

INSTITUTIONAL CHANGE IN A HIGHER EDUCATION ENVIRONMENT:  
FACTORS IN THE ADOPTION AND SUSTAINABILITY OF INFORMATION  
TECHNOLOGY PROJECT MANAGEMENT BEST PRACTICES

By

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## ABSTRACT

### INSTITUTIONAL CHANGE IN A HIGHER EDUCATION ENVIRONMENT: FACTORS IN THE ADOPTION OF PROJECT MANAGEMENT BEST PRACTICES

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The public higher education economic and competitive environments make it crucial that organizations react to the circumstances and make better use of available resources (Duderstadt, 2000; Floyd, 2008; Shulman, 2007; State Higher Education Executive Officers (SHEEO), 2009). Viewing higher education through the perspective of new institutionalism can help explain its conservative view of change including a resistance to ideas associated with management efficiency and innovation (Cameron, 1984; Carrol, 1993; Gumpert, 2000a; Kraatz & Zajac, 1996; H. D. Meyer & Rowan, 2006b; J. W. Meyer, Ramirez, Frank, & Schofer, 2005). Information technology is an increasingly important dynamic in higher education where changes in costs and efficiencies can be studied. A sub-section of information technology shown to help organizations become more economically efficient and competitive is the use of information technology project management best practices (Kerzner, 2001; Thorp, 2003; U.S. Government Accountability Office, 1994). This dissertation uses a case study to investigate how one higher education institution successfully adopted information technology project management best practices as a means of becoming more effective and efficient, improving customer satisfaction and quality, and addressing environmental complexities. This study was not a measure of how many best practices were put in place but rather how change was adopted, with guidance from an institutional change perspective framework (Van de Ven & Hargrave, 2004). Data were collected onsite via individual interviews with the senior IT staff at a major research university with a reputation of project management best practice adoption.

The findings include identification of those responsible for the promotion of PM adoption and of those who resisted. Documented as well were the actions taken by the organizational leaders enabling the changes, including process improvements, team development, communications, and skill development. The findings recognize why PM best practices were pursued, including the pursuit of higher productivity, quality, and customer satisfaction; as potential solutions to goals and complexities in the work environment; and based on the influence of outside sources including consultants and higher education resources. Factors were also identified in the cultural environment that contributed to the changes that took place.

The implications for practice focus on actions done well by the participating organization including the development of adaptive and transformative leaders through training and mentorship; building a foundation of organizational skills and tools expertise; successfully managing relationships; and effectively communicating with employees, customers, and campus collaborators. Activities requiring more attention are planning around management strategies including adoption of project management and service management best practice, and persuading university executives to plan and prioritize major project initiatives including those that are information technology related.

The implications for research include examples of coercive, mimetic, and normative isomorphism (DiMaggio & Powell, 1983) in higher education information technology, with efforts at legitimacy not consciously recognized. Documented institutional change (Van de Ven & Hargrave, 2004) included examples that fit with the perspectives of institutional design, adaptation, and diffusion, with individual leader agency a contributing factor in each.

## DEDICATION

To Tracy, who has always supported  
me in everything that I do

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## KEY TO ABBREVIATIONS

AS – Administrative Systems (Group)

CIO – Chief Information Officer

CS – Consulting Services (Group)

CC – Customer Communications (Group)

FS – Financial Services (Group)

HR – Human Resources (Group)

IT – Information Technology

ITIL – Information Technology Infrastructure Library

ITLC – Information Technology Leaders Committee

ITLP – Information Technology Leaders Program

LT – Library Technologies (Group)

PM – Project Management

PMBOK – Project Management Body of Knowledge

PMI – Project Management Institute

PMMM – Project Management Maturity Model

PMO – Project Management Office

PMP – Project Management Professional

PPM – Project Portfolio Management

RC – Research Computing (Group)

ROI – Return on Investment

SM – Service Management

SO – Security Operations (Group)

TL – Teaching and Learning (Group)

TN – Telecommunications and Networking

TQM – Total Quality Management

VPIT – Vice Provost of Information Technology

## CHAPTER 1: INTRODUCTION

In July of 2001, with a fresh sense of optimism, I began a new job as the first chief technology officer of a business college within a major public research university. I had just graduated with an MBA and was prepared to put my newly developed skills to practice. I planned to do just what I had done in my 15 plus years of private sector information technology (IT) experience: find problems and apply modern management methods to fix them. Although I knew that the higher education environment that I was entering was much different from the manufacturing environment that I was leaving, I was not fully appreciative of the particulars of those differences. I came to find that information technology at a major research university can be very decentralized, with sometimes redundant services, and funding models that are not favorable to maximizing efficiencies through the centralization of services. Although not literally the case, it appeared to me that all twenty colleges at the university and many of the schools and departments administered their own email, file, and print servers. This must have employed dozens of additional technicians in jobs where many corporations would have standardized operations and had three or four workers, not to mention all the additional hardware and software costs. The university units administering these services would suggest that they were needed to support “specialized ways of doing things in our department/college/unit”. Some might also imply that they did not have confidence that a central organization would, or could, provide a level of service that they required.

