it is expected that these critical IT success factors do affect strategic planning in organizations in west central Georgia.

Organization of the Remainder of the Study

The following chapter contains a review of the relevant literature. Topics covered in this review include (a) a review of critical success factors in IT organizations, (b) a review of the diffusion of innovation and adoption of technology; (c) an overview of intrinsic motivation within IT organizations; and (d) a review of growing IT trends in qualitative research.

Chapter 3 discusses the methodology contained herein in a detailed manner including how the sample was selected, how the interview instrument was developed, how it was administered, how the data was collected, and the analysis of that data. Chapter 4 contains the data collection and analysis and Chapter 5 contains the results, conclusions and recommendations for future research.

CHAPTER 2. LITERATURE REVIEW

Introduction

The chapter begins by looking at the development of critical information technology success factors in organizations and how their impact. The pretext is generated by (a) a review of critical success factors in IT organizations, (b) a review of the diffusion of innovation and adoption of technology, (c) an overview of intrinsic motivation within IT organizations, and (d) a review of growing IT trends in qualitative research. Based upon this analysis, several critical IT success factors influencing the economic impact and success of organizations are identifiable and assessable. Consequently, a review of related literature is presented to help identify these critical success factors and the importance of the increase of qualitative research in this area of emphasis. This chapter concludes with an assessment of this current literature relevant to these critical success factors and a look at how it assists in the framework of this study.

Rationale behind the Review

The body of knowledge related to these critical success factors was great. But prior to looking at the west central Georgia area specifically, a general understanding of critical success factors as applied with intrinsic motivational methods during the introduction of newer technology is vital to understanding the importance of the factors in relation to west central Georgia organizations. The theoretical framework looks at expanding the current research perspective on current examples of information technology critical success factors already developed. It focuses on IT literature that explains their impact on assisting organizations. The framework continues to look at the

ever-increasing diffusion and innovation technology into today's organizations and demonstrates how current research suggests ways to keep the IT employees motivated

Critical IT Success Factors Theory

The first research question this study looks at focuses on is to identify some of those traditional critical information technology success factors organizations uses for strategic planning. The literature is full of the historical perspective of how to identify and utilize these CSFs and their impact on organizational strategic planning. A close look at critical success factor planning must start at the definition of what the critical success factor is and its meaning to an IT organization. One of the first researchers to qualify this concept was John Rockart at MIT. Rockart (1979) was one of the first researchers to look at key indicators at IT success and labeled it the critical success factor (CSF) method. Its premise is that it "is highly effective in helping executives to define their significant information needs" (Rockart, 1979, p. 84). His premise is that the CSF methodology focuses on "individual managers and on each manager's current information needs" (Rockart, 1979, p. 85). These are critical to identifying those CSF that really impact the organization. They are not just looked at during the planning phase, but as the systems development life cycle (SDLC) dictates, must be looked at during the entire lifecycle of the organization. This research points out not just what should be targeted for CSFs but where to look for the CSFs. In conclusion, his research has provided a key answer-every organization is different and has differing IT critical success factors. He reiterates the need for interviewing the senior leadership of the organization to determine what those CSFs are and their impact on the organization.

Chu, P.C. (1995) provides a possible framework to look at critical IT success factors and how to recognize their importance in organizations. His framework is based closely on Rockart's work (1979) and is as follows: "(1) identify critical success factors; (2) identify critical value activities; (3) assess the impact of information systems on critical value activities; (4) evaluate linkages; and (5) derive candidates for strategic information systems" (Chu, 1995, p. 39). He defines critical value activities as "those value activities which an organization must execute satisfactorily to ensure successful performance" (Chu, 1995, p. 38). These are key to assess which individual and IT processes to focus on for follow on research.

Early research in documenting critical success factors in IT demonstrated how the newer field of information systems was going to experience some of the same organizational growing pains that traditional organizations face. Pitman (1994) provided six critical success factors that could assist in the adoption of information systems into the organization. His six critical success factors were "visible management support and commitment, proper preparation for a successful change, user/client participation, and a strong business-related need for change, a reward system that supports necessary changes, and a high degree of communication" (Pitman, 1994, p.40). His key to the adoption of technology within the organization is dependent on a mix of these factors and their support.

Nah, Zuckweiler, and Lau (2003) suggest that at the strategic level, some of the most critical IT success factors are reflective of the literature but definitely senior specific. The authors' study looked at how some chief information officers (CIOs) responded to eleven critical success factors and then ranked the top 5 responses from the

CIOs. Key amongst their findings was how "strong and committed leadership may be able to compensate for the absence of other key social enablers" (Nah et al., 2003, p. 17). After this, teamwork and organizational climate cultures that share common IT goals are likely to succeed.

Gottschalk's (2005) research identified 11 critical success factors in IT outsourcing but can be applied to this study due to the implementation of larger scale projects that local organizations perform. He found that core management competence, stakeholder management, cost reduction were the most critical ones. These align with Nah et al (Nah et al, 2003) and Fowler (2007). Karlson, Anderson, Birkely, and Odegard (2005) took an in depth look at critical success factors in both public and private organizations. Whereas their literature provided a common critical success factor theme of "cost, time and quality" (Karlsen et al., 2005, p. 527), their analysis went much deeper into comparing other factors. As discovered in other literature, project management, added value, profitability, and satisfaction by the end users became dominant results for both the public and private sector. However, their main conclusion is one that must be a very vital measure of IT success – "does the system work as expected" (Karlsen et al., 2005, p. 538)? They believe that not only must research look into the critical success factors, but also look at when the critical success factors should be defined, who should define them, and when do they get evaluated. These three vital questions are a fundamental basis for this study.

Fowler (2007) provides a comparison between successful and unsuccessful critical success factors and begins by suggesting that a variety of stakeholders in the company have a great amount of influence on the success or failure of the factors. The

more important the stakeholder places a higher value on IT and thus the system appears to be successful. His exploratory study looked at which factors project managers, senior analysts and programmers, and two sets of involved users suggested they experienced IT success. He provides six main critical success factors common in research literature. They are "top management commitment, project team commitment, effective project management, project personal knowledge/skills, enlisting of external contractors, and user acceptance" (Fowler, 2007, p. 17). The IT literature on critical success factors leaves open the inclusion of other organizational and managerial critical factors that impact IT planning and success. The inclusion of these fundamental CSFs, the diffusion and adoption of technology, and motivational factors all support the kind on IT research should be utilized in this study.

Diffusion of Innovation and Adoption of Technology

Research into the diffusion of innovation and adoption of technology is currently an important topic in information technology. The second research question this study looks at is how the local companies take advantage of that diffusion and innovation. Past research discovered concerns strategic planning in IT, diffusion of innovation and its affect on the adoption process and their impact of IT value on business. Diffusion, as defined, is "the acceptance over time of some specific idea or practice by individuals or groups liked to specific channels of communication in a social structure to a given system of values" (Katz, Levin, & Hamilton, 1963, p. 240). Innovation defined is "the function of an interaction among the motivation to innovate, the strength of obstacles against innovation, and the availability of resources for overcoming such obstacles" (Mohr, 1969, p. 111).

Peffers & Saarinen's article (2002) provided a framework for measuring and evaluating IT business value because financial managers want to understand and assess IT investment and its value to the organization. Peffers states the problem faced in both the literature and in the banking industry find as they try to assess IT business value. He showed that not all bank executives used assessment concepts to evaluate IT investments but those that did were satisfied. Their proposal was to see how satisfied these planners could be and to try to set up a framework for consistent evaluation (Peffers & Saarinen, 2002).

The article was an extensive look in explaining the practitioner-based historical and practical problems bank executives faced in really finding a way to assess and evaluate the incremental value of IT business investment. The authors bridged and connected the existing literature with the justification for their research article's importance. Peffers and Saarinen (2002) supported their research position in a unique way. Their use of Factor Analysis allowed for easier quantitative analysis and correlation among each main variable resulting in providing good solid empirical results. The article presented many variables for the authors to work with and their use of factor analysis focused the intent of their research and standardized responses making the data results more applicable and understandable.

Peffers and Saarinen's (2002) use of factor analysis in the reduction of the 21 concept variables down to five was well done. Their research into the bank executives' perception and categorization of the business value of IT for their banks allowed them to focus and concentrate a lot (21) of strategic issues that were very important to these bankers. Factor analysis in this case did not detract from the grouping of the variables.

In fact, it allowed for easier quantitative analysis and correlation among each main variable resulting in providing good solid empirical results for their research question number 4.

Their overall research problem was to try to measure overall IT investment value at the firm or enterprise level. Understanding this going into the research and the compilation of the many (21) strategic variable categories allowed the researchers to better conduct correlations after doing the factor analysis. The authors utilized succinct, identifiable and related terms to group the many variables into the five basic categories. When they did this, they did not lose any identity from the sub-category variables. By laying the groundwork in Section 2 of their article, the authors show the immense problem measuring a qualitatively assessed subject and turn it into a quantitatively supported research product. The authors obviously did not just pick the categories to group the variables.

The four main factors were aptly named "cost-savings investments, strategic necessities, strategic IT, and strategic product value-related IT" (Peffers & Saarinen, 2002, p. 22). They then grouped the numerous concepts into the five categories based on industry research, interviews and survey data.

Understanding the research questions allowed for the compilation of the many (21) strategic variable categories allowing better correlation of the concepts and factors after doing the factor analysis. The authors utilized succinct identifiable and related terms to group the many variables into the five basic categories. By laying the groundwork in Section 2 of their article, the authors show the immense problem measuring a qualitatively assessed subject and turn it into a quantitatively supported

research product. The results section did a good job of explaining how the data supported the four distinct views the authors used to separate and support the research questions.

In the discussion section, the authors broke down the findings into looking at pure planning before consideration if the impact as described as strategic necessities. It identified possible risk involved in IT measurement (Peffers & Saarinen, 2002). Factor 2 looked at a more strategic impacts involved when explaining factor # 2. The section description about factor #3 was a good explanation of how the data results described bank executive worries about day-to-day costs.

The authors were upfront about some of their limitations. The biggest one discussed concerned the participation effort by the bank executives. Limiting the research to only one industry was another limitation. Another large limitation was focusing on the concepts that the bank executives wanted the researchers to look at. This aspect added some bias to some of the data results. The author's discussion about their talking over the questionnaire's questions gave limited answers to the results. They concluded concentrating on how some bank executives can use the results of this study and how some of the limitations provide and justify additional research into this topic area.

Peffers & Saarinen researched what the common assessment criteria were for IT investment and found that the literature was full of examples. Nevertheless, additional research reveals articles that deal with measurement criteria and factors contributing to Peffer's framework. Bacon (1992) early on described the need to use assessment criteria of information systems investments but concluded that they should be based on criteria. He stated that managers often do not get to see what this criterion is and what the impact

is. Nor do they get a chance to assess its impact on the organization. He concluded that there was a separation between how investment decisions occurred to solve business problems and decisions based on explicit attention to the financial objectives of the firm. He also suggested that claims for evaluation concepts should be used.

When Bacon (1992) began his research, there was no uniformity on defining IT investments. He proposed some investment criteria that asked the main question, "how do organizations decide on their information systems and technology (IST) investments and how should they decide?"(Bacon, 1992, p. 337) His purpose was to ask whether measurement criteria were being asked and found none. He felt that the key was to distinguish between "projects undertaken in support of implicit business objectives, as opposed to those in support of explicit business objectives" (Bacon, 1992, p. 339). The importance of his research impacted Peffers because Bacon brought out the early differenced between criteria and how use them in evaluation. Bacon was one of the first to assign the criteria as decision criteria for investment decisions. He broke them down into three areas "financial, management, and developmental" (Bacon, 1992, p. 347). His results began a trend that looked at the fiscal impact of IT on a particular organization's investment.

Additionally, Dos Santos and Peffers (1993) looked at the impact of IT investments and concluded that while the prevailing attitude in business was IT investments had little impact, the authors documented the impact. Their concentration highlighted IT investment benefits were intangible, but linked IT investment value to not only internal assessment, but to the reactions of the competition to that IT investment. They did this by referring to their earlier framework based on two outcomes, "direct

functional affects of the IT and effects on organizational goal" (Dos Santos & Peffers, 1993, p. 520). They proposed that by not only looking at the direct sources of IT investment impacts an organization must look at external sources also. They were not convinced that Barua, Kriebel, and Mukhopadhyay (1995) properly assessed the functional measurements by trying to control the environmental variables in the organizations too closely. He looked at market value measures of IT value occurring at the time and concluded that those coming from financial statements were not "good indicators of a firm's true value" (Dos Santos & Peffers, 1993, p. 533). Their research results showed that as typical to strategic planning, innovators reap more benefits than others do. They stated that if the company was willing to risk IT innovation, they were able to bear a good financial return (Dos Santos & Peffers, 1993). Therefore they concluded, "investments in innovative IT applications can provide a firm with competitive advantages that may be sustained for a long time" (Dos Santos & Peffers, 1993, p. 545).

Dos Santos, Peffers and Mauer (1993) followed up their initial findings by looking at what the difference of announcing ahead of time any innovative IT investment in a company. Their conclusions showed that "while IT investments do not, on the whole, systematically add value to firms, firms are rewarded for the risks incurred in making investments in innovative IT applications, markets react immediately to innovative IT investments better than non-innovative IT investments" (Dos Santos & Peffers, 1993, p. 4). In other words, the financial markets were reacting better to innovative IT announcements than non-innovative ones. This model would change as technology changed or new advances in technology occurred. In addition to this

research, Dehning, Richardson, and Zmud (2003) echoes Dos Santos et al (2003) by showing that IT investments are likely to provide positive returns. Their only difference was not whether IT investment paid off but "under what conditions to investments in IT pay off?" (Dehning et al, 2003, p. 638).

Finally, Irani & Love (2001) used a case study to look at an organization through traditional management approaches. It presented two approaches on technology management. The first it looked at centered on a traditional approach that sought to avoid "procedural pain" (Irani & Love, 2001, p. 166) instead of assessing the true benefit of the IT investment. They utilized direct cost figures in their computations but found that if "calculations could not be made; an 'act of faith' decision to invest was made" (Irani & Love, 2001, p. 169). This vagueness of classifying measurement variables/criteria is what Peffer hoped to solidify with his framework for measurement of IT investment value. The next review section will look at how new and innovative IT investments possibly added to organizational competitive advantage.

Boynton (1994) looked at the organizational use of information technology in its support of both the operational and strategic viewpoints. He wanted to give the academic community a theoretical perspective supported by empirical data in explaining how management uses information technology. It looked at "IT climate, managerial IT knowledge, IT-management-process effectiveness, and the level of IT use" (Boynton, 1994, p. 299). It defined these areas in its literature review. He developed four main hypotheses to support the four areas looked at. The research then used an empirical cross-sectional field survey questionnaire to large computer organizations with a response

rate of 36%. Boynton used a standard quantitative research methodology to support his findings.

Three of the four hypotheses for his research showed a result at that time from the participating companies, the higher the management IT knowledge and the more positive IT climate promoted a larger use of IT in the organization. He felt the limiting management level of the participants, all senior managers, did not give a total and accurate view of the climate and explored them at the organizational level. During this time, general IT knowledge among the middle and lower managers in the average organization was not as high as it is today. If the climate seemed favorable for innovation, less resistance for new implementation and adoption occurred.

For any IT innovation to give its organization a competitive advantage, it has to add economic value to that organization. Research by Van Wegen (1996), Oliver (2002) and Barrett (1999) all demonstrate how innovative technology can add to the competitive advantage of the company's position.

Van Wegen (1996) looked at the value an information system added to the company. Trying to analyze supply and demand in the technology community is often hard but he was able to assess IT costs and the value of the system. It the system proves to add value, it will most often be adopted. He submitted that supply costs are "the costs involved in building the system"(Van Wegen, 1996, p. 247) and demand value is "derived from the contribution of the system to its goals" (Van Wegen, 1996, p. 247). He used activity based costing and production based costing to determine viability. Wegen concluded that organizational cost reductions achieved through accurate forecasting

provided value. He concluded that the adoption of the information system added unique value to company's bottom line.

However, Oliver (2002) concentrated on enterprise resource planning (ERP) system adoption. While looking into current technology, he evaluated adoption rates. He found that ERP decision-making adoption became justified because of how a combination of "technology, process and organization" (Oliver, 2002, p. 199) all combine to dominate and influence the adoption of the ERP. He chose to look at universities that purchased ERP systems for competitive advantage and framed his results in four categories. The four main content categories discovered were "technology, process, organization, and people" (Oliver, 2002, pp. 205-208). Even new, competitive and innovative technologies can bring advantage to an organization but he found that the people, organization, and processes mitigated the influence of the technology. All elements must be present to achieve that competitive advantage.

But how can innovation and the adoption process provide competitive advantage? Measuring and adopting new innovative technologies for advantage requires organizations to look at the strategic impact and planning. That planning must occur at the strategic level with input from lower, organizational user levels additionally. Barrett's study demonstrated the importance of user perception as an influence in the adoption of an information system. He believed that "hardware, software, and organizational infrastructure" (Barrett, 1999, p. 13) are key to building a foundation for IS adoption. He concluded that all three must be present for a system to be viable and useful entity but that there must be a systematic approach to the implementation of any new adoption .

Innovation and adoption of new technology did not only occur within the United States. Information technology is a global concept and many countries are just beginning to deal with the globalization of their own economy in conjunction with the American economy. Organizations looking to adopt new technology in other countries must begin to strategically plan according to a number of internal and external factors. Edwards' (2002) article has value for the researcher in the area of economic effects of IT. A practitioner-oriented article looks not at traditional IT research but at some factors that the practitioner can use and consider during the planning process when considering foreign IT investment. It is during this strategic planning process that the organization must consider the economic benefits of the new technology.

Edwards uses his article to provide an economic analysis overview of whether information technology and the Internet can increase the productivity in these third world nations. While not written in the traditional research format of developing the hypotheses, methodology, and empirical results with discussion, he does put forth some very important factors to consider when assessing the impact of information technology on these nations. He identified some important workforce development areas Latin America needs to work on in order to continue to land technology companies and investments.

He provided some empirical data concerning country ranking and demographic profiles which provide a good starting point but for a researcher to benchmark technologies better, he will need to conduct some more extensive research on the individual aspects in order to assess a follow up measurement of the IT value of these new technologies. Edwards (2002) did a good job of focusing the reader into

understanding that adoption of IT and its role in the individual organization is important even in Latin America. Another key item was the identification of the word "connected" (Edwards, 2002, p. 24). In his analogy, connected means invested or a share of ownership in the investment by the organization, its culture, and the country itself. Empirical analysis needs accomplishing to implement IT as done with the SDLC. His four areas/factors are good policy areas a practitioner could follow to give a starting framework for understanding the needs to start this new IT infrastructure.

His attempt falls short somewhat in his analyzing the Internet, information technology, and the new economy in Latin America. He does not propose that the economies are on the equal footing with the US. On the contrary, he is fully aware of the political, social, and industry specific problems businesses find when participating in joint ventures, direct foreign investment, or government supported businesses. His background on a number of policy and industry issues concerning Latin America contributes to the external environmental factors that newer technology companies must face. However, he correctly identified some of the low quality areas affecting the infrastructure in Latin America (Edwards, 2002). He also provided good information about the governmental problems dealing with governmental regulations and startup costs.

He submitted an analysis of the economic value of workforce development as a theme in the paper. He identified weaknesses in educational foundations, social understandings, and labor and governmental barriers and obstacles organizations deal with in order for the technology infrastructure to flourish. The article takes on an almost political and social theme at times discussing many shortcomings and getting away from

the benefits that IT can provide to economies. He quotes Latin American leaders as relying on the success of the Internet as a savior for many economies but then blasts the circular pattern of technology-lacking infrastructure. This identification of the necessities that American and US companies will look to in order to consider investing are beneficial to the researcher.

Edwards' (2002) article supported his position but in a qualitative, practitioner-oriented manner. Its value was in presenting options for other researchers in the area of economic effects of IT. He wrote the article as a practitioner-oriented one looking at not a traditional view of IT research, but rather looked at some factors that the practitioner could use and consider during the planning process when considering foreign IT investment.

In summary, while it was a non-traditional research article, it provided a good deal of information concerning some of the pitfalls for a practitioner to consider when considering new foreign IT investment. As for the traditional researcher is concerned, this article brings up many areas that could lend themselves to hypothesis and research question development and subsequently lend itself to an academic research article on the IT impact in these countries. Edwards' factors/policies are excellent starting points for the development of these research considerations. Adoption of the new technology is important for competitive advantage, but if it does not add value in resources and revenue, it becomes a liability.

Tallon, Kraemer, and Gurbaxani (2000) concluded that the executives were satisfied with their level of IT spending and that their investments reinforced their management decisions to do that spending. The biggest conclusion is that if there is

upper level or corporate level support for the IT spending, good things will happen for the organization. The authors did a good job of proving this. Since the study looked at a single firm-level analysis showing a positive relationship between IT investment and the strategic alignment of IT goals with larger payoffs, the authors propose an alternative look at "multiple process-oriented measures for IT business value" (Tallon et al, 2000, p. 168). They feel additional linkages between management practices and IT business value should be illustrated.

La Rovere's article (1996) reinforces the need for both public and private organizations to see the importance of small and medium sized businesses in the economy. She looked at how the small and medium sized companies are looking to innovate with technology. She posits that there needs to be a policy within the organization on adoption and diffusion (La Rovere, 1996). The emphasis in the research is not whether to innovate, rather the emphasis is on whether to diffuse the innovation in the company with a set policy. She shows where small companies are knowledgeable about newer innovative technologies but are often hesitant to explore them due to a lack of knowledge on what competitive advantage the new technology brings. She recommends basic understanding of supply and demand. It is a migration from "awareness to adoption; from adoption to effective usage; and from effective usage to competitive advantage" (La Rovere, 1996, p. 172).

Stoneman (Stoneman, 1996) explored the returns for organizations that adopted new and innovative technologies. Their article bases itself on the return of investment and on the theory of diffusion and his hypothesis was to prove that there would be profit from the adoption of new technology. They understood that to base his research on

theory, he would have to take a "multi-technology" (Stoneman, 1996, p. 952) stance. They looked at the "characteristics of the firm, number of other adopters, and the order of adoption" (Stoneman, 1996, p. 952). Their empirical analysis measured profit for the firm based on the timing of the adoption which fluctuated based on the technology. They expected to see some positive impact and their results proved the hypothesis. A key aspect for their research was their investigation of not only profits from innovative technology, but from a cost side. Their research added considerable validation to measuring IT investment value based on the adoption of innovative technologies.

Im, Dow, and Grover's (2001) study performed an in depth look at whether IT adoption did indeed provide value. They looked specifically at events concentrating on "the time lag effect of IT investment based on announcements, price and volume reactions to IT announcements and factors such as industry size" (Im et al, 2001, p. 104). Event studies can be powerful indicators of reaction to topics and in particular IT innovations due to its ability to assess business reactions and fluctuations in a relatively short span of time. They wanted to replicate and add validity to Dos Santos et al's (1993) study. Their results demonstrated that as time goes by, improved technologies and company infrastructures will be more receptive to IT announcements. When these actions happen, Im et al demonstrated positive results from the announcements within the industry as a whole.

How can these academicians reconcile their research with what is going on in business? Cohan (2005) looks at current spending by chief financial officers (CFOs) and documents where today's CFOs are truly fiscally conscious. He proposes organizations look at three tests to ensure IT investment enhances the competitive advantage of their

companies. They are "alignment with strategic intent, risk and cost, and quality of service" (Cohan, 2005, p. 31). Will the investment contribute to revenue? Will it be too costly or risky? Will it be available for use when needed? He proposes that by not meeting these realities with new and innovative systems, worrying about competitive advantage will take a back seat in the planning process. These fundamental questions directly address innovation, adoption and diffusion of IT in organizations today. Future research needs to focus on looking at these questions not only at the macro strategic level but also at the lower micro level within a particular business or business sector.

Intrinsic Motivational Methods Used in Information Technology

Intrinsic motivation and motivational theory are dominant themes in not only organizational research, but also that of how it impacts the IT worker. This study's third research question looks at assessing what successful motivation techniques identified in the current literature can be found in the studied organizations in west central Georgia. This study assesses current research in motivating IT workers and how motivational factors impact IT workers. This portion of the review looks at how information technology managers and strategic organizational planners motivate their IT workers to the point of using them as critical planning asset and what must they do to assist the new technology workers in this changing economy. It provides examples of current research into the intrinsic motivation of the information technology (IT) worker.

Current research on intrinsic motivation of the information technology (IT) worker provides illumination on the increases in technology and the demand for technology workers. It also places additional burdens on the management teams at both large and small organizations. The question arises as to how to keep the IT employees

motivated to the point that productivity continues to stay high. Many daily detractors can capture the attention of IT workers and if the leaders do not understand how to cope with motivating their employees to do well, productivity will suffer. This section of the literature review will exhibit past examples of which motivational methods can help those small IT companies out when dealing with the new IT worker.

Current literature shows that understanding the needs of the employee and in particular the highly skilled IT employee, requires a good understanding of basic organizational behavior motivation. Ramlall (2004) presents reasons why it is important to retain critical employees such as current IT workers. He assessed the impact of current motivational theories and how their impact on the organization's ability to retain and motivate employees. The bottom line was the commitment of the employees that proved to themselves that they made the difference in the organizations (Ramlall, 2004). Critical employees in critical jobs such as IT workers carry tremendous amounts of not only technical knowledge, but that of applied organizational knowledge. To lose one of these IT specialists can be a tremendous fiscal cost to the organization. He refers to Robbins (1993 & 2003) in explaining how to make an employee aware of their impact on the company.

He discussed modern motivational theories such as "Maslow's Need Hierarchy Theory, McClelland Need Theory, Equity Theory, Expectancy Theory and Herzberg's Motivator-Hygiene Theory" (Ramlall, 2004, pp. 53-58). He concludes by explaining that with skilled employees such as IT workers, it is not one particular motivational theory that makes them succeed, but rather a combination (Ramlall, 2004).

Steers (2004) described, "the new economy, replete with its dotcoms, e-commerce, and increased globalization (as well as the more traditional manufacturing and service firms), a motivated workforce is frequently cited as a hallmark of competitive advantage" (Steers, 2004, p. 383). These IT employees will be more critical because of their impact on the organization as a technological and human resource. He cited the growing trend of assessing the motivational impact of work teams as the dynamics of the workplace continues to change somewhat with the increase of team organizing.

Basic organizational behavior tells us we must understand concepts such as affect, emotions, organizational impacts, feelings and moods in order to tailor management style into effective motivating management style. Affect is a generic, umbrella like term that covers a broad range of feelings that people experience (Robbins, 2003, p.106). Since it contains both emotions and moods, relating them to an organization require you to be specific or general. It is the concentration on these one, two, or both feelings that often explains employee's job behavior, performance, satisfaction and how that interplays with the organizational culture. Trying to understand what affects employees and subordinates will just about every time make one a better manager.

Robbins defined emotions as "intense feelings that are directed at someone or something" (Robbins, 2003, p.106). These intense feelings are usually a result of the employee's reaction to external influences or from experiences. How to control these emotions to add to the organization's productivity is the challenge. Two types, positive and negative emotions (Robbins, 2003, p. 107), should compare themselves to help the manager. Positive ones like pride, joy, and others are good indicators that positive things are happening for the employee. Opposing these, negative ones like frustration and fear

often lead to animosity and lower productivity and resulting in employees just trying to get by in their jobs and not really contributing to the organization.

Organizational influences should impact an employee. Robbins discusses that negative emotions have a bias against them in the workplace (Robbins, 2003). This position is not always the best. Sometimes if defined, they can identify themselves and work to the employee's benefit to help the employees foresee problems. As discussed, moods are feelings that tend to be less intense than emotions and that lack a contextual stimulus (Robbins, 2003). Constant anger, disappointment over a lost promotion, or a sense of "not being in the know" can all contribute to an employee's mood. So while understanding some fundamentals about organizational behavior and motivation, what does the manager need to apply these motivational concepts?

Employee involvement programs are "participative processes that use the entire capacity of the employee designed to encourage increased commitment to the organization" (Robbins, 2003, p. 194). These four types include participative management, representative participation, quality circles, and employee stock ownership plans. Of the four, participative management allows joint decision-making between employees and management. Representative participation is more of an effort to give labor equal authority with management over company decision-making (Robbins, 2003). Employee stock ownership plans allow the employees to have a more stake in the operation of the company since the employees have their own money invested. According to Robbins, this plan "leads to higher job satisfaction and work motivation" (Robbins, 2003, p. 198).

Research has shown that an additional managerial and motivational skill an IT Team leader needs is that of being a mentor (Kayworth & Leidner, 2001/2002). The mentor role places the leader in both a supervisory and teaching role that if accomplished correctly, will allow the virtual team to fully understand its role and reach its fullest potential. As Glen (2003) pointed out, the team leader needs to foster the personality of the team to move towards the "teamwork-collaboration" (Glen, 2003, p. 208) quadrant in the C2 Skills Framework for leading geeks.

Robbins looked at some conditions that historically assisted management in these areas. These conditions were norms, workplace behavior and the IT leader's reaction to the workplace. The conditions under which group norms influence productivity the most are performance norms and allocation of resource norms (Robbins, 2003). Performance norms are set by the employee groups by "influencing amount of effort in a job, how to do the job, the actual output, and tardiness" (Robbins, 2003, p. 229). The factors mitigating the influence of norms in an organization's employees are deviant workplace behavior, social loafing, and conformity. According to Robbins, norms are "acceptable standards of behavior approved by any workplace group of employees" (Robbins, 2003, p. 229) and influence the behaviors of those employees.

Workplaces should strive to alleviate any deviant workplace behavior that "can lead to reduced employee productivity" (Robbins, 2003, p. 231). Any deviant employee behavior detrimental to another employee will ultimately put a drain on that organization's productivity. Other negative behaviors directly affecting the organization's productivity are "the wasting of resources, leaving work early, and intentionally working slow" (Robbins, 2003, p. 232).

There are some ways to promote productivity and combat these naturally occurring organizational group norms. In the Wageman (1997) article, the Xerox study showed that with self-managing teams, the group norms that reinforced a strategic thinking among employees were more effective and productive in their jobs. The Xerox study showed how it takes a leader to further the efforts of a group norm along in order to make the team successful. Wageman was correct in that "norms that are left alone do not emerge as strategic thinkers" (Wageman, 1997, p. 10).

Given all the organizational behavior concepts dealing with motivation and the integration of IT in the strategic planning in organizations most employees look for the basics in management's ability to lead. Leading the highly educated IT professional is challenging but takes a certain type of individual. Maccoby (1996) looked at this challenge. He discussed the leadership of knowledge workers in general, but the venue in which his article appeared indicated that he researched one particular type, the research technologist. Maccoby presented a very common topic that many times managers in an organization cannot understand – that technology workers need leadership and expect proper guidance in the performance of their jobs. His term "organizational doctors" (Maccoby, 1996, p. 57) is an association for those who have been in leadership positions and seek to find practical ways to handle the technology workers.

However, he suggests that management must train the trainers/leadership. Good communication is necessary to facilitate understanding what the technology workers needs are on a daily basis. Since a problem does not get better with time, identification, communication, and openness in the organizational workplace can often provide

solutions. Getting buy-in for these solutions at the organizational level is often hard to accomplish, but also must be not only attempted, but also accomplished.

Maccoby's (1996) description of fostering interactive dialogue when change is necessary was a key point. Many times at the company level, IT managers do not attempt to keep these lines of communication open. The result is, as Maccoby described, the change process will benefit one group more than another (Maccoby, 1996). Hidden agendas for managers and workers are evident. Not leading the technology workers in the right direction can often cause finger pointing and suggestions of favoritism.

Glen (2003) supports this position very closely. IT worker characteristics run very close to those of research technologists. Both types "struggle with understanding the culture of other groups (do we classify ourselves as quantitative or qualitative?), the needs of users (academicians and theorists), and the interests of managers and leaders (academic approval/authority and academic peers)" (Glenn, 2003, p. 21). Both IT workers and research technologists create "new designs for products (research topic methodology), artifacts of the process of creating the design (documentation and our contributions to periodic journals and research), and directed research and development (publications)" (Glen, 2003, p. 22). IT workers and research technologists have quite a lot in common. In every program, those who were not of the "geek" persuasion quickly learn to convert.

The last article in this portion of the literature review is a look at strategic planning as demonstrated by Sahraoui (2001). His research explored the motivation behind micro planning for IT effectiveness. The author looks at the influence that incremental planning has in the IT planning process. Since IT planning often occurs at a

strategic level, the author sought to validate the micro planning process. Micro planning does take place in many organizations, large and small, and contributes heavily to the formalized IT planning and adoption process. The key point brought out in his literature review demonstrated how individual employees feel empowered and motivated by participating at the micro level. The author shows where the effectiveness of micro planning can increase productivity; help achieve objectives, and create a learning perspective (Sahraoui, 2001).

The author used an empirical study to prove two main hypotheses. The first was to look at whether micro planning improved IT planning effectively. The second hypothesis centered on the measurement of increased user intrinsic motivation (Sahraoui, 2001). The author plainly laid out the research design and data collection plan to include using external validation of the measurement scales. Statistical analysis indicated proof of both knowledge and skill and intrinsic motivation played key roles in the IT planning effectiveness (Sahraoui, 2001). Sahraoui concluded that microplanning is very feasible and very viable in the IT planning process. It increases effectiveness due to employee inclusion and increases intrinsic motivation by empowering the same employees participating in the process.

Applying Sahraoui lessons on micro planning and Maccoby's matrix comes in handy when looking at how important Glen (2003) suggests IT workers are to innovation in the workplace. Understanding the characteristics of IT employee puts management on the right road to leading and managing them better. Additionally, previous research has looked at how the use of these skills and additional ones provide the IT leader more influence with the IT worker in the organization.

An IT leader needs certain additional skills to compliment the normal management ones he/she possesses when dealing with those employees working away from the traditional workplace. Some of these include, but not in total, being a mentor, facilitation skills, delegation skills, good communication and collaboration skills. One of the most important skills that a successful team leader needs, especially when he/she is a virtual team leader, is that of being a mentor Kayworth and Leidner (2001/2002). The mentor role places the leader in both a supervisory and teaching role that if accomplished correctly, will allow the virtual team to fully understand its role and reach its fullest potential. As Glen (2003) pointed out, the team leader needs to foster the personality of the team to move towards the "teamwork-collaboration" (Glen, 2003, p. 208) quadrant in the C2 Skills Framework. This mentoring process provides the leader with motivational success on the virtual team, proving that he/she is concerned with virtual employees' training, and their career paths.