I also noticed that at that time the higher education leaders at my own college were not overly concerned with efficiency, consolidating functions, or saving IT money. The dean of my college did not ask me questions about cost savings or efficiencies; he appeared more concerned about what was being done with technology at other peer colleges. He wanted to know the latest

news on how technology was being put into use at other institutions, and if he saw something he liked, how soon we could duplicate it. He wanted to know the latest on how multimedia was being used to communicate to students, which of our classrooms were updated with wireless, and how we could use technology in programs to show we were innovative. Quality was definitely an issue, but savings and efficiency were not discussion points that were given much attention.

Just as many of the original computer systems and networks in industry were started by working engineers, the campus IT equipment was originally administered by faculty, professors, and often students, a group referred to by one higher education CIO as “IT hobbyists”. In fact, universities like MIT and Harvard were the birthplace of the first mainframe computers and the internet was started at a number of west coast universities working with the Department of Defense (2008). Much of the administrative and course specific software was developed internally because commercial software companies did not build systems that suited the needs of higher education and could not find much profit in building custom products for this niche market (Trow, 1997). These practices carried on in higher education after most of industry had switched to a fully professional IT staff. In 2001 when I started at the college there were still remnants of this grassroots IT organization in place across many campus units.

The campus IT units at this time seemed to use few of the methods, templates, or measures of progress commonly used by industry in 2001. Was this lack of advancement into standardized management procedures because of the slow change to a professional IT workforce? Were the multiple duties of teaching, running a research laboratory, and maintaining the IT system so much work that also optimizing the IT process was too much to ask? Birnbaum (2000b) takes a more skeptical view that higher education ignores most management innovations because they eventually fade away in time after empirical results and disappointment become

better known. Higher education's lag time in assimilating new technologies shields it from the adoption of "flash in the pan" innovations. However, that same adaptation lag slows the growth of lasting innovations. I asked myself many times, what caused that innovation acceptance lag?

Over the next ten years at this university the information technology environment changed in many ways. Professional best practices became much more prevalent and were put to greater use. More professional IT technicians were hired, and existing employees were trained and put into support positions that improved the quality of many services. The changes came none-too-soon as many economic and competitive conditions in the public higher education environment were evolving and would soon make productivity, efficiency, and quality important to the future survival of many institutions (Leveille, 2006). Was the environment at my college and university similar to what other comparable institutions were experiencing? What happened to make possible these improvements in the IT management environment? Did the changing economic situation make administrators sit up and take notice or was it some other phenomenon? Was the newly promoted vice provost for information technology a change agent? Were there other institutional or cultural phenomena that may have enabled changes in the information technology units? In the remainder of this chapter, I lay out in detail the research questions that guide this dissertation and explain the relevance and significance of this research. I focus in on the adoption of project management best practices as an example of change within a central information technology unit of a major public research university similar to mine.

### Statement of the Problem

#### *A Changing Environment*

Scholars have found that the developments of the past twenty-five years have drastically reshaped the public higher education economic landscape, creating a need for many institutions

to become competitive, entrepreneurial, and quicker to implement new ideas (McLendon, Hearn, & Deaton, 2006; Slaughter & Rhodes, 2004). These new economic issues exist on multiple dimensions, all requiring unique attention, but each would benefit from new changes and ideas. Increasingly since 1985, public institutions began to see less government financial support per student, a greater number of students to educate, higher per student costs, greater provider pluralism, and more tight coupling (Bok, 2006; Floyd, 2008; Shulman, 2007).

The cuts in financial support have been particularly harsh for state institutions because of their dependence on government funding (Archibald & Feldman, 2011). Many public institutions have had less financial support to work with; state educational appropriations per student fell in 2005 to a twenty-five year low in inflation-adjusted terms, made a slight recovery between 2005 and 2008, but dropped 4% again in 2009 (State Higher Education Executive Officers (SHEEO), 2009). The U.S. average state and local higher education support has had a 10 year change from 1997 to 2007 of -5.6%.

With less funding per student available there are also more students to educate. Since 1984, full-time student enrollment at public institutions of higher education has increased from 7.4 million to 10.8 million (State Higher Education Executive Officers (SHEEO), 2009), a phenomenon referred to by some as “massification” (Alexander, 2000) and others as “mass higher education” (Peterson & Dill, 1997). Massification is significant because while institutional enrollments have been increasing, government per student funding has trended downward, meaning there is less to spend on more students.

In addition to these troubling concerns with the student population, the costs to educate students are also rising. Higher education institutions are always striving to reach the next level in the quality and status hierarchy (Winston, 1999) and this compels both public and private

universities to join an escalating “arms race” of growth in student services, the physical plant, more accomplished faculty, and ever expanding information technology (IT) usage. This increased spending, growth, and expansionism is initiated by administrators striving to make their institutions more attractive to top students and higher quality enrollments (Slaughter & Rhodes, 2004; State Higher Education Executive Officers (SHEEO), 2009; Winston, 1999).

Higher education around the world is no longer almost exclusively provided by states (H. D. Meyer & Rowan, 2006a). This era of mass education has also ushered in the growth of a for-profit education sector that fills some of the need of the rising return to college training and increasing size of the college population. However, the for-profits also bring with them technology investments and operational skills and practices that enable them to deliver many higher education services at lower costs than those provided by public and nonprofit providers (Breneman, Pusser, & Turner, 2006). Highly technically skilled and efficient for-profits can create an expectation within many higher education stakeholders and participants that the public and private not-for-profits will, or should, have these same proficiencies and efficiencies (Duderstadt, 2000; Gumport, 2000a). This is a circumstance where a certain factor of an organization’s legitimacy is being defined by for-profits and could increase the pressure on traditional public higher education institutions to be efficient *and* innovative.