However, mentoring the virtual team is but a first step. The IT leader must integrate those traditional workplace employees with the virtual teams. Taylor-Cummings (1998) identified the importance of socialization of the IS workers into work group processes. She posits that it "has the potential to direct the energies of users and IS staff away from defensive behavior and toward effective cooperation" (Taylor-Cummings, 1998, p. 35). Unfortunately, as she described, often the socialization forces a trial and error period of socialization that possibly can attain a "best practices" (Taylor-Cummings, 1998, p. 37) model that can be utilized again. Again, her identification of almost forcing the formal team building process is unavoidable that the IS-user team

must perform. The integration of the two workforces allows this socialization to benefit the entire organization and increase productivity.

The Langer article (2001) is a case study that looked at how to bring about change in a business needing to better integrate IT into the company workplace. As the case study described, past research exhibited that IT was a "special group" (Langer, 2001, p. 100) apart from the main organization. Ravell had IT integration problems and the author brought them out in a logical and persuading manner. Langer explained some everyday concerns that IT workers have with not trusting the non-IT workers. The case study discussed what the past literature spoke of and then laid out the plan, approach, implementation, and lessons learned from the experience (Langer, 2001).

Langer (2001) also explained how he went about the implementation of the corrective actions used to put the new plan in place. He identified problems on both sides and gave open and frank examples of both the successes and failures during the case study. It supported the discussion Glen (2003) of employees' abilities. Langer annotated many of the typical fears talked about in Glen's text. He had to obtain buy-in to make it succeed but to build that trust he needed help. His main conclusion is defensible because "the success of the learning organization will depend on the amount of cross-fertilization of values and the ability of the community to combine concepts and belief to form new hybrid cultures" (Langer, 2001, p. 111). Next, this paper will look at how the “armed” IT leader can deal with special challenges posed by a dispersed workforce.

In Venkatesh’s (1999) article on motivation assisting IT adoption, he utilized an empirical study to assess user motivation to new technology. He studied the use of intrinsic motivation as the determining factor and actually used two studies to assess how

useful intrinsic motivation in training could increase adoption rates of technology. His literature review and discussion of the "Technology Acceptance Model (TAM)" (Venkatesh, 1999, p. 240) was instrumental in developing the theory behind user acceptance of new technology.

The authors utilized two empirical surveys to assess motivation. They developed seven (7) hypotheses surrounding the development of motivation in training for technology adoption. The two studies centered on the use of a traditional training model for one study and a game-based training model for the second study. Both assessed the seven hypotheses and then concluded that the empirical results proved that the game-based results would show "a higher acceptance or adoption of the new system by users" (Venkatesh, 1999, p. 253). They concluded therefore that the users acted more favorable toward the new technology than from the traditional based training format.

Growing IT Trends in Qualitative Research

The last area of emphasis in this study is to provide insight into current trends in qualitative research and how it can contribute to information technology research. This study's last research question looks at how a qualitative study into technology innovation and diffusion can give some of the local companies a competitive advantage within their business sector while confirming an expansion of information technology research from quantitative based only to a broadening of the qualitative realm.

Why concentrate on conducting qualitative research in this field? Alavi (1992) described, "48.8% of total articles researched were empirical articles with 33.4% of those field studies and 9.1% being case studies" .This dissertation study will be a combination of the two. In the analysis of the information systems articles, Alavi revealed a "total of

679 articles were looked at with 55% or 376 articles practitioner-oriented". Qualitative research can serve as a fundamental starting point for strategic information systems planning (SISP). It provides for the practitioner and academic community to help assess where competitive advantage might lie for certain organizations and markets. This study looks at some practical applications of qualitative research's effect on the strategic management process within organizations. A review of the methodology looks at prevailing research examples of the strengths and weaknesses.

Strategy, as defined, is the pattern or plan that integrates an organization's major goals, policies, and action sequences into a cohesive whole. A well-formulated strategy helps to marshal and allocate an organization's resources into a unique and viable posture based on its relative internal competencies and shortcomings, anticipated changes in the environment and contingent moves by intelligent opponents (Mintzberg and Quinn, 1996). Strategic planning takes place in formal settings or in informal ones (Kaplan, 2003). The key is to get the right people together at the right place at the right time in the right frame of mind ready and willing to be frank and open about issues needing discussion. This parallels Lesson number 4 from Laartz in that utilization of current assets and resources (people are resources too) are key to coming up with a good solid infrastructure. As Kaplan (2003) posits, the individuals involved have to be willing to challenge and learn from one another (Kaplan, 2003) in order for progress to be made.

Michael Porter is well known as a researcher in strategy and competitive advantage and in 1985 first began to discuss the importance of information technology and how IT was changing the face of corporate organizations. Initially, he looked at the importance of IT in organizations and developed a framework for analyzing its

significant impact. IT can give an organization the competitive advantage by “lowering cost, enhancing differentiation, changing the competitive scope and spawning new business” (Porter, 1985, p. 157-158). Since past and current research methodologies targeted only those IT areas empirically proven, there was a gap in the qualitative research of IT. Both methodologies bring great flexibility to research in this area, but as IT research expands, and especially qualitative research, the more subjective area of strategic IT competitive advantage topic areas lend themselves to an increase in the qualitative methods. As he discusses, companies evaluate IT assets and resources to give them competitive advantage (Porter, 1985) over their competition and this strategic process often vacillates between both quantitative and qualitative research areas.

Research methodology and the analysis it provides both in the intellectual and practitioner areas must be useful. It must contain that targeted information which gives the organization the competitive advantage. Porter (1979, 1996) provides the rational application of the methodologies. Porter (1996) compares strategy as a tool for management and how he developed a Five Forces Model (Porter, 1979) which showcased how an industry can affect an organization. In his article, Porter (1996) compares strategy and operational effectiveness as tool for management in an organization. An organization must blend the two stances he takes into one concerted strategic plan. The organization cannot compete if it does not continually assess its competition and seek to perform better than their rival does.

Porter discusses how trade-offs arise from "limits on coordination and control" (Porter, 1996, p. 69). The trade-offs the organization uses reflect the current strategic plans. By placing any organization’s IT resources in Porter's Five Forces Model for

strategic analysis, many external influences identify themselves. Michael Porter's framework (1979) works at the strategic level. He termed the five forces "rivalry, buyer power, supplier power, threat of substitutes, and threats to or barriers to entry" (Porter, 1979, p. 34) and as the "key to growth-even survival when competing head to head with competition" (Porter, 1979). By using these five forces to analyze their competitive environment, an IT organization or any corporate entity seeking competitive advantage can better compete by understanding the forces behind their competitive market. As Zahra discusses, competitive analysis is "the process by which a company attempts to define and understand its industry, identify its competitors, determine strengths and weaknesses of its rivals, and anticipates the rivals' moves" (Zahra, 1993, p. 8). In order to implement the strategy of a company or organization, one must scrutinize and modify the competitive analysis of any firm's competition. The five forces model contributes greatly to this analysis as it looks to the competition in all of the key areas of the model.

Qualitative research must document current trends and analyzes that assist in the development of competitive advantage by IT organizations over its competition to remain first in their market. Research by educational organizations and scholar-practitioners provide the targeted information that organizations must use to be competitive. Nevertheless, the research must be timely and accurate for it to be beneficial. Stalk (1988) discusses time as the next key ingredient to facilitate competitive advantage in a company. He posits that by managing time in three key areas – production, new product development, and sales and distribution will promote competitive advantage for the company. The management of time in today's corporate environment, including the

quick responses from Internet driven web sites, has to remain flexible and be able to respond quickly (Stalk, 1988).

Thus, the use of qualitative research continues to provide an expansion of IT research. Identifying some of the strengths of qualitative research are theoretical knowledge based on “constructivist perspectives, social and historical information, and uses open-ended collection of data” (Creswell, 2003, p. 18). It will consist usually of a single concept and relates to the study of the context or setting of the participants (Creswell, 2003). Data gathered and interpreted through qualitative research creates change or reform (Creswell, 2003). Miles and Huberman (1994) list some formats that good qualitative reports can follow. They are "variable versus case-oriented, categorizing versus contextualizing, analytical versus synthetic, etic versus emic, variance theory versus process theory"(Miles & Huberman, 1994, p. 301).

Known qualitative research weaknesses are particular topics weak in generalizability, bias, reliability and validity in data results (Miles & Huberman, 1994). Weak qualitative analysis can also provide “theory that is very rich in detail, but lacks the simplicity of overall perspective” "(Miles & Huberman, 1994, p. 30). Failing to make the linkage to previous literature and empirical studies in a good, foundational theoretical result weakens the applicability of the qualitative research "(Miles & Huberman, 1994).

The remedy for these research weaknesses is diversity in research methods. Historically, quantitative research in organizational and information technology research dominated the literature published in research methodology (Podsakoff, 1987). Podsakoff (1987) reviewed the publication efforts in organizations and concluded that a hesitancy in the traditional researchers to change their methods to try to push the edge of

new research. Traditional research methods were used repeatedly due to the "resistance to change" (Podsakoff, 1987) seeking new ways to conduct research.

Diversity in research is simply not reverting to quantitative methodologies as traditional research demonstrated but rather to diversify into qualitative areas as well. Robey (1996) discussed diversity in research methodologies is occurring from a push from the publication outlets looking for a broader topic base. This emphasis hopes to put IT research on a more level playing field with other disciplines. Robey stated how this "promise of diversity" (Robey, 1996, p. 403) would strengthen the IT research field due to not trying to meet other disciplines' expectations, but to address the increasing number of theoretical and empirical issues facing the IT research arena.

Additionally, Benbasat and Weber (1996) echoed this position also. They believed diversity in research methodologies justified their claims in three reasons. The three reasons were: "1) a greater diversity, 2) quality of diverse topics are increasing, especially in the areas of validity, and 3) there is an increase in the use of the reference disciplines in the information systems/technology research" (Benbasat & Weber, 1996, p. 391-392). This higher expectation of validity in research comes from a traditional emphasis of empirically based research. Identification of personal biases can, as Crossan describes, reflect that the "researcher's experience, understanding of philosophy, and personal beliefs may also have bearing" (Crossan, 2003) on the studied research.

Crossan's research (2003) identified four areas to consider. They are the philosophical paradigm and goal of the research, the nature of the phenomenon of interest, the level and nature of the research questions, and practical considerations related to the research environment (Crossan, 2003). These areas show that there is a

battle between methodologies. This battle centers on the positivism and non-positivism movements. Many researchers in the technology field believe that positivism is a quantitative approach to investigating hypotheses (Crossan, 2003). Positivism, as defined, is "a general law-like statement relating abstract concepts; nominal and operational definitions of terms; formal language such as logic or mathematics used to express laws; derivation of hypotheses; relations among variables; and statistical analysis" (Gartrell, 2002). Onweugbuzie (2002) annotates some past positivism research and its influence on the quantitative versus qualitative debate.

Historically quantitative researchers love positivism and qualitative researchers hate it. It supports the hard empirical evidence, as this researcher needs, that can be objectively verified (Onweugbuzie, 2002). It depends upon and uses mathematics and statistical analysis to help to explain and predict outcomes (Onweugbuzie, 2002). Qualitative analysis does also. Onweugbuzie goes further by showing how developed research combines this effort and is becoming more dominant in IT research efforts. In the 1960's these individuals called themselves pragmatists (Onweugbuzie, 2002) and based their viewpoints on the necessity of bringing the subjective and objective views together empirically (Onweugbuzie, 2002).

Now that this paper identified how qualitative research, despite the known strengths and weaknesses, can assist in the strategic planning process of an organization, the next section will identify some ways to apply the research. Past literature is full of examples of how to use these methodologies to obtain and maintain competitive advantage.

Developing a focus for IT research will entail a good synthesis by the researcher to understand not only SISP, but also the strengths and weaknesses of the two methodologies discussed in this paper. Which method is the correct one to use? Scandura (Scandura, 2000) discusses a possible framework to begin useful research. He identified research strategies utilized recently in the information technology field. They are "formal theory, sample surveys, lab experiments, field studies, field experiments, and computer simulations" (Scandura, 2000).

Two good research articles provide researchers with a good understanding of a theoretical framework to shape IS strategy. Articles by Hirscheim and Sabherwal (2001) and Chan, Huff, Barclay, and Copeland (1997) articles which went a lot further by providing in depth statistical analysis of the IS alignment and strategy with honest opinion about where additional statistical work and validity for IS strategy can take place.

Chan, et al.'s (1997) approach to reach their audience was more in tradition with the scholar-practitioner. They did this by looking at the conceptual linkages by developing useable survey instruments for measurements. They pointed out that past research exhibited the linkages but no firm evidence or instruments to help measure them. Their concept was to develop a model based on the systems approach that looked at how IS strategies affected IS effectiveness at the firm level (Chan, et al., 1997).

Hirschheim and Sabherwal (2001) developed a qualitative case study of three firms over a decade and looked at the independent variable of strategic alignment against the dependent variables of IS roles, IS sourcing, and IS structure. Their intended audience was the researchers and theorist, not the practitioners. Their intent was to utilize their

interview questions to help classify where the firm was while developing categories of strategic alignment (Hirschheim & Sabherwal, 2001).

The answer as to which research methodology might be the best one to use lies in what Laartz stated in that the research must definitely meet "numbers 1 (Define a long-term plan) and 4 (make the most of what you have)' (Laartz, Sonderegger, & Vinckier, 2000, pp. 121-125). If it is good, sound, has a simple plan with obtainable data, and is applicable to strategic planning in the organization, mold the methodology to fit.

The question then arises: how best to capture the data gathered in response to the research. The conceptual framework and the proposed research model will use matrices to help document and classify the data responses. Why use matrices? As Chan (2000) discusses, "despite the call for hard measures of economic impact, the value of IT may not be fully understood without incorporating, at some point, qualitative, individual, and group-level measures" (Chan, 2000, p. 228-229). This move towards qualitative research in information technology demonstrates the need for tools such as the matrix format. The matrix will enable this researcher to meticulously document and record data results in an organized manner that will identify conclusions in a ready format. Her analysis revealed the concentration of research differences and their implications on information technology research. She also discussed some future research implications for a researcher to be aware of such as the use of reference disciplines and the need to be aware of pre-research assumptions, beliefs and paradigms (Chan, 2000). Podsakoff (1987) helped provide methods utilized in research publications and showing where emphasis in knowledge creation is going. Analysis shows information technology research becoming more of a mature field and that the future of information technology

research must be in areas that are audacious in scope and seeking publication outlets that reflect these new fields. The two types of matrices the dissertation will use are a role-oriented data display matrix and a partially ordered cross display matrix (Miles & Huberman, 1994).

Miles and Huberman's discussion of the "role-oriented" matrix (Miles & Huberman, 1994, p. 122) was the closest model accurately reflecting how to record observations from the research documenting the complex influence economic development plays in west central Georgia. The matrix can determine how each "actor's role" in the setting – in this case their role in assessing, determining, and influencing information technology plays in economic development (Miles & Huberman, 1994). The reason for using a "role-oriented matrix" (Miles & Huberman, 1994, p. 122) is because this researcher believes it more accurately reflects the dissertation topic pertaining to the impact of information technology on economic development in west central Georgia. This matrix reflects the key players (participants) and their influence. The participants here are directly involved in the decisions and application of information technology in the region.

The most challenging aspect of developing this data display was deciding how important the measurement questions were to supporting the research questions. Reflection on the importance of each participant's role (University, City/State/Public, Private Businesses, and Economic Development Entities) determined the measurement questions needed to be in the matrix for the initial inclusion of data gathering. The key here was determining how to include only those role's that influence the decisions the dissertation will look at (Miles & Huberman, 1994, p. 123).

The next type of matrix this researcher will use to document the data gathered in the research is a partially ordered cross display. Partially ordered displays are used when the researcher is trying to explain what the general setting of the research is like and partially orders the results on a case-by-case analysis for further introspection and analysis (Miles & Huberman, 1994). Case-ordered displays are effective tools because they look at individual cases but place them in a rigid order to best analyze them against certain prevalent variables (Miles & Huberman, 1994). This researcher expects the individual cases to help explain the general setting of the research questions. The best format for this would be a matrix based on the measurement questions from the dissertation topic.

Research literature has demonstrated that qualitative research in IT would probably be one of mixed between case-oriented and variable strategy (Miles & Huberman, 1994). This allows for any adjustments needed in qualitative analysis and could even swing the case-display one way or the other based on how the similar case findings dictate themselves. The partially ordered display would provide a more valid representation of the individual cases by not limiting them. It would also add to the ability of the dissertation to add to its generalizability in its findings (Miles & Huberman, 1994). The strategy is to increase generalizability of the findings and to study "what is" (Huberman & Miles, 2002, p. 180). By using cross-case analysis in the literature review, this researcher will seek to find similar variables and results to this dissertation topic. Cross-case analysis of qualitative research is to "enhance generalizability and deepen understanding and explanation"(Miles & Huberman, 1994, p. 173). By attempting to increase the generalizability of the topic, this researcher hopes to increase the validity of

the findings. The plan is to research and analyze what the impact is, not what it will be. That area lends itself to further research.