In addition to all the motives mentioned for higher education to be more efficient and effective, the monitoring and assessment of higher education is at an all time high. Government money no longer comes without strings attached leading to more tightly coupled and narrowly controlled practices in organizations that were once models of “loose-coupling” (H. D. Meyer & Rowan, 2006a). In some states financial awards come conditional upon institutional performance in specific areas, such as student retention, graduation rates, undergraduate access,

measures of institutional efficiency, student exam scores, job placement rates, faculty productivity, and campus diversity (McLendon et al., 2006). Public higher education institutions are increasingly finding the requirement to accept government scrutiny and to prove that the taxpayer's money is being put to good use. I suggest that following IT project management best practices shows proper fiduciary responsibility.

### *Higher Education and the Adoption of Change*

The new requirement for public higher education institutions to be more innovative and efficient is a predicament. While James Thompson (1967) acknowledged that business corporations continuously search for certainty, excellence, and maximum efficiency through various rational means including scientific management (Taylor, 1911), administrative management (Gulick & Urwick, 1937), and bureaucracy (Weber, 1947), the academy is slow to change for efficiency's sake. Much has been written by higher education researchers about its conservative view of change, which can include a significant skepticism toward ideas associated with management efficiency and innovation (Birnbaum, 2000b; Kezar, 2001; Tierney, 1999). Birnbaum (2000b) suggests that academics tend to be skeptical of management changes because of experiences with a legacy of previous short lived "fads." He describes how fads go through a series of stages, the first of which involves the identification of a "crisis", early adopter proponents, and intense interest and rhetoric. The second stage involves widespread adoption and accolades with little scrutiny of true cost and effectiveness. Counter narratives and independent analyses begin to emerge in the third stage oftentimes proving the idea to have little long-lasting value. However, an aversion to management change is a narrative with which higher education, and faculty members as the "chief villain", is often painted.

Some scholars explain the specific lack of efficiencies within higher education, including higher education information technology as not being historically necessary. Weick (1976) describes colleges and universities as loosely-coupled organizations. He uses imagery to illuminate that with loose coupling, actors can be attached to organizations but retain identity and separateness through circumscribed, infrequent, and weak affects. The author notes that loose coupling carries connotations of unimportance, slow responses, impermanence, dissolvability, and tacitness. Organizational components of colleges and universities, such as information technology groups, can be largely independent of one another but still share a common institutional mission. Loosely-coupled organizations require less coordination of activities in diverse areas of the organization in contrast to an industrial manufacturing firm, which is more likely to be tightly-coupled, seeking efficiency through task interdependence and require coordination of time-dependent, sequential operations (Van De Ven, Delbecq, & Koenig Jr., 1976). This perspective suggests that the loose-coupling inherent in higher education institutions is almost diametrically opposed to a process driven, highly efficient organization.

Another perspective illustrates how higher education has emphasized a focus on rational myths, isomorphism, and legitimacy and not on managerial efficiency. Organizations that fit these parameters are explained using institutional and new institutional theory. Institutional theory focuses on the rules, norms, and routines that form social structure and guidelines of social behavior within organizations (J. W. Meyer & Rowan, 1977; Scott, 2001). New institutionalism, a revision of the theory, has a stronger emphasis on cognitive frameworks with primary attention on the cultural belief systems that focus on legitimacy and institutional isomorphism. Isomorphism, both structural, as in the organization of the body, and procedural, as in the policies and procedures in place, is thought to earn the organization legitimacy (DiMaggio

& Powell, 1991b; Hirsch, 1995; March & Olsen, 1984; J. W. Meyer, Ramirez, Frank, & Schofer, 2005; Scott, 1987). Viewing higher education through the perspective of new institutionalism, which explains many of the characteristics of “follow the leader” and sameness displayed in this environment, can help understand why changes, including those in information technology and project management, would be slow in gaining acceptance in higher education (Cameron, 1984; Carrol, 1993; Gumpert, 2000b; Kraatz & Zajac, 1996; H. D. Meyer & Rowan, 2006b; J. W. Meyer et al., 2005).

These perspectives represent some of the disparate views of scholars explaining why changes in general, and efficiency related changes, specifically are not readily accepted in higher education. However, there has been a recent focus by researchers on not only explaining this stasis, but also explaining various types of change within institutions (Mahoney & Thelen, 2010; Streeck & Thelen, 2005; Van de Ven & Hargrave, 2004). Understanding change as applied to the higher education IT environment would help better recognize why some organizations move out ahead of others and become early adopters of new ideas and methods.

### Purpose of the Study

To summarize, the public higher education economic and competitive environment is moving in such a way that makes it imperative that organizations react to these changes and become more efficient with the resources that are available (Duderstadt, 2000; Floyd, 2008; Shulman, 2007; State Higher Education Executive Officers (SHEEO), 2009). Previous research has shown that those in higher education environments are more likely to accept changes associated with organizational legitimacy than those related to management efficiencies (Cameron, 1984; Gumpert, 2000b; Kraatz & Zajac, 1996; H. D. Meyer & Rowan, 2006a; J. W. Meyer et al., 2005). This creates a dilemma. The economic environment is shifting in ways that

require management changes and new ideas. At odds with this economic shift is an institutional social environment that reacts more to legitimacy concerns than efficiency.