This researcher decided to use a case study design methodology approach because as Yin points out, a case study is "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 1994, p. 13). The contemporary phenomenon in this instance is the impact or lack of impact that information technology plays in economic development in west central Georgia – a combination of rural and urban economies. As Yin (1994) describes in his book, the design of research is to have a "logical plan for getting from here to there" (Yin, 1994, p. 20). He gives four reasons to do the research. They are "what questions to study, what data are relevant, what data to collect, and how to analyze the results" (Yin, 1994, p. 21 and Philliber, Schwab, & Samsloss, 1980).

They are as follows:

1. questions dealing with technological impact on economic development (what to study)
2. data showing increases or decreases in development due to technology (what data are relevant)
3. answers to interviews and small quantitative supporting statistics based on the interviews (what data to collect)
4. writing a good report showing how the data relates to the research questions (how to analyze the results)

The rationale that the case is "representative or typical" (Yin, 1994, p. 41) is the one that fits this dissertation best. The objective is to obtain all the reasons and data that

contribute to the impact information technology has on a particular business institution – economic development. The single case study design works best in this case.

Assessment of Current Literature

There are many examples in the literature that provide critical success factors in information technology. Some are documented in past studies and others are implied. Although this review has examined not only critical success factors, other studies in the diffusion and innovation of technology and IT motivational methods have not been reviewed in depth in their application and influence in the strategic success of organizations. Much of the research documents some traditional factors yet does leave room for the assessment of additional ones. Qualitative research into the analysis of some other factors can add to their importance for the organizations. The findings of the present literature review will assist this study in perhaps providing the inclusion of additional critical success factors by identifying and assessing their importance within information technology planning and importance.

CHAPTER 3. METHODOLOGY

The purpose of this study is to examine some organizational information technology (IT) critical success factors and their impact on economic development on west central Georgia. Because of the prior research, this researcher will develop research questions centered on roles for Columbus State University and local public and private entities in the practical application of information technology by assisting economic development within the region. This study intends to illustrate recent increases in technology utilization in the west central Georgia area.

Research questions

As Cooper and Schindler (2003) discuss, research conducted should have a purpose or direction to it. To better develop that purpose and narrow the scope, Cooper and Schindler developed a research question hierarchy containing six basic steps. They include the management dilemma, the management question, development of several research questions, and development of investigative questions for support, development of measurement questions to help validate findings, and management decision or research findings (Cooper & Schindler, p. 66). This hierarchy is a good developmental systematic walk-through to help develop a research topic.

The management hierarchy provides the framework for the following research questions:

1. What are the strategic information system critical success factors companies use for their strategic plan to assist in facilitating economic growth in west central Georgia (Laartz et al, 2000) (Sabherwal & Chan, 2001)? (Research Question 1)

2. How do local companies take advantage of corporate innovation and technology transfer success factors (Jeffery, 2004)? (Research Question 2)
3. What success factors of motivating the technology worker do the local companies utilize to keep turnover rate low in the organizations? (Research Question 3)
4. How technology innovation and the diffusion of innovation give these companies competitive advantage within their business sector? (Peffers & Saarinen, 2002) (Research Question 4)

Phase 2 of the methodology consists of the Administrative, Target, and Classification questions (Cooper & Schindler, 2003) which will provide a narrower focus for the case study research. These qualitative questions are part of the Target Questions identified in Phase 2 (Cooper & Schindler, 2003). The answers will provide some basis for the more open-ended interview questions asked of the respondents.

Research Design

The research approach chosen for this dissertation study utilized a case study methodology of qualitative analysis. The literature review provides comparative success factors in technology companies of similar organizations. Upon identification of some of these factors, this research intends to structure interview questions and if necessary, follow on possible quantitative research to collect any additional data needed from local companies. Since this phase of data collection will be sequential, there will first be qualitative interviews. These interviews will be the basis for determining any need for follow on quantitative questions.

Prior to the issuance of the qualitative interviews, this researcher expects to have an outside validation of the interview responses conducted to remove this researcher's bias in the responses. The qualitative survey instrument will be used to validate the research questions in this study. The main research questions will provide insight into how the participating companies use information technology and whether they are using critical success factors that assist in promoting economic development. The study will analyze the technology impact in a number of local communities and governmental entities. By providing measure of these variables, the researcher distances validity and ethical questions in study results. Ethics and the ethical research standards conducted are increasingly becoming important factors in research of any kind (Rosnow, 1997 and APA Ethics, 2003). Rosnow explains (1997, p. 347) how "the new researcher must have a forward-looking orientation that can anticipate ethical and technical conflicts, and constructive, problem-solving approaches when confronted with obstacles and dilemmas".

Sample

The target population for this study consists of all non-agricultural public private and non-profit organizations in the west central Georgia area. The intent of this study is to generalize the results of the participants to reflect the region.

The type of sampling plan this study uses is a purposeful sample which will provide a more in-depth understanding of any local IT critical success factors. The relevant population for this study will be a representative cross section of businesses representing both manufacturing and service providers in the Columbus, Georgia and west central Georgia metropolitan statistical area (MSA). This justification for this

sampling of organizations mirrors the state of Georgia department of labor industry breakdown for the area (Columbus MSA, 2007).

These participating organizations come from two main non-agricultural sectors in the west central Georgia area. The sectors were chosen to reflect a cross-section reflective of the Georgia Department of Labor's Columbus, Georgia MSA non-agricultural employment statistics (Columbus MSA, 2007). In the manufacturing sector, organizations were broken down into durable manufacturing and non-durable manufacturing companies. In the service sector, the breakdown resulted in seven sub sectors to include financial sector, banking, commercial, business services, and medical services, governmental and other services.

This researcher will be the individual to initiate contact for all interviews. It will begin with a letter to the appropriate leadership within the sampled organizations in the area that have a dominant IT infrastructure. Contact will be followed up with contact through a combination of telephone and in person contacts in order to set up the in-person interviews. During the conduct of the interview, each interview will be tape recorded with notes annotated on the interview instrument.

Setting

The interview questions are ones to ask in a relaxed organizational setting with participants from various economic development and public-private organizations. Organizations selected accurately reflect the industry types the Georgia Department of Labor's breakdown of nonagricultural industries for the Columbus, Georgia Metropolitan Statistical Area (MSA). There are no perceived risks to participants in the execution of this study. Participants are asked to respond to a series of interview questions on their

organization. Risks are considered minimal. Each participant's organization will have access to the resulting data and analysis for their own planning and strategic purposes for use with their information technology strategic planning. There will be no direct compensation, inducements, or rewards for participation in this case study.

Instrumentation

The instrument will be developed and validated for this study. It will originate from the development of the research questions and contain a series of open-ended questions that directly address each of the four main research questions along with supporting sub-research questions. It will contain some measurement questions supporting the research questions that are purposely for administrative, targeting and qualification of the participants and for the support of the validity of the research instrument. The instrument will be personally administered by this researcher conducting recorded interviews. Since it will be an originally developed instrument, it will be validated with a pilot test interview from a randomly selected sampled of the population.

Prior to the issuance of the qualitative interviews, this researcher expects to have an outside validation of the interview responses conducted to remove this researcher's bias in the responses. The qualitative survey instrument will be used to validate the research questions in this study.

The following are questions utilized in the interviews:

1. Are you a technology company? Ans: Y/N
2. Are you capable of assisting with economic development? Ans: Y/N
3. Which economic sector has the most need for improvement – manufacturing or service? (Open-Ended/Frequency Analysis)

4. What are the strategic information system planning factors your company used in their strategic plan that you believe assisted in facilitating economic growth in west central Georgia? (Research Question) (Open-Ended/Frequency Analysis)
5. How do your information systems provide competitive advantage? (Open-Ended/Frequency Analysis)
6. Is your information systems strategy aligned with business performance? Ans: Y/N
7. What do you think needs to be in place for our local economy to shift from a manufacturing to a service/technology economy? (Open-Ended/Frequency Analysis)
8. How does your company take advantage of corporate innovation and technology transfer success factors? (Research Question) (Open-Ended/Frequency Analysis)
9. What factors do you think local higher education institutions play in supporting the training of new technology employees? (Open-Ended/Frequency Analysis)
10. Do you believe if funding opportunities were available for educational institutions in the development of new curriculum development in support of this regional effort that your company might utilize local educational institutions more? Ans: Y/N
11. Do you know of any of these funding opportunities? (Open-Ended/Frequency Analysis)

12. Does your company perform any analysis identifying under strength technology sectors? Ans: Y/N
13. What steps do you think Columbus State University has accomplished to help in this effort if any? (Open-Ended/Frequency Analysis)
14. What success factors for motivating your technology workers do you utilize to keep turnover rate low in the organizations? (Open-Ended/Frequency Analysis)
15. What particular motivational method(s) do(does) your company utilize? (Open-Ended/Frequency Analysis)
16. Are these motivational method factors limited to management or include regular hour technology workers? (Open-Ended/Frequency Analysis)
17. Are there identifiable IT leader skills replicated in your company? Ans: Y/N
18. Do you think innovation and the adoption process provide your company with competitive advantage? Ans: Y/N
19. Can you elaborate on how technology innovation and the diffusion of innovation give your company competitive advantage within their business sector? (Research Question) (Open-Ended/Frequency Analysis)
20. Do you think IT adoption provides value? Ans: Y/N
21. Which technology areas do the regional companies believe affect them the most? (Open-Ended/Frequency Analysis)

22. If you are able to provide it, what would you estimate is the amount of technology investment your company budgets for on an annual basis? (Open-Ended/Frequency Analysis)

23. Do you think that information technology is growing in the west central Georgia area? Ans; Y/N

Data Collection

This proposal involves the issuance of two data collection instruments. It will be a pilot interview to validate the open-ended interview questions (qualitative Phase 2). Since the management hierarchy helped to determine Phase 1, the research and measurement questions are below:

Phase 2 will consist of the Administrative, Target, and Classification questions (Cooper & Schindler, 2003) which will provide a narrower focus for the case study research. These qualitative questions are part of the Target Questions identified in Phase 2 (Cooper & Schindler, 2003). The answers will provide some basis for the more open-ended interview questions asked of the respondents. Participants will be personally interviewed using the research instrument. Results will be tape recorded and responses taken on the individual research instrument. It is expected to take between 30 and 45 minutes between each participant.

Each participant in this case study, will be be asked to participate in an interview conducted by the researcher. The interview will be audio taped for notes and also consist of a research instrument. The interview will be scheduled at their convenience and will be conducted at a location selected by the participant. Each participant will be allowed to choose to conduct the interview at their place of work.

The results and information from the interview will be transcribed verbatim by the researcher. The participants will be sent a copy of the transcript from their interview to review and confirm its accuracy. If any additional feedback is not provided, that will be considered consent and agreement with the transcribed transcript by the participant.

In order to maintain the confidentiality of the data, only the Capella researcher and his research supervisor will have access to the research data. Appropriate precautions will be taken at all phases of the case study to protect participant privacy and to maintain the confidentiality of the data obtained. These precautions will consist of codes to hide the true identity of the participant. All identifying information will be removed from the data in the electronic and paper formats. Copies of transcripts will be kept and maintained electronically on digital media and in paper format in organized, locked file folders. All identifying information will be removed from the saved transcripts. Once the case study is complete, the digital media and paper information will be kept under lock and key secured in the researcher's location for a minimum of seven years. No original uncoded data will be released to any other party, except the researcher's supervisor, for any reason without participant prior written consent.

Data Analysis

To develop a data display and analysis strategy for the research topic, the current plan is to use open-ended coding (Cooper, 2003) for the qualitative interview questions due to its flexibility and usefulness to help assess and narrow down topics asked during the interview stage. Using content analysis (Cooper, 2003) this researcher plans to use thematic schemes to identify and narrow topics. In the identified research questions, there are currently 13 open-ended measurement questions needed to assist in developing

the final sampling plan. These will be open-ended questions with frequency analysis developed on each determining the final survey instrument questions.

The final survey instrument questions, based on the qualitative interview questions will also have some yes or no single response scale questions based on initial measurement questions developing from the research questions. The survey instrument issued to entities within the region will concern economic development and information technology issues.

The data coding for display will be as follows:

1. Interview questions – open-ended with a frequency analysis performed on the top five response categories with a sixth (6^{th}) one place in for "No Response". There are 13 interview questions directly supporting the research questions and 10 classification interview questions.

2. Final Instrument
    a. Thirteen (13) open-ended questions measured with frequency analysis. The top five responses will be categorized.
    b. Ten (10) true/false response questions. They will be coded as follows:
        i. True – 1
        ii. False– 2

This researcher will utilize SPSS to analyze the primary data gathered and for any secondary literature review data needing to be validated. Open coding such as described by Corbin & Strauss (1990) will provide qualitative data that lends itself to the interpretation of data rather than the summarizing of it. This open coding will be crucial to the narrowing and focusing of final survey instrument questions.

The strategy for the initial qualitative research interview coding will be in alignment with Robson (2002) consisting of an editing approach which will give the flexibility to interpret the results and then narrowly focus follow-on questions for the final survey instrument. The plan is to assign variables within SPSS and assign

ascending codes to them to allow SPSS to assist in determining the initial responses from the qualitative portion of the research. However, the time between the analysis of the qualitative response data and the issuance of the final survey instrument will be crucial to providing valid results. Mitchell's research (Mitchell, 2001) reflects the influence time has on individual research and the alteration of the dependent and independent variables. How time is treated during the planning and execution of the research conducted will reflect whether "theoretical propositions are confirmed or disconfirmed" (Mitchell, 2001).

The time dimension for the topic is currently set for six months. Finally, the research environment (Cooper, 2003, p. 150) will occur under actual environmental conditions in the field (locations of the participants). It is the intent to use exploratory data analysis (Cooper, 2003, p. 486) to give graphical displays, charts and matrices depicting the data results.

Validity and Reliability

Expectations of bias and elimination of bias in qualitative research must be considered. This expectation bases itself on experience working with many of the entities involved that will be participants in the research study. To overcome this research bias, this researcher plans to have an unbiased external source also enter data collected from the qualitative interviews. If there is a conflict between this researcher's coding and the unbiased external source, then a third external source will be asked to enter the data in order to remove any discrepancy. Then this researcher will compare results taken from both. This action will eliminate any threats to the credibility and validity of the qualitative portion of the study. The defining item will be a decision point at which to stop and allowing the initial coding scheme to keep responses within the timeline of the

research. However, to reduce the questions of research bias and any validity issues, this study needs to address a verification strategy, ethical issues expected, and other issues expected to arise during the research.

Miles and Huberman (1994) and Katz (1983) addressed the need for the "four Rs of representativeness, reactivity, reliability, and replicability" (Miles & Huberman, 1994, p. 262) when it came to preparing for a verification strategy in qualitative research. Each of these critical areas examines bias and removes as many validation problems from research. The following areas will become part of this dissertation verification strategy:

1. checking for representativeness
2. checking for researcher effects
3. triangulating
4. weighting the evidence
5. checking the meaning of outliers
6. making If-Then tests
7. getting feedback from informants

These techniques will help to reduce and in some instances remove validation errors on this researcher's behalf. Two very real limitations when dealing with validation of research are as Miles and Huberman (1994) point out as "elite bias and going native" (Miles & Huberman, 1994, p. 263). This researcher works at a regional university and contributes to the economic development efforts in the region. Eliminating bias and increasing validity are key issues to approach in this dissertation.

In checking for representativeness, this researcher must ensure the appropriate economic development entities and businesses and public entities are the appropriate targeted respondents for the interview and survey instruments. If conducted properly, then the responses will be valid and representative. In checking for researcher effects, this geographic area provides the most fragile of influencing efforts. As Miles and Huberman (1994) allude to, the easiest effect here is the influence that the effects of the research will have on the researcher. This researcher cannot let findings influence the analysis at all positively or negatively in the course of the writing of the research findings. Combating this influence will take precedence over other efforts in the verification strategy.

Triangulating efforts by this researcher will focus on the additional use of interviewers in the pilot interview questions and with the parallel coding of responses to questions to ensure validation of the research. Certain economic development entities might need adjusting in the analysis of their responses due to some criteria such as money, time, and business conditions.

As in the development of conclusions, checking the meaning of outliers allows for the identification of those anomalies in the research findings that say, "Hey, this is abnormal, look at me!" When identified, they will probably point to one of two things. Either the data gathering was inaccurate, or the measurement question should change. These findings could define themselves if placed in an "If-Then test" (Miles & Huberman, 1994). This test could show how the relationship is either positive or negative based on the variable or hypotheses looked at. The final technique that will provide validation for the research will of course be getting feedback from informants

(Miles & Huberman, 1994). This researcher expects to develop a possible post-survey instrument to submit to a sample of the research population that seemed positive in their participatative effort. Since the participants will be part of the research, they will have their own opinions as to whether the research effort was useful and targeted appropriately. Next, some additional limitations become apparent.

Ethical Considerations

Ethics and the ethical research standards conducted are increasingly becoming important factors in research of any kind (Rosnow, 1997 and APA Ethics, 2003). Rosnow explains (1997, p. 347) how "the new researcher must have a forward-looking orientation that can anticipate ethical and technical conflicts, and constructive, problem-solving approaches when confronted with obstacles and dilemmas". Creswell (Creswell, 1997) identifies four areas that a qualitative researcher should be aware. They are:

1. protecting the anonymity of the informants
2. disclosing (or not) the purpose of the research
3. deciding whether (or how) to use information "shared off the record" in an interview in a case study
4. determining whether the researcher should share personal experiences(Creswell, 1997, p. 132)

Each of theses four areas are concerned with current ethical issues dealing with qualitative research. The American Psychological Association supports these areas and is critical to proper development and validation of research in many areas. These areas can reflect the attitude of the research and yet protect the anonymity of the participants (Creswell, 1997). This dissertation is a practical one that will identify areas that all

entities participating in the research can use in furthering economic development in the area. If one entity benefits from the research, all businesses and entities benefit. However, the qualitative instrument must not forget about other issues, features, and failings of the research.

This qualitative dissertation must address key ethical issues. They are worthiness of the project, informed consent, benefits and costs and reciprocity, honesty and trust, privacy, research integrity and quality, ownership of data results, and use of results (Miles & Huberman, 1994). To ensure ethical treatment of the research topic and the gathered data, independent consideration is required.

A qualitative study followed the case study methodology that provided a measure of these variables permitted the researcher the ability to distance validity and ethical questions in study results. Ethics and the ethical research standards conducted are increasingly becoming important factors in research of any kind (Rosnow, 1997 and APA Ethics, 2003). Rosnow explains (1997, p. 347) how "the new researcher must have a forward-looking orientation that anticipates ethical and technical conflicts, and constructive, problem-solving approaches when confronted with obstacles and dilemmas".

Additionally, when interviewing participants, areas of confidentiality, privacy and anonymity of data are concerns for both the researcher and for the participants. This researcher will be the sole possessor of data collected and will maintain the confidentiality of the data under lock and key in the researcher's office. Original participant responses, recordings and transcribed data will be stored under secure access for a minimal period of seven (7) years and then destroyed. All digitized responses and

coding will be password encrypted. Only this researcher, this dissertation committee, and Capella University will have access to this research data. Each participant will be assigned a control number that only this research will know which control number is assigned to which organization. The control number document will be password encrypted and kept in a controlled file under lock and key. By taking these aforementioned measures this study will reduce and possibly eliminate any validity, reliability and ethical problem issues.

CHAPTER 4. DATA COLLECTION AND ANALYSIS

Introduction

Organizations are increasingly utilizing information technology in their organizational strategic planning. This case study examined how some organizations utilize information technology (IT) critical success factors while others do not realize their use and impact on organizations and thus impact on economic development in West Central Georgia. As the organizations were interviewed, an assessment of their understanding of under strength technology sectors was gained. Understanding that the organizations utilize these critical success factors in their strategic planning shows the increasing dependency and planning on the use of information technology to gain a competitive advantage in the marketplace. In the West Central Georgia area, the increasing expansion of small and larger organizations that rely on the use of information technology affects the local economy and helps promote economic development in the region. This research explains how each participant utilizes the factors in strategic planning and where applicable, how utilizing the success factors assists new organizations that move into the area. Leaders in local organizations must understand the importance of strategic information technology planning. They must also understand its impact to not only the organization but also other ones in the region.

This study investigates four main areas in the research. The first area assessed identified strategic information technology planning factors. The second area this study looked at was whether there have been any intrinsic motivational methods used to assist the new technology workers in this changing economy. Do some of the local organizations follow some of the current research concerning intrinsic motivation of the

information technology (IT) worker? The third area this study researched was to discover if some of those critical IT success factors are instrumental on organizational strategic planning. The fourth area identified the importance of the growing trend in qualitative research within the information technology field.

Chapter 4 is divided in two parts for the presentation and analysis of the data. First, the interview instrument explained how the process was developed and tested and how the participants were located and interviewed. Following this is a detailed explanation of the thematic findings that supported the research questions.

This research study targeted those responsible individuals in the organizations, which are the key knowledge holders for IT impact within their organizations. It hoped to answer whether there was any identification of IT critical success factors in west central Georgia in order to affect economic growth. Since current regional economic and technology partnerships are striving to strengthen the economic future of the region, this current analysis of critical success factors will assist in future decision making where applicable. In this study, the focus will be in identifying those information critical success factors in the organizations that will possibly answer the research questions. The research questions explored four main areas:

1. What are the strategic information system planning factors companies' use for their strategic plan to assist in facilitating economic growth in west central Georgia?
2. How can local companies take advantage of corporate innovation and technology transfer success factors?

3. What success factors of motivating the technology worker do the local companies utilize to keep turnover rate low in the organizations?
4. How can qualitative research into technology innovation and the diffusion of innovation give these companies competitive advantage within their business sector?

Pilot Study

A pilot study tested and evaluated the interview instrument (Appendix B). A pilot participant from a local information technology organization volunteered to assist in this research. After explaining the purpose of the case study and the protocol for the interview, the individual and this researcher conducted the interview. It took approximately 45 minutes to complete the questions and answering process to include the recording of the respondent's answers on the answer sheet (Appendix B). The pilot participant discussed how the layout of the interview question flow seemed logical and supported the study's purpose. This researcher explained questions four, eight, fourteen, and nineteen to the participant prior to his answering them. These particular questions support the four research questions for the case study.

A short discussion followed the end of the interview where the pilot participant supported the need for this transitional explanation of the next phase of questions. This transitional phase in the pilot interview was a key interview technique that allowed this researcher to remain impartial in the respondent's answers. The pilot participant agreed. The pilot participant was worried that a negative or "no" answer for certain questions would invalidate the study and not help this study. During the pilot interview, this researcher explained at the time for the pilot respondent to just go ahead and respond, as

best as possible and explanation of the question would follow. This comment prevented any bias from entering the responses. Afterwards during the discussion, this researcher explained the case study goal was to find out if a negative response was dominant and addressable. The pilot respondent then fully understood. He recommended that if later respondents asked the same questions with a negative answer that this researcher respond in a like manner to keep from influencing them. This researcher agreed to accept that input.

The pilot participant also agreed that the open-ended interview questions (questions 3-5, 7-9, 11, 13-16, 19, 21-22) did require further open-ended answers to explain the uniqueness of his organization's application of information technology. The pilot participant did provide additional feedback on question number 22, which addresses the amount of organizational information technology investment. He suggested that it might be difficult to get all participants to agree to answer that question. Overall, the pilot participant felt comfortable answering all of the questions and felt his comments contributed to the instrument's validation.

Locating Participants

In this research, thirty five west central Georgia organizations meeting the seven industry sector criteria were contacted to participate in the case study. All organizations are physically within the Columbus MSA and are currently in full operation. The total number of organizations agreeing to participate in the cases study was twelve (12). The interview time period for the organizations took two months. The targeted population for the research consisted of all non-agricultural public private and non-profit organizations in west central Georgia with the intent to be able to generalize result findings. The cross

section of businesses represented both manufacturing and service providers in the metropolitan statistical area (MSA) and mirrored the state of Georgia department of labor industry breakdown for the area (Columbus MSA, 2007). In the manufacturing sector, organizations were broken down into durable manufacturing and non-durable manufacturing companies. In the service sector, the breakdown resulted in seven sub sectors to include financial sector, banking, commercial, business services, and medical services, governmental and other services.

Initial contact by this researcher was a telephone call to the responsible individuals in the organization to set up initial interview times and locations. After agreeing upon an appointment time, this researcher was the responsible party to conduct the in person interview. Since the initial plan was to tape record the participants responses to the interview questions, all participants declined to use the tape recorder. This action eliminated the need for a second coder however the individual still assisted in the entering of the data results. Each participant received a set of interview questions, the informed consent, and an answer sheet corresponding to the interview questions. Since each participant possessed an informed consent document, this researcher discussed it with them to ensure the confidentiality and safekeeping of their responses. All participants elected to sign the informed consent. Next, each participant was to determine a random number of their choosing between one (1) and thirty-five (35) in order to assign a number to their response form and question instrument. This is the only identification those instruments have on them to ensure anonymity for the participants. The number selected by the participant was logged on a master participant list to be retained by this researcher separate from the response files for a period of seven (7) years.

The protocol called for the conducting of the interviews with the responsible parties at their organization responsible for input in information technology planning and assistance for the organizational strategic planning. This researcher selected these participants because they met the criteria of working in that particular job position, had the organizational experience to answer strategic questions, and understood the strategic organizational goals for their respective organizations. These individuals did not have specific responsibility for approving/disapproving external economic assistance coming from the organization rather did they understand the impact that information technology played in their strategic planning and its role in making their organization competitive. The interview questions were set up to identify whether the organization was a technology company or not, and then to assess any critical success factors the individuals associated with their company.

Interview approach

Upon arriving at the appointed interview, each participant received an explanation of the case study propositions and then each one signed the Informed Consent. Next, each participant selected the random number to associate with his or her responses for cataloging of the information and responses while maintaining anonymity. Once complete, the response form (Appendix B), annotated with the random number, the interview began. While answering each question, respondents had the opportunity to explain their answers after annotating the response form. Appendix C contains a generically identified listing of the participants categorized by service industry sector. Based upon the feedback from the pilot interview participant, it was expected to see few if any of the participants desiring to be tape-recorded during the interview. However, all

were given the opportunity to do so and consent to do so was addressed in the informed consent document they signed.

Breakdown of the Instrument

The interview instrument begins with two identification questions of whether the organization is a technology company and then whether the company is capable of assisting in providing economic development assistance. As companies in west central Georgia become more dependent on strategic IT planning, some play a larger role in assisting economic development than other organizations do. The first two questions only help identify whether this is a strategic objective for them. In particular, question 1 relates directly to question number 12 and assists in determining whether the company can or does technology sector analysis in the scope of their business processes. Questions five through seven support research question one (Interview question # 4) as to the identification and annotation of strategic IT critical success factors. Questions nine to thirteen support research question number two (Interview question # 8), in addressing factors pertaining to corporate innovation and technology transfer. Questions fifteen to seventeen support research question number three (Interview question # 14). They help to assess whether the organization uses any motivational success factors in dealing with their technology employees. Finally, questions twenty to twenty-three support research question number 4 (Interview question # 19) in assessing whether the participant's organization demonstrates the innovation and diffusion of technology in order to gain a competitive advantage within its business sector.

Demographics of the Participants

Table 1 below displays the organizational demographics of the participating companies. The generic company identifier protects the company's confidentiality. The next column in the table shows the particular type of job position type the employee interviewed holds. The third column designates whether the company is a technology company and the final column displays the company's industry sector. Of the contacted companies for this study, all twelve respondents were responsible for their strategic planning teams.

Table 1

Respondent organizational demographics

Company	Employee Type	Tech Company	Industry Sector
Company A	Executive Dir	No	Government
Company C	CIO	No	Government
Company D	IT Manager	No	Financial Services
Company E	CIO	No	Government
Company F	IT Manager	No	Medical Services
Company G	IT Manager	No	Non-Durable Mfg
Company H	IT Manager	No	Financial Services
Company I	VP IT	No	Other Service
Company J	IT Manager	No	Medical Services
Company L	IT Manager	No	Retail
Company M	IT Manager	No	Business Services
Company N	IT Manager	No	Medical Services

Conducting Interviews

During the conduct of the interviews, each participant selected an interview location. Of the fourteen respondents, two chose to conduct the interview in their company's conference room to avoid any interruption. Two other respondents chose to take the instrument back to their office and conduct the interview over the phone due to scheduling conflict. These two participants then conducted the interview question by question over the phone replicating the procedure used during the other face-to-face interviews. The conduct of the interviews took place during the normal workweek and during both this researcher and the respondent's normal workday. Having only met four of the participants prior to the interview, it was the consensus of the participants that each felt relaxed, comfortable and willing to participate without any reservations. The other twenty-one identified non-participants would not provide a definitive reason as to their choice to not to participate. As estimated during the pilot interview, all but one of the interviews lasted approximately 45 minutes with the one interview going a full hour in length.

Research Questions and Participant's Answers

Content analysis, as described by Cooper and Schindler (2003) utilizes thematic schemes to identify and narrow topics. In the identified research questions, the 13 open-ended measurement questions needed to assist in developing the analysis of the participant's responses. SPSS will assist in coding for the open-ended responses to help identify statistical evidence of the themes. This section will summarize each of the participant's responses as they pertain to the four main research questions. Next, a discussion of common themes either supporting or not supporting the study's research

questions follows. A generic letter assigned to protect response confidentiality replaced each organization's name. A target sample of participating organizations were randomly assigned company letters prior to the conducting of the interviews so the assigned letters remained with those who responded and any gaps in alphabetical order remained in order to maintain integrity of the responses.

Company A

Company A's participant is the Executive IT Director for his governmental organization. This person has been in the position just two years with his first year as the Interim Executive Director. He was promoted from within the organization and has been instrumental in the strategic IT planning for the entire company for the last five years. The organization is not a technology company but technology is a strategic asset in that they do train technology workers and managers in different training programs. They are a vital regional player in economic development and assist the local government and economic development agencies in recruitment and retention of existing businesses. Their emphasis in IT training and support covers both the service and manufacturing sectors of the region.

Strategic IT Critical Success Factors. The most important strategic CSF for this organization is the strategic assessment and commitment to IT support of all functions for the organization. It covers day-to-day operations, web development, staff training, and training support. It has a somewhat reasonable size staff that is broken down to functionally support these strategic areas. He believes that their commitment to assessing IT needs gives the organization the competitive advantage in their industry sector not only within their state, but regionally also.

Corporate Innovation and Technology Transfer. One of their most important IT CSFs for the organization is their commitment to remaining innovative in their technology support. They have a small section of their IT organization that continually looks at new and innovative technologies while continuing to support day-to-day activities. He feels that this is one of their greatest organizational strengths in that the organization has a dedicated end user/staff training section dedicated to ensure employees know how to use the new technology and can further enhance their IT abilities. He truly believes that the higher educational institutions are key and vital role players in the training of new employees for the regional companies.

Motivational IT Success Factors. The main IT CSF that the organization utilizes for motivating and retaining their employees are with professional development classes. They are constantly providing and budgeting for sending IT employees to industry classes to increase their levels of expertise. In fact, they are encouraged to be leaders in their specialty and are even encouraged to go present at regional industry conferences. He feels that these intrinsic motivational tools are the key to his high retention rates. Since his organization is a governmental one, they cannot give additional performance bonuses but do give annual raises based on performance. However, employees are given credit for and publicly recognized throughout the organization when they are responsible for developing and implementing new technology that adds value to the organization.

Innovation and the Diffusion of Technology. He states that IT innovation is key and vital to his organization's ability to remain competitive in the marketplace. Although the main emphasis is to support the organization, they are required to evaluate newer technologies that will better allow them to perform their jobs. He believes that the more

innovative in technology and technology services they can be the better and more competitive the organization will be. Thus, some of the trained technology and other employees they put out into the workforce will be better prepared to assist in the economic growth of the region.

Company C

Company C's participant is the Chief Information Officer in a governmental organization and is directly responsible for strategic IT planning and implementation for his organization. While he not occupying this particular position long, he felt confident enough to respond to the study's research questions and values his input.

Strategic IT Critical Success Factors. Although Company C is not a technology company, they feel that the service economy in west central Georgia is definitely growing and that they utilize IT critical success factors (CSFs) in their strategic planning and operations. They believe the most important CSFs they use in assisting in economic development growth are the training of 21st century IT skill sets, high speed communication networks, and technology access down to the lowest level possible. They are committed to this diffusion of technology access and robust network infrastructure in order to affect data exchange enabling the creation of knowledge based operations.

Corporate Innovation and Technology Transfer. They take advantage of corporate innovation and technology transfer by utilizing IT Best Practices. They believe the best role higher education can play in training new employees is to supplement the local high school districts in technology teacher preparation and professional development. While they would support a partnership with higher education institutions in curriculum development, they know of no current funding opportunities to facilitate that partnership.

Motivational IT Success Factors. Company C believes that by creating a powerful, engaging IT vision and professional development opportunities create a motivated IT workforce that strives for success. These motivational factors are permeated throughout the IT department but that at this time they consider themselves a "flat organization" and could not assess IT leader skills successfully.

Innovation and the Diffusion of Technology. The company does believe that their commitment to the adoption but feel that the technology areas that affect them the most are the alignment and allocation of staff skills with the organizational goals. A key issue for this company is how to reconcile the need to update legacy technology systems and security issues given the normal struggle to obtain funding to accomplish these updates.

Company D

Company D's participant is an IT Manager in a Financial Services organization in the Columbus, GA area. It is an international company known for its innovativeness in IT and the use of IT as a competitive tool. He seemed confident that the relationship his organization has with the local economy and educational institutions are just one of the reasons his organization is as successful as it is. Although it is not a technology company, they heavily invest and are strategically reliant on information technology. His organization is capable of assisting with and has been very instrumental in the regional economic growth opportunities. It has provided funding towards that effort. He believes that manufacturing has suffered job losses in recent years. This region, according to him, outside of a major automobile manufacturing plant locating here, has no significant manufacturing opportunity growth.

Strategic IT Critical Success Factors. Company D's IT manager agrees that IT is a critical strategic CSF. His company's technology growth is a function of the company's growth. He firmly believes that this 'rising tide' of technology growth is a key reason this region has grown economically. One critical IT CSF for his organization that gives his company competitive advantage is enrollment system software that enables faster sales. Their field force continues to receive priority on IT services that make them even more agile in the marketplace. This IT strategy strictly aligns and supports the company's business performance and has made them a worldwide leader in their industry. He believes that regionally, this economic emphasis needs more highly trained individuals to support the move to a more service based economy.