This dissertation studies the processes put in place and factors that affect higher education organizations that successfully adopt information technology PM best practices. While I am studying this to better understand how changes and ideas can be implemented in highly institutionalized environments, the findings will also be of value to the higher education project management community. Little research exists on change in higher education IT environments through adopting project management best practices. The current higher education project management literature is composed of primarily practitioner based case studies concerning the implementation of basic and beginning project management practices (Alberts, 2009; Clark, 2008; Pretz-Lawson, 2010). Understanding the processes taken by an organization that has successfully adopted project management best practices in higher education will help others who are looking for the additional insight from not only implementing project management processes but also adopting organizational change strategies along the way. Finding and understanding environments within traditional higher education institutions where changes and new ideas have systematically developed would help better understand how others may advance. Here I show in some detail why information technology (IT) organizations are suitable places in higher education to look for changes and ideas that have occurred within an institutional environment. By suitable, I mean that IT is a significant element in the rising expenses of educating each student (Duderstadt, 2000; State Higher Education Executive Officers (SHEEO), 2009). IT costs are a steadily increasing example of the “arms race” of legitimizing services described by Winston (1999) , which can be impacted by the introduction of efficient processes.

Information technology is integrated into virtually all aspects of higher education including distance learning, the classroom, reporting grades, collecting tuition dollars, conducting and reporting research, and even the control of building and classroom temperatures (Green & Gilbert, 1995; Nelson, 2005). IT spending in higher education accounts for between \$12 and \$35 million a year per institution with increased spending (adjusted for inflation) occurring every year since tracking began in 2002 (Arroway & Sharma, 2008). These figures do not include non-central IT spending by academic departments and ancillary units that could plausibly expand these figures depending on the degree of centralization in an institution's IT hierarchy. The high costs and prevalent use of information technology identifies it as an area in need of management ideas and efficiencies.

Information technology is a multifaceted and complex discipline. Many different IT processes could be chosen to study the adoption of innovation in the field. One set of processes used in IT is project management, which is the application of knowledge, skills, tools, and techniques to meet project requirements (Project Management Institute, 2008). Projects themselves are "a temporary endeavor, having a defined beginning and end... undertaken to meet unique goals and objectives" (Project Management Institute, 2008, p. 5). Projects are different from day to day work (operations) because they end when their objectives are reached; operations continue and sustain the organization. An example of a project is the definition and installation of a new learning management system. The starting point is when the organization decides to get the project off the ground by dedicating resources to make it happen. The project ends when the system has "gone live" and faculty members and students begin to use it as the system moves into day to day "operations". Similarly, building a house or writing a dissertation are also projects because both of these activities have objectives along with start and end dates.

One method of disaggregating project management in order to study its adoption is to break it into best practices. A best practice in project management is defined as “an optimal way currently recognized by industry to achieve a stated goal or objective” (Project Management Institute, 2003b). While some may take issue with “best practice” as a term that is definitive and empirically based, practitioners recognize it not in the literal sense as the best ever to be discovered, but as a method that has consistently shown superior results. Examples of project management best practices in the implementation of a learning management system might be the use of a standard cost estimating method, basing all project decisions on the interests of stakeholders, identifying the project risks in a systematic way, or using a standard defined way to close down the project when complete. The Project Management Institute (2003a) has identified over 600 best practices in project management. Information technology project management best practices have been shown to help organizations lower costs and increase quality, profitability and overall efficiency (Thorp, 2003; U.S. Government Accountability Office, 1994).

### Research Questions

Why do some higher education organizations innovate through change and new ideas in spite of the trappings of the institutional environment in which they exist (H. D. Meyer & Rowan, 2006a) while others do not? More specifically, why do some universities become more mature in information technology project management processes than do other organizations of similar structure? What role do the isomorphic and homogenous characteristics of higher education institutions play in this change? The main purpose of this study was to conduct exploratory qualitative research to investigate the adoption of project management best processes and actions at one public higher education institution. This dissertation, guided by the

perspectives of new institutional theory (DiMaggio & Powell, 1983; J. W. Meyer & Rowan, 1977; Scott & Meyer, 1983; Zucker, 1977), asked the following research questions:

1. What were the processes undertaken by a higher education organization in the adoption of best practices in information technology project management?
2. What factors influence an organization in the adoption of best practices in information technology project management?

### Significance of the Study

This study contributes to an understanding of the factors that enable a public higher education organization to reach an advanced level of information technology project management maturity through the adoption of PM best practices, a sign of organizational change and efficiency (Project Management Institute, 2003a). What makes this phenomenon interesting is that higher education is institutional by nature and driven by goals of legitimacy not efficiency (Gumport, 2000b; Kraatz & Zajac, 1996; H. D. Meyer & Rowan, 2006b; J. W. Meyer et al., 2005). This study gives insight into organizations that are not traditionally driven by efficiency enacting practices that are efficient in nature.

Having an enhanced understanding of how information technology project management is adopted within higher education furthers our knowledge of how innovative ideas circulate and are adopted within these institutional environments that are not by their nature drawn to change for efficiency's sake. This is important because, as Duderstadt (2000) suggested, while many higher education institutions are now situated in a dangerous environment of scarce resources, in which administrative quality and stronger management practices become instrumental, few universities have taken the necessary managerial steps necessary to keep up with changes or to isolate risks. An enhanced understanding of innovation adoption within higher education will help these organizations address some of the current economic and efficiency issues and perhaps

even survive in this current environment described by Slaughter and Rhodes, (2004) as entrepreneurial and capitalistic.