Corporate Innovation and Technology Transfer. Company D takes advantage of IT innovation with a CSF based on a planning process that involves their business units to identify new technology sectors. He thinks however, that local higher educational institutions play a limited role because there is a small training program for advance and emerging technologies. He thinks there is great room for improvement.

However, he is aware of funding opportunities for local community college opportunities to address this need and his company has traditionally been a strong supporter. At the four-year institutional level, such as at Columbus State University, he does not know of any effort made to address technology innovation.

Motivational IT Success Factors. Company D's manager stated that some traditional motivational factors exist in his company. Performance is the primary success factor that leads their employees to higher salaries, promotions, stability and bonuses. Their main IT CSFs motivate employees via performance based bonuses, merit increases

and job transfers/promotions. The company is highly committed to motivational efforts via training programs. Since these programs are universal for both the salaried and hourly IT employees, he believes that these motivational techniques provide the organization with a competitive advantage.

Innovation and the Diffusion of Technology. He stated that one of the greatest CSFs they utilize for innovation is the enrollment system for clients. Their technology tools continue to advance and thus make their sales and service personnel more responsive to their customers. While he truly believes that technology innovation provides strategic value to their company, it really enables them to be one of the leaders in their industry.

He stresses the focus on web applications, self-service option solutions, and mobile devices are all new and innovative areas that his organization will continue to watch. Their corporate commitment to the diffusion of technology throughout the organization continues to be a strategic asset.

Company E

Company E's participant is the Chief Information Officer for a Governmental organization in the Columbus, GA area. He is the responsible individual for both the strategic and day-to-day operations of all IT in his organization. He has maintains a close relationship with Columbus State University and feels it is a valuable asset for the community. He also stated that he feels the same way about all the local higher educational institutions and their ability to provide a trained workforce for both the public and private sector. He is actively involved in assisting the City of Columbus and

surrounding economic development entities in promoting economic development for the region. He welcomed the opportunity to participate in this study.

Strategic IT Critical Success Factors. Company E is an organization classified in the governmental services industry for the purposes of the Georgia Department of Labor. They believe that the manufacturing sector in the west central Georgia region has had the most need for technology improvement and said during the interview that the local economy has not totally left its dependency on a manufacturing base. They stated that while most of the old textile manufacturing has left the area, newer, smaller manufacturing plants replaced those requiring governmental services.

The most important critical IT CSF Company E utilizes is their commitment to increased customer service through IT and a commitment to providing a high-speed communications network for their employees in order to perform their job functions. The CIO did believe that as he continues to update and revise the strategic plan, he must now consider technology innovation and scalability as it becomes more critical in the success of his organization. To place supporting structures in his organization to support these CSFs, he believes that IT training is becoming increasingly more critical.

Corporate Innovation and Technology Transfer. The organization, by its governmental nature of function, according to the CIO, has to take a reactive stance to technology innovation. It can only internally fund their IT projects and plans through a budgetary process. They do however see educational institutions at all levels playing an increasing role in the initial IT training of the local workforce. The CIO said that if there were funds available for additional curriculum development his organization would seek to take advantage of them. This explanation was based on a past technology training

program that Columbus State University had with two local companies to provide additional IT training for their employees.

Motivational IT Success Factors. The motivational success factors that Company E uses are a traditional benefits plan and professional development opportunities because they are restricted from using other monetary techniques like bonuses. So far, the CIO believes he has been successful with these and has a low turnover rate. However, he also understands that he does lose employees every now and then due to money. These motivational CSFs are used throughout both management and hourly employees and he believes it gives him a competitive advantage with the young IT employee.

Innovation and the Diffusion of Technology. He discussed that to remain innovative at his organization his biggest obstacle is overcoming resistance to change. Do accomplish that he believes that he must convince organizational departments throughout that new information technology considered by his organization needs analysis and determination to be in the best interest of his organization. He stated that to remain innovative in IT he has to utilize some of his motivational CSFs to accomplish this resistance to change. One of the key new areas that affect him the most is telecommunications technology and how he can support it and provide good business services within and external to his company.

Company F

Company F's respondent is the Director of Network Services for a Medical Services organization located in Columbus. He is responsible for the day-to-day IT operations and provides strategic planning input. The organization is a major player in the medical services industry. He alone is responsible to ensure the compliance of day-to-day

and strategic activities for the company. While this organization is not a technology company, it is very heavily dependent on IT and the functional IT systems it has. However, he believes that his organization does indeed assist in regional economic development due to his organization's commitment to the improvement of the quality of life issues regionally needed for other sustained economic growth. He stated that the service sector has the largest room for improvement due to the growing need to develop more service organizations to install newer and more technology in the area.

Strategic IT Critical Success Factors. Strategically, the two main CSFs he states that his company utilized in planning are cost effectiveness and stakeholder input into IT planning needs. In particular, his organization solicits board member input regarding community needs concerning which current and new technologies are available to benefit the organization and their customers. Secondly, by focusing on cost effectiveness, they try to implement systems that will save their patient's lives while providing overall cost savings to the organization. He stated that the cost savings passed onto the customer gives his organization a strategic cost advantage over their competitors.

While he firmly believes that his IS strategy is aligned with the organization's strategic performance, he thinks that as a region we need to have more educational programs to develop students to meet and fill open IT positions in the community. He thus tied it to the next strategic CSF for his company and believed it gave them an innovative advantage.

Corporate Innovation and Technology Transfer. Company F's director believes that his organization's corporate dedication to innovative technology and its transfer is critical and is strategically planned and supported. They perform training development

for their employees when they purchase new technology. In addition, they are members of state and national healthcare educational organizations and believe this innovation provides not only their technology employees, but also their end users of any new technology a competitive advantage that places their organization in the forefront of the region.

The organization believes that a CSF for them is past partnerships with some of the local trade schools in developing programs to help in the training of their employees on new medical technologies such as surgical training courses and other medical technologies. He stated that the organization is fully dedicated to supporting local educational institutions with curriculum development and his organization is one of the few that have past endowments set up to establish these curriculum goals.

Motivational IT Success Factors. The Director stated that in order to motivate his technology employees to remain loyal and stay with the company, he uses an IT market survey, as is a CSF. He performs it in order to identify what the local market is for IT labor and tries to stay competitive with other salaries in his industry. He uses the data to compare salaries in both the managerial and hourly employees' scales. He believes that using this critical comparison allows him and his organization to retain good IT employees.

Innovation and the Diffusion of Technology. He identified an additional CSF for his organization in the area of innovation and diffusion of technology. The organization believes that it is strategically important to plan to invest heavily in new technology systems over the next five years that will enhance and help improve patient care. The organization has been successful utilizing this CSF in their planning and he stated that it

would continue to do so. Whereas he believes that innovations in hardware and software development are the areas to watch, he stated that his organization is postured well to invest in the newer innovative technologies in the medical field that best support their strategic goals.

Company G

Company G's participant is the IT Manager for his Non-Durable Manufacturing company located in Columbus. A rather large local plant is part of a larger national company. However, his responsibilities allowed him to participate in the study and demonstrate how his organization contributes to the local economy. While he does not see his organization as an economic development direct role player, he understands the impact locally his company does play. He believes that the local service sector plays a key role in IT and economic development.

Strategic IT Critical Success Factors. The Manager stated two basic IT CSFs for his organization. The first is the commitment to state of the art technology to assess business needs. The second encompasses strategically planning for the use of the assessed needs to utilize both services and products of the local companies. In support of this commitment, he stated that the organization provides current information to enhance productivity and promotes more timely environmental and production capabilities throughout the organization.

He stated that the local economy is shifting to a service-oriented one. He thinks that locally organizations need to maintain and provide specialized training and working opportunities that specifically point toward making the shift to this technical service economy. Their strategic CSF of not only maintaining and providing current technology

but also strategically anticipating future needs are extremely important to his organization helping to provide the services needed to continue to remain competitive and proactive in his industry sector.

Corporate Innovation and Technology Transfer. He identified an additional IT CSF at his organization as he described their strategic commitment to innovative technology investment in order to gain competitive advantage in his particular industry sector. He stated that this commitment to innovation has allowed them to increase market share in supporting their customer base. He stated that in order to support this CSF for his company, local educational institutions provide a viable resource where some companies cannot provide the training. He believes that higher education better prepares individuals with desirable knowledge for specific business needs. Company G would like to take advantage of more partnerships with higher educational institutions, particularly with grants and other programs but does not know of any current ones available. He believes that Columbus State University in particular could do a better job of accomplishing this partnership effort. He targeted them by suggesting they provide the correct courses and degrees of education in conjunction with the assessed needs of local companies.

Motivational IT Success Factors. Company G's manager believes his IT motivational CSF has been in providing in house training as well as out-sourcing their IT needs when needed. Additionally, he believes that they have been successful in providing long-term career path opportunities within the organization. The organization utilizes merit raises and performance bonus opportunities to increase the retention of their IT employees.

Innovation and the Diffusion of Technology. The manager categorized the success of Company G in regards to innovation and diffusion as critical. In particular, their CSF demonstrates how the organization makes the IT tools available to end users and employees to perform their jobs. A corporate culture fostering growth and current available technologies is prevalent in the IT department. He believes that this commitment to innovation provides his organization value and thinks that the future trends in communication, LAN connectivity, Microsoft applications integration, email and proprietary application development will be the areas for his company to concentrate on remaining innovative.

Company H

Company H's participant is an IT Manager for a Financial Services organization in Columbus. His organization is one of the largest employers in the area and in the Southeast with multiple interests in Financial Services. His responsibilities are strategic in nature and welcomed the opportunity to participate in the study because he felt that not only Columbus State University but also all other educational institutions are critical to the success of the IT workforce in the area. Based on his experience in the Columbus area, he believes that the service sector of the local economy has the most room for IT improvement.

Strategic IT Critical Success Factors. Although Company H is a Financial Services company, it heavily invests in leading edge technology and postures itself to strategically plan utilizing their technology to give them the competitive advantage. He believes that his organization's commitment to emphasize IT success factors in their planning indirectly influences economic development in the area making funds available

for business startups. He stated that the organization resources shared service bureaus and their architecture to tie systems together. However, for the local economy to succeed, he recommends that the area needs to attract visionaries to invest in service businesses and have a larger pool of highly trained IT professionals.

Corporate Innovation and Technology Transfer. According to this IT manager, the company mainly uses industry contacts and relationships with key IT thinkers in the financial services industry to take advantage of the most current innovative technology. He stated that the local educational institutions could support these CSFs at the companies by developing training programs designed specifically for the specific IT needs as in the use of IT cooperative working students. He stated that he would take advantage of funding opportunities for that curriculum development for technology transfer and cited Columbus State University's establishment of a technology incubator for small IT business start-ups as one resource.

Motivational IT Success Factors. His organization has utilized the traditional benefits plan along with some professional development programs and IT Project incentives/bonuses to help motivate his IT employees. He stated that these are strategic success factors within the organization.

Innovation and the Diffusion of Technology. His answer to which success factor allows his organization to be innovative and assist him with the diffusion of new technology throughout the company is his organization uses a dedicated department to evaluate new technology that will help the financial services industry. The areas they target are in the fields of security software and shared services.

Company I

The Company I participant is the Vice President responsible for IT in an organization classified by this study as the Other Services industry sector. The organization serves many customers not only in the Columbus, GA area, but also in the surrounding Columbus MSA. He has been with his organization for many years and is intimately involved and responsible for the strategic planning for the organization. In fact, he is personally responsible for the IT annex for his organization's strategic long-term plan. He continues to maintain a long-term relationship with not only higher educational institutions but is active in supporting the City of Columbus and the Greater Columbus, GA Chamber of Commerce in economic development assistance. He is very knowledgeable of current IT trends and capabilities and welcomed the opportunity to participate in the study. Since he has been in the Columbus area for so many years, he feels that the manufacturing sector has the most need for technology improvement – both existing and new manufacturing that comes to the area.

Strategic IT Critical Success Factors. Company I's Vice President is personally responsible for the IT portion of his organization's strategic plan. Although not a technology company, they use technology innovation using GIS and other systems to become a regional business partner thus promoting regional economic development. He believes that his CSF of planning for increased customer service through IT along with his organization's corporate desire to use IT to gain a competitive advantage are the key CSFs that put them ahead of their competition. They are continually monitoring their existing customers with their use of their IT assets for assistance in business expansion or operating needs. He feels that the local economy has already shifted from a

manufacturing to a service economy but that there is still a need for continued growth in strategically planning IT workforce resources.

Corporate Innovation and Technology Transfer. Company I's vice president believes that corporate innovation is a critical factor in their success. He believes it starts by taking advantage of growing their IT workforce for staffing. He believes it is hard for his organization to compete with other companies with IT salaries paid by the other organizations. So in order to combat that, one of their planning factors ensures them providing employee opportunities for IT skill set improvement. He believes this is the key to his organization's corporate commitment to technology transfer. He stated that he is able to strategically plan for these employee opportunities because he reduces his operating costs by giving the newer, recent IT graduates an opportunity to move into a large organization to practice their IT skill set. He is a big supporter of local educational training programs and while he does not know of any particular funding opportunities, his organization would jump at the chance to take advantage of a new IT program that would benefit his organization.

Motivational IT Success Factors. He believes his most important CSF for motivating his IT employees is his organization's commitment to planning for and offering opportunities to entry level workers. He believes that this alone, coupled with a standard compensation and benefits plan universally offered, retains good IT employees for him. However, he does budget and strategically plan in his organization's IT Annex monetary rewards for his IT employees based on number of performance measures identified in that strategic plan. He said he lives by these planning factors and believes they are critical to his organization's success.

Innovation and the Diffusion of Technology. By a commitment to technology innovation and implementing automation with IT, they were able to close the gap of inefficiency as compared to their competition from 13% to 4% and consider themselves very competitive now. These diffused technologies are automation and related systems for operations, web-based information and business transaction capabilities for improved customer service and a telecommunications infrastructure improvement.

Company J

Company J's participant is an executive IT Manager for a regional Medical Services organization. He welcomed the opportunity to give his company's input for the study. The company is located within the Columbus city limits and provides state of the art medical technology to its organization. He has been in the position for a number of years and is directly responsible for the strategic IT planning for the organization. While they are not a technology company, he believes that they are capable of assisting with economic development by pioneering and practicing leading edge medical technology that assists other medical service organizations within the region. He stated that he believed the manufacturing sector within the region still has the most need for IT improvement. He thought that the service sector is better but that those manufacturing organizations have room for improvement.

Strategic IT Critical Success Factors. As a medical services organization, Company J is committed to strategically planning in the areas of technology innovation, increased customer service through IT and a corporate desire to use IT to gain competitive advantage. Company J accomplishes these critical CSFs by 1) providing technological access and streamlining clinical processes, 2) making information available

at its highest availability, and 3) an innovative commitment and ability to bridge the gap between technology and the end user. By practicing their strategic CSFs on a daily basis, the IT Manager believes they are ahead of their competition. However, to complete the shift from the manufacturing to a service oriented economy locally he feels that there must be an increase in the strategic planning of IT education and training and a higher prioritization of IT within local organizations.

Corporate Innovation and Technology Transfer. The IT manager believes his organization's main critical success factor pertaining to innovation and technology transfer is the organizational commitment to providing the end users within the company at all levels access to new technologies. This factor allows them to plan for end user access and technology training which successfully teaches the business initiatives to their employees. However, he does believe that the local educational institutions must continue to play a major factor in providing a pool of IT talent consistently.

Motivational IT Success Factors. He stated that they do not have many critical success factors to motivate their IT employees any differently that other organizational employees. His organization believes that intrinsic motivators such as company recognition and positive reinforcement coupled along with a standard employee benefits plan with the possibility of bonuses contribute to the company's success.

Innovation and the Diffusion of Technology. He believes that technology innovation definitely gives his organization the competitive advantage over their competitors. The CSFs he relies on are by providing real-time access to clinical and financial data to the end users in the company and a commitment to educating them on new technologies to make their jobs easier. To make this happen, he feels that the

Internet, new innovative technologies, network communications and IT education are critical factors in the accomplishment of his organizational IT mission.

Company L

Company L's participant is the IT Manager for the entire national Retail organization headquartered in Columbus, GA. It has a decentralized organization with a large IT footprint for its operation. The manager is responsible for strategic IT planning and implementation throughout the organization. While the manager does not believe that the organization conducts direct economic assistance, the manager understands the regional impact of the organization by its commitment to leading edge technology. As company representative, Company L's IT manager welcomed the opportunity to participate in the study. The IT manager has been in the company and the Columbus area for many years and is totally committed to providing leading edge data mining technology to the organization. Since the manager has been in Columbus for so long, the manager stated that the service economy is on the rise and that IT will place an ever-increasing role in its development.

Strategic IT Critical Success Factors. Company L is a national retail operation and uses technology to give its organization a competitive advantage every day. They do this using some CSFs such as data mining, training of 21st Century IT skill sets for its employees, the reliance on high-speed networks and Internet initiatives. By using these CSFs, the organization provides access to consolidated customer information for marketing analysis, allows the IT manager to provide more education and technology training at various levels, and be innovative in the research and deployment of new technology throughout the company based on a needs assessment.