Secondly, little research was found on information technology project management in higher education. The limited research that exists tends to focus on measures of whether an organization is using project management or using specific elements of project management. Research in higher education has done little to determine the reasons why some organizations readily adopt a method that has been shown to have significant organizational benefits while others do not. This dissertation enhances our understanding of this important issue.

Additionally, the current understanding of the processes involved in institutional change theory will be expanded. This research is meant to investigate the *processes* involved in change adoption from an institutional perspective, which has been virtually ignored in recent literature (Van de Ven & Hargrave, 2004).

## CHAPTER TWO: LITERATURE REVIEW

### Introduction

Richard Scott (2001) introduces *Institutions and Organizations* by indicating that institutional theory has raised many provocative questions about the worlds of organizations including:

- Why do organizations of the same type, such as schools and hospitals, although located in widely scattered locales, closely resemble one another?
- Why is the behavior of organizational participants often observed to depart from the formal rules and stated goals of the organization?
- Why and how do laws and rules arise? Do individuals voluntarily construct rules systems that then bind their own actions?

Many of these phenomena are observed in higher education. Gordon Winston (1999) argued that lesser higher education institutions copy those that are more prestigious in order to gain legitimacy and attract the best students. He also noted that higher education institutions are given recognition for goals and announcements of legitimacy-gaining actions whether actually carried out or not. Lynne Zucker (1977, p. 728; 1987, p. 444) defines *institutional* as “(a) a rule-like, social fact quality of an organized pattern of action (exterior), and (b) an embedding in formal structures, such as formal aspects of organizations that are not tied to particular actors or situations (nonpersonal/objective).” North (1990, p. 3) defines institutions as “the rules of the game in a society, or more formally, ...the humanly devised constraints that shape human interaction.” These rules of the game in higher education could be characteristics such as loose coupling, conforming to group expectations, making decisions by committee, using leaders as

symbols, and garbage can decision making that many scholars such as Birnbaum (1988) write about.

Comprehending the rules, structures, and constraints placed upon organizations with institutional characteristics will help to better understand the questions above. This knowledge facilitates an understanding of the organizational dynamics that take place in higher education as individuals attempt to advance change and technical agendas such as advanced project management concepts. The concepts of institutionalism, and institutional change in particular, also help better answer the two research questions that direct this study: what were the processes undertaken by a higher education organization in the adoption of information technology project management best practices, and what factors influence an organization in the adoption of information technology project management best practices?

The perspective of institutional change is examined in this chapter to better explain and understand how environments transform in higher education. New institutional theory, a concept that evolved from institutional theory and is essential to this research, is examined as a method of explaining change. Although new institutionalism has been criticized in past years for ignoring change (Gorges, 2001; Greenwood & Hinings, 1996; Kraatz & Zajac, 1996; Mahoney & Thelen, 2010; Streeck & Thelen, 2005; Tolbert & Zucker, 1983), or explaining change through exogenous shocks to the organization (H. D. Meyer & Rowan, 2006a), recent literature has taken a much closer look at the usefulness of new institutionalism in explaining change. This dissertation is about institutional change in higher education information technology organizations through the adoption of project management best practices, which can be described as complex. Because new institutionalism is a perspective that has a “unique contribution to make in analyzing complex and contradictory patterns of institutional change” (H. D. Meyer &

Rowan, 2006a, p. 11), this perspective helps to understand how information technology project management best practices evolve in the higher education.

This literature review starts with a brief explanation of how early rational theorists influenced the beginnings of institutional thought. The concepts of early institutionalism and new institutionalism are the topics of the next two sections where I define the origins of each perspective and compare and contrast the characteristics that define both theories. I next examine how scholars view new institutionalism as a promising tool for gaining insight into higher education. Lastly, I review the progression of scholarly perspectives on institutional change.

### Early Rational Organizational Theories

Many early theorists viewed organizations as rational systems with a focus on implementing organizational goals in the most efficient and effective manner possible; “From the rational system perspective, organizations are instruments designed to attain specified goals” (Scott, 2003, p. 29). Frederick W. Taylor’s (1911) scientific management principles systematically analyzed tasks performed by individual workers (time-and-motion studies) in order to discover the procedures that would produce the maximum output with the least amount of effort and resources. Another rational perspective is Henri Fayol’s (1949 trans.) administrative management which is more focused on the manager and a top down philosophy than scientific management’s bottom up principles (Scott, 2003).

Max Weber’s (1947) work on bureaucracy documented a rational, efficient means of organizing, which included divisions of labor, hierarchy of offices, rules that governed performance, personnel separated from property and rights, technical qualities used for the selection of personnel, and employment as a career. Simon’s (1997) theory of administrative

behavior was another principle work in rational perspectives from which came influential ideas such as those of bounded rationality, goal specificity, formalization, the role authority, and thoughts on communication and efficiency. Theories of this period often portrayed organizations as tightly bounded with clear separation from the surrounding environments, which were assumed to always operate as expected (Suchman, 1995).