Corporate Innovation and Technology Transfer. However, the IT manager believes that local institutions must continue to take an active and increased role in training new employees. If these institutions do this, the IT manager believes that the local organization has reduction in training costs and the learning curve for the new employee. The IT manager also cited Columbus State University's addition of the Cunningham Center and Technology Incubator and innovative organizations the local organizations as two opportunities for exploitation.

Motivational IT Success Factors. Their company uses a traditional company benefits plan along with IT project incentives/bonuses and skills updating to motivate their IT employees. They also provide laptops and Internet connections for their IT employees. They do not have a high turnover rate at all for their IT department and the IT Manager believes that these CSFs are critical to employee motivation.

Innovation and the Diffusion of Technology. This company is committed to technology innovation and the IT Manager plans for that when able. Their use of Blackberry and push of internal and external data to management for sales coupled with the development of web-based applications to accommodate traveling management teams. The Internet, data mining, and IP telephony technology are areas that are critical to their success and the IT Manager plans strategically for new ideas.

Company M

Company M's participant is the IT Manager for a Business Services company based in Columbus, GA but operating internationally. It provides technology and training assistance for governmental support and the Company M manager is the individual responsible for the strategic planning and IT operations for his organization.

While he stated that his organization does not provide direct economic development assistance, he does believe his IT assets in his company add value to the success of his company and its impact regionally. He believes that the automation of human resources activities is an area to emphasize not just in his company, but other small businesses as well.

Strategic IT Critical Success Factors. His main CSF for strategic planning is to plan with local college and universities for a knowledgeable workforce pool. While he believes his IT department gives his company a competitive advantage, money is always an issue to consider. He believed that the training of 21st Century IT skill sets, a reliable high-speed network, and his department's increased commitment to IT customer service gives his company a competitive advantage locally.

Corporate Innovation and Technology Transfer. He classified this as an area his organization is lacking in that they must be cost effective and get the most for their return on investment (ROI). He acknowledged that he really does not have a CSF in place here for his strategic plan but will consider developing one.

Motivational IT Success Factors. He has a rather small IT department that is responsible for the entire organization's IT infrastructure so there is only one strategic planning factor the organization uses that includes his IT department. That is the use of IT project incentives and company bonuses awarded on an annual basis. Ex-military employees dominate the company and a positive corporate culture fosters reduction in employee turnover rates.

Innovation and the Diffusion of Technology. While Company M does not have a large IT department dedicated to the evaluation of new and innovative technologies, the

IT manager has assumed this role. He will not classify this as a strategic success factor, but admits that since he is the responsible party for recommending innovations to the company, he tries to stay aware of new trends. He will admit that he is responsible for diffusing and dispersing new technologies out to the organization for their use.

Company N

Company N's participant is also an IT Manager for a Medical Services organization located in the Columbus MSA. The company has been in existence on a few short years but he has regional IT experience from other local organizations and is one of the individuals responsible for the strategic IT planning for his company. He welcomed the opportunity to participate in the study because his organization is utilizing state of the art medical technology. While not an economic development entity, this organization understands that it does have influence regionally as a quality of life functional area.

Strategic IT Critical Success Factors. His organization's main CSFs rely on the inclusion of the latest medical computer technology and standard computer technology and equipment available for use. Their CSF decision making bases itself on the needs of the organization's growth and efficiency in operations. Additional set of CSFs center on the ability to continue and support the connectivity, redundancy and stability of systems for the end users. He believes that the utilization of these critical IT planning factors definitely provide the organization with competitive advantage within the region.

Corporate Innovation and Technology Transfer. He believes that for the area to continue to remain innovative and assist the local economy shift to a more service/technology sector there needs to be an increased emphasis on training and

opportunities for IT workers and professionals. His organization's strength has been the support and budgeting of additional training and the purchasing of the latest equipment for the end users to help expedite services to customers. Additionally, he believes that all local institutions of higher education need to assess their curriculums to base the curricula on local and regional community needs. While agreeing that if funding opportunities were available for his organization to help assess new curriculum development with local institutions, he does not know of any particular ones currently available. He has not collaborated with Columbus State University to accomplish this effort but desires to.

His organization was one of the few participants that do analysis of under strength technology sectors and based this on his management's support to achieve new opportunities in their sector to assist in giving them the competitive advantage. While not a technology company, he believes this corporate climate of new technology innovation will allow his organization to grow rather rapidly in the region.

Motivational IT Success Factors. Company M's organization does not utilize many motivational CSFs. He stated that other than the normal human resources benefits package that all of the organization's employees have, his IT department does not get additional ones. He does however believe the main motivational one he has control over is the planning for and the corporate support of professional development for the IT employees. He believes that this motivates their IT workers to remain at the organization.

Innovation and the Diffusion of Technology. Company M's manager believes that the organization's commitment to planning for innovative technology and the commitment to get it down to the user level in a timely manner is a critical success factor

for them. He stated that it allows for real time analysis of problem resolution, dissemination of information and provides the link for quick and accurate decision-making. In classifying which IT area currently affects his organization and the regional area, Company M's manager stated that the Internet and telecommunications are the most influential and that his organization has to remain innovative and dedicated to the diffusion of technology in these areas in order for his company to remain competitive in the regional marketplace.

Analysis and Coding

The analysis for the interviews from this study began at the end of the day of each interview in order to capture the immediacy of impact prior to coding. Analysis of the participants open-ended responses began to capture their intent on the explanations. As this initial transcription began, the themes from the responses began to take shape. The responses started to make the coding for the survey easier as critical success factors became more evident.--The results from this study contribute to the literature because they align with similar critical success factors (CSFs) already present in previous research. These results also provide an insight into local area businesses that are currently using CSFs in their strategic planning cycles and identify some organizations that do not use factors that give them competitive advantage.

Coding the Results

The summary of the text results from the interviews are located in Table 2 and divided into four main categories with the second column representing the number of occurred responses. Each main category shows totals of the thematic trends.

Table 2 *Critical IT Success Factors--Principal Coding Categories*

Response	Number of Occurrences
Strategic IT Critical Success Factors	
Training of 21st Century IT Skill sets	8
High Speed Communication Networks	6
Technology Innovation	12
Increased Customer Service through IT	11
Corporate Desire to use IT to gain Competitive Advantage	12
IT Systems Scalability	3
Total	50
Examples of Corporate Innovation and Technology Transfer	
IT Best Practices	2
Providing Employee Opportunities for IT Skill set improvement	11
End User access to new technologies	10
Corporate Commitment to Technology Transfer	12
Corporate Commitment to Cost Effectiveness/ROI	6
Total	41
Motivational IT Success Factors	
Positive Corporate Culture	11
Intrinsic Employee Strategic Input	5
Traditional Company Benefits Plan	12
Professional Development Opportunities	8
IT Project incentives/bonuses	4
Total	40
Examples of Innovation and the Diffusion of Technology	
Corporate Commitment to Diffusion of Technology and Innovation	11
Commitment to leveraging IT Competitive Advantage	12
Dedicated Department to evaluate new Technology	5
Total	28

The analysis of the 12 participating organizations appears to answer the four main research questions of this study. From the interview data, four main categories became prevalent among the responses. This case study expected to identify and demonstrate the use of CSFs pertaining to information technology in the local organizations. The cross

sections of non-agricultural organizations in west central Georgia organizations use information technology heavily in the day-to-day operations and in some cases are heavily dependent on IT. The case study responses validated past identified CSFs and identified new ones. Did the respondent data correlate to the propositions the study was based on? The following summary of each research question is below.

What are the strategic information system planning factors companies use for their strategic plan to assist in facilitating economic growth in west central Georgia?

Proposition # 1. The first proposition, looking at the effect that the CSFs have on organizational strategic planning, expected the interviewed organizations to reflect the influence critical success factors have in those organizations. Those heavily invested in information technology resources would show a greater dependence or reliance on using critical success factors in strategic planning. If the local organizations utilize strategic information system critical success factors for their strategic planning and operations then it is expected that the research data will show whether the use of those CSFs are similar to those revealed in the literature review. The results show this correlation.

The main identified strategic IT CSFs were the 1) training of 21st Century IT skill sets, 2) high speed communication networks, 3) technology innovations, 4) increased customer service through IT, 5) a commitment to use IT to gain competitive advantage, and 6) IT system scalability. Fifty (50) main instances of these CSFs supported the proposition that these technology-invested organizations did indeed develop, plan, and use strategic IT CSFs to gain a competitive advantage for their organizations. While only one company was a true technology company, all interviewed supported the premise that they utilized strategic IT CSFs in their planning.

How can local companies take advantage of corporate innovation and technology transfer success factors?

Proposition # 2. The second proposition looked at how organizations take advantage of these factors. Therefore, organizations leading in technology innovation in west central Georgia would have better trained employees and be able to demonstrate good relationships with local training institutions. Those organizations that innovate in technology exhibit better organizational performance.

Participant responses identified five main innovation and technology transfer CSFs. They were 1) IT Best Practices, 2) providing employee professional development opportunities, 3) end user access to new technologies, 4) a commitment to technology transfer down to the lowest level, and 5) a commitment to cost effectiveness and ROI. Forty-one main instances of these CSFs demonstrated that the organizations believed that their IT employees and end users trained better due to either existing or past partnerships with local educational institutions for the training of the employee workforce.

What success factors of motivating the technology worker do the local companies utilize to keep turnover rate low in the organizations?

Proposition # 3. Proposition number three looked at those organizations utilizing motivational success factors. It dealt with their technology employees and that those that do will show a lower rate of turnover. These same organizations revealed leader skills that the individual companies utilize. The responses documented these IT leader skills in motivating IT workers.

There were five main motivating CSFs in the responses. They were 1) a positive corporate culture, 2) intrinsic employee benefits and strategic input, 3) a traditional

employee benefits plan, 4) professional development opportunities, and 5) IT project incentives and bonuses. All of the participants had varying degrees of responses to this research question, but each organization did agree that hard, codified motivational planning factors were critical to motivating their IT employees and thus keep their employee turnover rates low. These forty-one examples of how organizations motivate their employees demonstrate the value of motivational CSFs.

How can technology innovation and the diffusion of innovation give these companies competitive advantage within their business sector?

Proposition # 4. The last proposition centered on technology innovation and the diffusion of innovation. Of those west central Georgia organizations demonstrating higher levels of technology innovation and greater diffusion of technology, they consider themselves more competitive in the local area. Respondents validated twenty-eight different instances supporting CSFs identified in the literature review. The individuals responding to the study did agree that their organizations benefit from organizational adoption processes. Three main innovation and diffusion CSFs emerged. They were 1) corporate commitment to diffusion of technology and innovation, 2) a commitment to leveraging IT competitive advantage, and 3) a dedicated department/individual to evaluate new technologies.

Data Analysis Results

Patterns began to become evident in the participant results. The first one identified that only a portion of the participants use a codified set of CSFs for their information technology planning.

The second pattern demonstrated that while many of the participants did not believe they originally provide economic development assistance, at the end of the study, many reconsidered their stance. This reversal was not due to their answers but rather their ability to explain their organization's influence in the local economy.

A third pattern became rather evident very quick in the analysis. Many, if not most of the participants do not know of any funding opportunities available for IT curriculum development for their use. Not only did they not know of any, they did not know they could consider partnership funding.

The fourth pattern that began to emerge was that across the participant sample many did not know what higher educational institutions were doing in IT curriculum development. A fifth pattern emerged that demonstrated that some participants answered the motivational research questions with confidence yet could not differentiate between how they take better care of IT employees or not.

The last pattern centered on the organizations were protective about the amount of IT resource funding they would allow to be identified. Some considered it proprietary information and others had no problem with divulging this information.

Chapter 5 will address additional discussion about these themes and identified patterns in the results, conclusions, recommendations, and suggestions for further research sections.

Common Thematic Findings

The following results from this study identified themes that contribute to the literature on strategic information technology critical success factors, innovation and diffusion of technology and motivation of the technology worker. In particular, it

showed that in the west central Georgia economic area these factors are present in the strategic planning processes in the organizations. The participants identified common themes from all of the conducted interviews. These themes, when aggregated, demonstrate the presence of IT CSFs utilized in strategic planning even in non-technology companies. Integration of information technology planning is critical to current organizational success.

The following common themes identified in this study were

1. Even though the local economy is in a transition phase from manufacturing to a service based economy, many of the local service based organizations maintain the perception that they do not influence economic development.

2. The companies interviewed in this study are predominantly not capable of providing direct economic development assistance to other organizations.

3. The longer a participant was in their position at the interviewed company the more certain that individual was that the local economy was moving to a service economy.

4. The responsible IT management of the organization in the company's overall strategic planning process utilizes strategic IT critical success factors. The most dominant two were a commitment to IT skill set training and a commitment to technology innovation.

5. There is a dominating theme throughout the participating organizations that the commitment to innovation and technology transfer can be assumed is replicated throughout the west central Georgia area.

6. A concurring theme occurred that IT employees must also be motivated in the same positive light as regular skilled employees.

7. A recurring theme showed that while some of the respondents did not have dedicated departments for analyzing new technology, all participants agreed that they had corporate commitment to diffusion of new and innovative technology down to the lowest possible level needed throughout their organization.

8. While all respondents affirmed that information technology is growing in the west central Georgia area, few were willing to respond with the amount of investment they make at this point.

Chapter Summary

In summary, this case study demonstrates that companies in west central Georgia utilize information technology critical success factors. Those organizations that adequately plan and use them can provide their company a competitive advantage. These CSFs replicate the common ones found in information technology literature. While not every one of the study's participants proved the presence of codified CSFs in their organizations, the participants are satisfied that they are using them in their strategic information technology planning process. The study also identifies some areas needing addressing in training of IT workforce resources and the adoption of some technology partnerships among companies and institutions of higher learning.

CHAPTER 5. RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This case study looked at the impact of IT critical success factors organizations in the west central Georgia region use and their possible impact on economic development. Current literature shows how important these critical success factors can be and their role in organizational strategic planning. Past experts in the IT field demonstrated how vital and critical these factors are to organizational (Chu, 1995; Rockart, 1979; Peffers & Saarinen, 2002; Van Wegen, 1996; Oliver, 2002; Barrett, 1999). Research concerning information technology critical success factors centers on not only what is critical for successful implementation of IS and enterprise resource planning (ERP) systems but additionally focuses on chief information officers' perception of these factors (Fui-Hoon Nah, 2003; Rosacker, 2005). The criticality of success factors vary by technology implementation and industries yet this dissertation seeks to compare how businesses in west Georgia strategically utilize those factors (Lee, 2003). The study reflects current usage and impact of CSFs regionally by local organizations by centering on four main research questions as they were presented in Chapter 1 of this study. They are:

1. What are the strategic information system planning factors companies use for their strategic plan to assist in facilitating economic growth in west central Georgia?
2. How can local companies take advantage of corporate innovation and technology transfer success factors?
3. What success factors of motivating the technology worker do the local companies utilize to keep turnover rate low in the organizations?

4. How can technology innovation and the diffusion of innovation give these companies competitive advantage within their business sector?

This final chapter discusses the Chapter 4 results and compares them to the current literature from Chapter 2. Conclusions from their impact will be presented. This case study will conclude with recommendations for future research and closing comments.

Summary of this Study

This purpose of this case study was to examine some organizational information technology (IT) critical success factors and their impact on economic development on west central Georgia. This research area was targeted because of the role Columbus State University and local public and private entities play in the practical application of information technology and its assistance with economic development within the region. As Chu and others in IT research literature first identified, critical value activities are "those value activities which an organization must execute satisfactorily to ensure successful performance" (Chu, 1995, p. 38).

Early IT literature demonstrated where key indicators identified IT success and they were labeled the critical success factor (CSF) method. The premise Rockart (1979) discussed became evident as this case study continued. The success factors however, were not limited to just those involved in the organization's strategic plan. The case study looked at CSFs pertaining to innovation of technology and the diffusion of that technology within organizations. It also looked at motivational CSFs for the organizational IT employees and whether these CSFs gave the organization the competitive advantage within their industry sector. Peffers & Saarinen (2002) looked at

how the practitioner-based historical and practical problems of an organization could enable them to find ways to assess and evaluate IT business value. Additionally, research by Van Wegen (1996), Oliver (2002) and Barrett (1999) all demonstrated how innovative technology can add to the competitive advantage of the company's position.

The identification of these CSFs in information technology organizations reflect the increased presence and importance of strategic IT planning. Therefore, this case study has significance for the information technology field and provides some of the IT CSFs that local and regional organizations utilized.

Methodology

The research method chosen for this dissertation study utilized a case study methodology of qualitative analysis. The literature review demonstrated how qualitative research can provide comparative success factors in technology companies of similar organizations. Alavi (1992) described, "48.8% of total articles researched were empirical articles with 33.4% of those field studies and 9.1% being case studies". Since it is a growing area of information technology research, qualitative research in information technology needs expansion. This case study supported Alavi's practitioner-based conclusion that in the analysis of information systems articles, he revealed a "total of 679 articles were looked at with 55% or 376 articles practitioner-oriented".

This case study looked at IT critical success factors through the interviewing of twelve (12) local and regional organizations that are highly dependent on information technology for the success of their organizations. It accomplished this through the collection of data from the strategic IT planners or those who have the influence on organizational strategic planning. Upon identification of some of these factors, the

research identified structured interview questions to collect data needed from local companies.

The rationale for conducting this case study was to examine some organizational information technology (IT) critical success factors and their impact on economic development on west central Georgia. The results obtained from this case study will contribute to understanding how organizations rely on critical success factors when planning for and implementing information technology in west central Georgia.