### Early Institutionalism

Observations of the inconsistencies in the aims and objectives of certain organizations, such as colleges and universities, led early institutional scholars toward new methods and ideas for explaining the non-rational actions of actors within these organizations which is the focus of new institutionalism. Selznick(1949), while researching the evolution of the Tennessee Valley Authority discovered that the original structures and goals changed over time based on the participant's objectives and other powerful forces in the environment. He then wrote about the interrelationship between rationality and the centrality of values and principles to organizational legitimacy. It cannot be overstated how strong of a role legitimacy plays in institutionalism. Suchman (1995) noted that there have been a number of legitimacy definitions, some hierarchical and evaluative, some culturally conforming, others congruent between the organizational and the cultural environment. He defines legitimacy in broad based terms that fit with institutionalism including evaluative and cognitive terms:

Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions. (Ibid, p. 574)

Stinchcombe (1965) asserted that as organizations gain value, a character structure and distinctive identity are acquired, which organizational leaders are tasked with preserving. He

stressed that institutional formality and rituals increase with the importance of the matter or subject at hand; the reason for having things institutionalized is because they matter. Selznick (1957, pp. 16-17) suggested: “In what is perhaps its most significant meaning, ‘to institutionalize’ is to infuse with value beyond the technical requirements of the task at hand.” Institutionalism promotes stability and persistence of the structure over time by instilling value (Scott, 1987).

Education distinguishes itself as an organization with institutional characteristics through such structures as loose coupling, social coordination of technical work, and an emphasis on value in place of efficiency (H. D. Meyer & Rowan, 2006a; J. W. Meyer, 1975; J. W. Meyer et al., 2005). These characteristics are significant and not easy to change because they are perceived as valuable and legitimizing (H. D. Meyer & Rowan, 2006b).

#### New Institutional Theory

Work developed in the 1970’s and 1980’s focused on the importance of organizational fields and forms (Scott, 2001) and what came to be called the new institutional perspective. Organizations incorporated socially rationalized procedures, “Products, services, techniques, policies, and programs function as powerful institutional myths that many organizations adopt ceremonially”, with the idea of achieving legitimacy, whether efficient or not (J. W. Meyer & Rowan, 1977, p. 340) . Education saw decoupling, the creation of gaps between formal policies and actual practices, distinguished through such observations as the lack of internal coordination of technical work, the deficiency of measures, and the lack of internal technical assessments (J. W. Meyer, 1975).

The concept of isomorphism was introduced with the following consequences noted: (a) organizations incorporate elements that are legitimate but not necessarily efficient; (b) they

employ ceremonial evaluation and assessment criteria such as external awards; and (c) dependence on externally fixed and legitimate institutions reduces turbulence and maintains stability (J. W. Meyer & Rowan, 1977). The idea that organizations gain legitimacy through isomorphism and the incorporation of institutionalized elements is also highly visible throughout the Meyer and Rowan (1977) seminal work. Isomorphism, and in many cases legitimacy, in higher education is apparent through empirical evidence that shows educational systems are remarkably similar not just in the United States but around the world (J. W. Meyer et al., 2005).

The highly influential macro perspective article by DiMaggio and Powell (1983) described three mechanisms by which institutional isomorphic change occurs: 1) *coercive* isomorphism develops from political influence and the problems of legitimacy. This is seen in education primarily through the demands placed on institutions by the state and federal governments (Levy, 2006). Coercive isomorphism occurs as sector organizations obey the rules and laws of the state and its agencies and therefore, end up with similar structures and procedures (Rowan & Miskell, 1999). The main coercive force in the education sector is the government, which imposes a common legal environment and is the singular financial source with conditions attached (H. D. Meyer & Rowan, 2006a). Inducements and mandates are examples of such conditions (Rowan & Miskell, 1999); 2) *mimetic* isomorphism stems from customary responses to uncertainty. This process occurs as less successful organizations mimic flourishing or high-status organizations in the field assuring others that they are acting in ways that are modern and rational (Rowan & Miskell, 1999; Winston, 1999). The term “modeling” is used to define mimetic isomorphism and models may be passed through employee transfer or turnover, or through consulting firms or industry trade associations; and 3) *normative* isomorphism, which is coupled with and enforced through professionalism (DiMaggio & Powell,

(1983). Normative isomorphism arises in higher education when professors and administrators mimic established norms (Levy, 2006). A conclusion to be drawn from normative isomorphism is that institutional environments produce homogeneity among organizational forms, shifting the focus away from organizations toward what Meyer and Scott (1992; 1991) call “institutional sectors” (Rowan & Miskell, 1999).

One typology classifies organizations into four categories: 1) organizations that exist in weak technical but strong institutional environments (such as universities and schools, legal agencies, and other heavily regulated organizations with uncertain technologies); 2) organizations that exist in weak institutional but strong technical environments (many business and manufacturing firms in competitive markets); 3) organizations that exist in strong technical and strong institutional environments (banks, utilities, hospitals); and 4) organizations that exist in weak technical and weak institutional environments (many personal services establishments such as restaurants) (Scott & Meyer, 1991). This classification calls attention to the fact that organizations can experience different demands for technical efficiency and institutional conformity, and that differing versions of institutional analysis can be administered to the applicable societal sector for analysis (Rowan & Miskell, 1999). The authors also indicate that the sociological version of institutional analysis is most appropriate for the study of organizations with weak technical environments such as those in higher education, which is what I am studying, and a reason I am drawn to this perspective.