Theoretical Framework

The theoretical framework for this study concerned strategic IT planning and innovation, the innovation of technology and the diffusion of that technology, motivational theory as it applies to IT workers, and the competitive advantage IT CSFs give local organizations. The theoretical framework looked at expanding the current research perspective on current examples of information technology critical success factors already developed. It focused on IT literature that explains their impact on assisting organizations. The framework looked at the ever-increasing diffusion and innovation technology into today's organizations and demonstrated how current research suggests ways to keep the IT employees motivated.

Sample

The case study's research sample included 12 IT professionals within the organizations. They included chief information officers, security officers, IT managers, and IT directors. All of the organizations that participated were from the local west central Georgia region and demonstrated a commitment to the use of information technology in the running of their organizations.

Instrument

Data collection for this case study consisted of personal qualitative interviews of twelve final participants where this researcher conducted all of the interviews using the provided instrument and answer documentation. These interviews were conducted over a three month scheduled timeframe utilizing face-to-face interviews and one phone interview with follow up documentation submitted back to this researcher. All participants were extremely cooperative and excited about being able to discuss their responses to the research questions and their possible impact in contributing to assisting new companies to come to the region.

Data Analysis

A matrix method based on responses was utilized to analyze the data gathered in the interviews. Podsakoff (1987) helped provide methods utilized in research publications and showing where emphasis in knowledge creation is going. Analysis shows information technology research becoming more of a mature field and that the future of information technology research must be in areas that are audacious in scope and seeking publication outlets that reflect these new fields. In addition, a scholar-practitioner approach contributed to the analysis of the data. Chan, et al.'s (1997) approach to reach their audience was more in tradition with the scholar-practitioner. They did this by looking at the conceptual linkages by developing useable survey instruments for measurements. The survey instrument this case study utilized provided succinct linkages between the administrative and research question-based responses.

This researcher used a response sheet to assist in the development of categories of critical success factors becoming evident during the interviews. As these categories

became evident, they were grouped using frequency analysis for the recurring ones. The categories identified eight (8) main themes that contributed to the literature on strategic information technology critical success factors, innovation and diffusion of technology and motivation of the technology worker. In particular, it showed that in the west central Georgia economic area these factors are in fact being utilized in the strategic planning processes in the organizations. The participants identified common themes from all of the conducted interviews. These themes, when aggregated, provide a structure and evidence that the IT CSFs are in fact commonly used in strategic planning even in non-technology companies.

Assumptions and Limitations

This researcher completed this case study while maintaining the credibility and validity of the results. The findings are not generalized to one industry sector within the region. Rather, a broad cross section of participants provides more examples identifying the useful CSFs within the region. Each participant was the responsible party that influences not only the IT department's strategic planning, but rather, also has influence on organizational strategic planning. The case study was limited to the west central Georgia region due to the scope of influence that Columbus State University has as a role player in economic development.

A primary assumption for this case study was that while each of the participating organizations utilizes strategic information systems planning and uses some kind of analytical process for IT planning, it is unclear whether they classify them as critical success factors. This study assumed that all of the organization utilized some information but not all of the organizations. Another assumption was that if the organization did

utilize CSFs in their planning process, not all of them used the CSFs to gain competitive advantage in their industry sector.

Evaluation of Research Questions

This next section is a summary of the data gathered from Chapter 4 as it pertains to each research question. The order will be the research question and then an evaluation of how the participant responses and themes applied to the question.

1. What are the strategic information system planning factors companies use for their strategic plan to assist in facilitating economic growth in west central Georgia?

Data resulting from the case study interviews validated that strategic IT critical success factors are utilized by the responsible IT management of the organization in the company's overall strategic planning process. The most dominant two were a commitment to IT skill set training and a commitment to technology innovation. Expectations were that those organizations heavily invested in information technology resources would show a greater dependence or reliance on using critical success factors in strategic planning.

Of the identified strategic IT CSFs, 16% commented that the training of 21st Century IT skill sets were important CSFs. 12% believed that high-speed communication networks were critical factors in their strategic planning, and 24% of the participants were strategically committed to technology innovation. Additionally, 22% of the organizations commented that they have increased customer service through IT and linked this to the 22% who maintain that their corporate culture is to utilize IT to either assist them or provide them the means to gain the competitive advantage in their industry

sector. However, only 6% of the participants acknowledged that strategically planning for scalability in their IT systems were a critical to their operations. Overall, this total of 50 CSF instances supported research question 1.

2. How can local companies take advantage of corporate innovation and technology transfer success factors?

There is a dominating theme apparent from the participating organizations in a commitment to innovation and technology transfer which can be assumed is replicated throughout the west central Georgia area. It was proposed that organizations that take advantage of technology innovation in west central Georgia would have better trained employees and be able to demonstrate good relationships with local training institutions and would exhibit better organizational performance.

Participant responses identified five main innovation and technology transfer CSFs. Only 5 % stated that utilized the critical planning factor of IT Best Practices within their organizations. It is important to remember here that only one of the participants were a true technology organization. Providing employee professional development opportunities were critical to 26.8% organizations while 24.3% identified the CSF that getting end user access to new technologies were indeed critical to organizational effectiveness. Enlightening was the 29.2% result of a corporate commitment to the transfer of technology. This set of data validated the last main theme where the corporate climate was not only committed to technology transfer, but was also 14.6% committed to IT cost effectiveness and a return on their investment.

3. What success factors of motivating the technology worker do the local companies utilize to keep turnover rate low in the organizations?

A reoccurring theme arose demonstrating that IT employees must also be motivated in the same positive light as regular skilled employees. The data results showed that the participating organizations believed that while overall they could not provide vast different traditional motivational incentives for their IT employees, they did believe that motivational CSFs were critical for them.

Of the five main categorized motivating CSFs, 27.5% of the organizations felt they exhibited a positive corporate culture towards the IT employees. Only 12.5% of the participants could demonstrate where their company provided intrinsic employee benefits and allowed for employees the provision for strategic input. The low number of respondents who are true technology companies could explain this result. Other tangible motivational methods such as traditional employee benefits plan, professional development opportunities, and IT project incentives and bonuses became evident. Thirty percent of the participants acknowledged that traditional employee benefits were their best tool for motivation. They did express a desire to see this change. Twenty percent are committed to providing professional development opportunities for the employees and see this as a temporary fix to maintaining long term IT employee turnover. Almost uniformly, the participants were disappointed that only 10% of them could provide incentives and/or bonuses for their IT employees.

4. How can technology innovation and the diffusion of innovation give these companies competitive advantage within their business sector?

The theme of not having a dedicated department for analyzing new technology became quickly evident. Even with this corporate restriction, all participants agreed that they had corporate commitment to diffusion of new and innovative technology down to

the lowest possible level needed throughout their organization. The research question here looked to validate where those west central Georgia organizations that demonstrate higher levels of technology innovation and greater diffusion of technology throughout the organization would consider themselves more competitive in the local area. Respondents validated twenty-eight different instances supporting CSFs identified in the literature review. Additionally, the individuals responding to the study did agree that their organizations benefit from organizational adoption processes.

Three main innovation and diffusion CSFs emerged. Corporate commitment to diffusion of technology and innovation arose in 39.2% while 42.8% of the companies stated that they indeed have a commitment to leveraging IT competitive advantage. Given the low number of true technology companies participating in the case study, 17.8% responded that they currently have a dedicated department/individual to evaluate new technologies to address innovation as it applies to the needs of their organization.

Recommendations for Future Research

This study utilized such a small sample of the west central Georgia region such that it cannot be considered totally representative of the region. In the coming future, future research should look at not only getting a larger sample population but also maybe even doing a microanalysis of these research questions within each of the industry sectors. This separation of the industry sectors might provide closer inspection of not only strategic planning within the sector, but also the motivational factors' impact based on that industry need alone.

An additional issue to investigate might be to look at the IT employee's view of the existence of and utilization of various benefit packages within industry sector specific

organizations. Companies identified in this study would like to see their incentive packages improve in the non-technology companies. Research into the long-term effect of not providing incentive bonuses/packages would identify and support whether the employees feel that their organization is truly committed to keeping their employees.

Next, an additional topic for future research that this study did not concentrate on would be to assess the overall IT costs and value in the regional companies to determine if a trend in IT investment is related to any particular change in new company startups. Van Wegen (1996) looked at the value an information system added to the company. Trying to analyze supply and demand in the technology community is often hard but he was able to assess IT costs and the value of the system. Providing an analysis of this area could prove beneficial to local economic development entities in their targeting efforts in trying to attract new businesses in the region.

A possibility for future research lies in the assessment of how these participants and others in their industry sector truly formalize their IT strategic planning. Strategic planning takes place in formal settings or in informal ones (Kaplan, 2003). The key is to get the right people together at the right place at the right time in the right frame of mind ready and willing to be frank and open about issues needing discussion. Future research might entail looking at one particular company during its formal strategic planning process and observing how they encompass IT strategic CSFs into a formal process. This possible future research could be beneficial to both the individual organization and allow for continual contribution of qualitative research in information technology.

The next area for future research could look at how to best motivate some of the medical services industry technology workers we have in the west central Georgia area.

The results of this case study demonstrate that medical services is a dominant sector here yet to maintain the medical IT technology workforce to want to come to and remain in the Columbus MSA area is a challenge. In Venkatesh's (1999) article on motivation assisting IT adoption, he utilized an empirical study to assess user motivation to new technology. He studied the use of intrinsic motivation as the determining factor and actually used two studies to assess how useful intrinsic motivation in training could increase adoption rates of technology. Intrinsic motivation has kept the medical IT worker here so far, but it will not keep them as advances in medical technology continue to occur. Currently 30% of the participants acknowledged that traditional employee benefits were their best tool for motivation. Their desire to see a change in motivational techniques and benefits might need some empirical data to assist in the accomplishment of this goal. Almost uniformly, the participants were disappointed that only 10% of them could provide incentives and/or bonuses for their IT employees.

Future research into the local corporate commitment to the transfer of technology and its diffusion within the organization as it is compared to the IT cost effectiveness and return on investment could validate this study's data further. Enlightening was the 29.2% result of a corporate commitment to the transfer of technology. The last main theme where the corporate climate was not only committed to technology transfer, but was also 14.6% committed to IT cost effectiveness and a return on their investment demonstrated that the participants are beginning to track this not only from a financial standpoint but also from a competitive advantage one.

Other areas of consideration for future research based on this study are:

1. Why is it harder to attract new technology workers into the MSA?

2. Is there a trend in local organizations to develop their own technology research and design departments?
3. What are some of the IT motivational CSFs for some of the smaller businesses in the region?
4. Are the companies that are providing professional development opportunities retaining their IT employees at a higher rate than those who do not?
5. Strategic planning for IT scalability planning resulted in only a 6% data response rate by the participants. Industry sector research looking at factors prohibiting this or whether it is a growing trend in the MSA could provide data for this scalability problem.

Closing Comments

The focus of this case study was to look at regional organizations and conclude if they did utilize critical success factors (CSFs) in their IT and corporate strategic planning. It looked at only a few of the many players in the region that affect not only themselves but also the economic development role they see themselves playing in the region. An assessment of their overall impact on technology and its advancement in the region is yet to come. However, each of the participants currently contributes to the technology status of the region.

This study did indeed validate the existence of and the utilization of critical success factors in strategic IT and corporate planning. The four main research questions in the case study allowed for the participants to demonstrate utilization of the CSFs. The resulting data showed that in some cases the participating organizations utilized a formal

checklist process in their planning process while other organizations do not, but wish to get to that point.

The relative sizes of the participating organizations varied. The largest one had over 5000 employees with an IT infrastructure large enough to support their operations. It and the next largest financial services company, with approximately 800 employees, both have similar technology needs but in a supporting infrastructure for the organizational operations. The governmental participants had 1250, 3000 and 2500 employees respectively and also were dedicated to supporting the organization's infrastructure and operations. They were dedicated to organizational technology support. With the Columbus area medical services participant organizations the emphasis for their technology needs center on medical information technology services. The three organizations participating employ approximately 1200, 650 and 500 personnel respectively. The sole non-durable manufacturing organization employs 800 people but has an extremely small IT staff. Its information technology mission centers on process controls and internal office infrastructure support. There is one participant categorized as Other Services employs almost 400 individuals with a relatively small IT staff concentrating on infrastructure and accounting support. The one retail organization is a Columbus-based national one employing approximately 2600 individuals but maintain decentralized IT support throughout the organization but controlled through the corporate IT office. The last organization conducts business services dedicated to support the defense industry and employs about 100 individuals. Their IT support concentrates on desktop and office supporting infrastructure. It is a growing company expecting to expand their IT footprint in the Columbus area.

Although the scope of this study limited itself to the region, it has provided the groundwork for further research into CSF influence on the organization. This future research is necessary because it could illuminate some basic planning factors each of the identified industry sectors utilize which could result in new business startups becoming more competitive earlier in their life cycle, thus promoting the competitive environment in west central Georgia. It should be a joint effort of all the economic development entities in the area, private and public, to effect this competitive environment.

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APPENDIX A. INTERVIEW INSTRUMENT

1. Are you a technology company? **Ans: Y or N**
2. Are you capable of assisting with economic development? **Ans: Y or N**
3. Which economic sector has the most need for improvement – manufacturing or service? **(Open-Ended/ Frequency Analysis)**
4. What are the strategic information system planning factors your company used in their strategic plan that you believe assisted in facilitating economic growth in west central Georgia? (Research Question) **(Open-Ended/ Frequency Analysis)**
5. How do your information systems provide competitive advantage? **(Open-Ended/ Frequency Analysis)**
6. Is your information systems strategy aligned with business performance? **Ans: Y or N**
7. What do you think needs to be in place for our local economy to shift from a manufacturing to a service/technology economy? **(Open-Ended/ Frequency Analysis)**
8. How does your company take advantage of corporate innovation and technology transfer success factors ? (Research Question) **(Open-Ended/ Frequency Analysis)**
9. What factors do you think local higher education institutions play in supporting the training of new technology employees? **(Open-Ended/ Frequency Analysis)**
10. Do you believe if funding opportunities were available for educational institutions in the development of new curriculum development in support of this regional effort that your company might utilize local educational institutions more? **Ans: Y or N**
11. Do you know of any of these funding opportunities? **(Open-Ended/ Frequency Analysis)**
12. Does your company perform any analysis identifying under strength technology sectors? **Ans: Y or N**
13. What steps do you think Columbus State University has accomplished to help in this effort if any? **(Open-Ended/ Frequency Analysis)**
14. What success factors for motivating your technology workers do you utilize to keep turnover rate low in the organizations? (Research Question) **(Open-Ended/ Frequency Analysis)**
15. What particular motivational method(s) do(does) your company utilize? **(Open-Ended/ Frequency Analysis)**
16. Are these motivational method factors limited to management or include regular hourly technology workers? **(Open-Ended/ Frequency Analysis)**
17. Are there identifiable IT leader skills replicated in your company? **Ans: Y or N**
18. Do you think innovation and the adoption process provide your company with competitive advantage? **Ans: Y or N**
19. Can you elaborate on how technology innovation and the diffusion of innovation give your company competitive advantage within their business sector? (Research Question) **(Open-Ended/ Frequency Analysis)**
20. Do you think IT adoption provides value? **Ans: Y or N**
21. Which technology areas do the regional companies believe affect them the most? **(Open-Ended/ Frequency Analysis)**
22. If you are able to provide it, what would you estimate is the amount of technology investment your company budgets for on an annual basis? **(Open-Ended/ Frequency Analysis)**
23. Do you think that information technology is growing in the west central Georgia area? **Ans: Y or N**

APPENDIX B: PARTICIPANT RESPONSE FORM

Participant No: _____

Classification:	Govt	Fin Srvcs	Med Srvcs	NDM	OS	Retail	Bus Srvcs	Dir Mfg	Banking

Answers:

1	**Yes or No**
2	**Yes or No**
3	**(OE)**
4	**(OE)**
5	**(OE)**
6	**Yes or No**
7	**(OE)**
8	**(OE)**
9	**(OE)**
10	**Yes or No**
11	**(OE)**
12	**Yes or No**
13	**(OE)**
14	**(OE)**
15	**(OE)**
16	**(OE)**
17	**Yes or No**
18	**Yes or No**
19	**(OE)**
20	**Yes or No**
21	**(OE)**
22	**(OE)**
23	**Yes or No**

Additional Room/Question #.

add/#	**(OE)**
add/#	**(OE)**
add/#	**(OE)**
add/#	**(OE)**
add/#	**(OE)**

APPENDIX C: PARTICIPANT LISTING BY INDUSTRY SECTOR

Randomly Selected ID Number	Company	Employee Type	Technology Company	Industry Sector
1	Company A	Executive Dir	No	Government
27	Company C	CIO	No	Government
7	Company D	IT Manager	No	Financial Services
23	Company E	CIO	No	Government
8	Company F	IT Manager	No	Medical Services
9	Company G	IT Manager	No	Non-Durable Mfg
15	Company H	IT Manager	No	Financial Services
17	Company I	VP IT	No	Other Services
3	Company J	IT Manager	No	Medical Services
20	Company L	IT Manager	No	Retail
13	Company M	IT Manager	No	Business Services
21	Company N	IT Manager	No	Medical Services