### New Institutional Theory and Higher Education

Rejecting models portraying somewhat autonomous actors operating with unbounded rationality in pursuit of self-interests appears to make new institutionalism a good fit for explaining the deliberately moving, loosely coupled, governance by committee, institutional

environment of higher education. Although research using new institutionalism has been applied to politics broadly, economic change and development, organizational theory, and the sociological study of institutions, little of this research has applied new institutionalism to higher education (J. W. Meyer, 1975).

An occasional paper by Meyer (1975) prior to his landmark publication on new institutionalism gave an indication that higher education, with its lack of strong internal coordination but considerable stability may have served as a model for some of the ideas on new institutionalism put forth in later works. In the paper the author spells out the loose coupling of educational coordination with examples of how few technical details are known by administrators who seem to be primarily focused on the bookkeeping tasks of funding, filling classroom seats and classifying students. It is suggested that coordination of educational activity and instruction takes place outside of professional forums through environmental pressures and isomorphism (J. W. Meyer, 1975).

A short time later another article explains that education is better looked at through a more general form of institutional theory, legitimization theory (J. W. Meyer, 1977). The exceedingly legitimizing effect of educational organizations comes from their highly institutionalized status in society. Therefore, by portraying education's structures as socially legitimated and legitimating, others are informed that the payoffs are highly proper, deriving from the core meaning and values of society (Rowan & Miskell, 1999).

The concepts of isomorphism and legitimacy significantly influence the structure and management of higher education, the highly institutional environment buffers the weak technical environment from inefficiency and decoupling (Rowan & Miskell, 1999). Creating institutional sectors leads to coercive, normative, and mimetic isomorphism, which in turn leads to

organizational homogeneity and isomorphism in education. Empirical evidence shows educational systems in the U.S. and globally are remarkably similar, which can be attributed to isomorphic processes (J. W. Meyer et al., 2005).

In 2006, a book of educational new institutionalism essays was published with a central theme maintaining that changes in education have created the need to reinvestigate the institutional reality in both the K-12 and higher education environment (H. D. Meyer & Rowan, 2006b). These changes include: 1) greater provider pluralism. Education is no longer a monopoly of government. Providers now come from all sectors and include private, market-oriented organizations; 2) more tight coupling. Accountability has led to a shift to more narrowly controlled practices; and 3) more central role of educational institution in society. Families, entrepreneurs, voluntary organizations, and corporate ventures take a stronger role in governance.

Missing from all standpoints documented in this review of literature thus far is a perspective for gaining a better understanding of the activities and processes that accompany institutional change. The next section reviews institutional change literature and attempts to connect it to the higher education environment where appropriate.

### Institutional Change

Institutional change has been defined as the “difference in form, quality, or state over time in an institution” (Van de Ven & Hargrave, 2004, p. 261). New institutionalists emphasize a cognitive process in which normative obligations enter into social life primarily as facts, “not norms and values but taken-for granted scripts, rules, and classifications as the stuff of which institutions are made” (DiMaggio & Powell, 1991a, p. 15). The reason for having things institutionalized is because they matter (Stinchcombe, 1965). Understanding the value that

institutions place on their rules and classifications helps clarify and appreciate why institutional elements “are maintained over long periods of time without further justification or elaboration, and are highly resistant to change” (Zucker, 1987, p. 446). From these writings and explorations it is understood that institutions can resist change and that some leading examples of institutional analysis face problems when explaining institutional change. Conversely, researchers have recently offered examples of institutional analysis that address this concern and explain institutional change (Hargrave & Van De Ven, 2006; Heugens & Lander, 2009; Mahoney & Thelen, 2010).

Here I explain institutional change borrowing a framework from Van de Ven and Hargrave (2004) that includes four perspectives: institutional design, institutional adaptation, institutional diffusion, and collective action. These four perspectives are outlined in Table 2.1 and summarized below.

### *Institutional Design*

In the institutional design perspective, organizations reflect the pursuit of conscious choices; this perspective focuses on the purposeful creation or revision of institutions (Van de Ven & Hargrave, 2004). Scholars who take this perspective pay particular attention to the actions of individual actors who create or change institutional arrangements through conscious, intentional decisions and actions. This perspective was first introduced by institutional economists who believed that institutional change was triggered by times of crisis and is subject to individual choice, purpose, and will to solve that crisis (Van de Ven & Hargrave, 2004).

Institutional history is a process of individual actors intentionally selecting one set of practices over another after investigation and negotiation of best practical alternatives, a method of addressing social problems and attending to injustice (Commons, 1950).

**Table 2.1 – Van de Ven and Hargrave’s Four Perspectives on Institutional Change**

| Dimension                  | Institutional Design                                                                                    | Institutional Adaptation                                                                                                   | Institutional Diffusion                                                                                                                   | Collective Action                                                                                                                                         |
|----------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question                   | What actions and roles do individual actors undertake to create or change an institutional arrangement? | How do individual organizations adapt to their institutional environment? Why do organizations adopt similar institutions? | How do institutional arrangements reproduce, diffuse, or decline in a population or organizational field? Why are organizations so alike? | How do institutions emerge to facilitate or constrain social movements or technological innovations?                                                      |
| Focal Institutional Actors | Individual entrepreneurial actor(s) with bounded agency; affordance and partisan mutual adjustment      | Individual organizational actor adapting (proactively or reactively) to institutional environments                         | Population or industry of organizations exposed to same institutional environment                                                         | Networks of distributed and partisan actors in an interorganizational field who are embedded in a collective process of creating or revising institutions |
| Generative Mechanism       | Purposeful social construction and strategies by actor to solve a problem or correct an injustice       | Institutional environmental beliefs, pressures, or regulations to which organizational actor must adapt to be legitimate   | Competition for scarce resources forces actors to imitate and conform to legitimate institutional practices                               | Recognition of an institutional problem, barrier, or injustice among groups of social or technical entrepreneurs                                          |
| Process Event Sequence     | A dialectical process of creating working rules that resolve conflicts or address unprecedented cases   | Coercive, normative, and mimetic processes or internal organizational adaptation and change                                | Evolutionary processes of variation, selection, and retention of institutional forms                                                      | Collective political events dealing with processes of framing and mobilizing structures and opportunities for institutional reform                        |
| Outcome                    | New "rules of the game" that enable and constrain actors by changing their rights, duties, or roles     | Organizational legitimacy by adopting isomorphic institutional arrangements                                                | Institutionalization or deinstitutionalization of institutional arrangements in a population of actors                                    | Institutional precedent, a new or changed working rule, an institutional innovation                                                                       |

While some think that change is radical, resulting from conquest or revolution, others such as North (1990) and Commons (1950) feel that the dominant form of institutional change is gradual, incremental, and deliberate, created through continuous marginal adjustments by the organizational leaders, a concept that aligns with the institutional design perspective. One of the earliest concepts of institutionalism is that organizations only become institutions when the leaders infuse them with value and that institutional change occurs through processes that are intentionally initiated and led by organizational leaders who believe that a vacuum of value exists (Selznick, 1957). New institutional theorists have begun to change their original view that institutions are unyielding and that institutional rules always condition the actions and characteristics of organizations (Powell & DiMaggio, 1991; Scott, 2001). Not all research reveals conformity to legitimizing factors, an example of evidence of institutional design came about when community college leaders became aware that an opportunity existed and they took advantage of positive environmental factors. The intentional actions of the community college leaders in response to environmental pressures and opportunities was responsible for “vocalization” of the schools, not consumer choice or business domination (Brint & Karabel, 1991).

In summary, the institutional design perspective describes institutional change as gradual, institutional, and deliberate, occurring through the actions of individual agents attempting to resolve conflicts of needs and ideas (Van de Ven & Hargrave, 2004). It is clear that in many of these examples changes occurred because the individual agency of leaders motivates them to adjust their organizations in ways that facilitate goal achievement while working within the existing environment. Additionally, new institutional scholars take a perspective on institutional change that perceives the motives of the individual agents based more on cognitive influences

than on norms and values, but still focuses on the conscious, intentional actions of individual actors to create or change institutional arrangements (Van de Ven & Hargrave, 2004).

### *Institutional Adaptation*

Institutional adaptation, distinct from the other three perspectives, is primarily focused on changes in the character of institutional actors as they conform to norms, beliefs, and rules in the institutional environment in order to achieve legitimacy, which enables them to acquire resources and improve their chances of survival (Van de Ven & Hargrave, 2004). By pointing out the magnitude of legitimacy in social life and by correlating legitimacy to organizational goals, Weber (1947) and Parsons (1956) respectively, emphasized the wider organizational influence on shaping and constraining the institutional environment (Scott, 2001).

In a seminal article Meyer and Rowan (1977) stress that the organization's concern for legitimacy and survival cause it to adapt rules, elements, and structures that conform to the pressures of the institutional environment. The authors attest that organizations must decouple their structures from technical activities so that institutional myths are upheld and legitimacy is attained because conformity with institutionalized rules can conflict with technical efficiency. This is witnessed in higher education through the loose coupling of administrative activities prevalent throughout the system (Birnbaum, 1988; Weick, 1976). Institutional environments affect and shape organizational structure and powerful organizations impose their practices and procedures and oftentimes their goals into society as institutional rules (J. W. Meyer & Rowan, 1977). As with the institutional design perspective but with different motivational factors, their deterministic theory does not deny agency (Van de Ven & Hargrave, 2004).

Another important scholarly contribution contends that the accounting of organizations in modern society is influenced more by the homogenizing forces of the state and professions than

the demands of the marketplace through coercive, mimetic, and normative pressures (DiMaggio & Powell, 1983). Most empirical studies have found that organizations fall in line with their prevailing institutional environments, especially under conditions of uncertainty where organizational decision makers will copy the behavior of other organizations, most notably those to which they are strongly linked in their network (Van de Ven & Hargrave, 2004). Conflicting evidence was found that organizations will make technical environment changes rather than conform to the demands of the institutional environment in a study of U.S. liberal arts colleges (Kraatz & Zajac, 1996). It was determined that colleges made changes that violated institutional norms, that they responded to the technical environment more than the institutional norms, that their structures diverged instead of converged; that less prestigious colleges did not emulate elite ones, that local conditions had more of an effect on behavior than did institutional pressure, and that colleges did not suffer harmful effects from illegitimate changes. This is another example of leader agency overruling institutional factors for what is perceived as beneficial change.

Although new institutionalists initially predicted isomorphism would spread widely across organizations, many scholars have since determined that a number of factors contribute to an organization's responses to the institutional environment, including organizational attributes such as size, performance, leader background, the degree of unionization, connections to other environmental actors, and the location and status of the organization's reference group (Van de Ven & Hargrave, 2004). Greenwood and Hinings (1996) address the relation between organizational context and action by arguing that 1) an organization's resistance to change is determined by how normatively embedded it is within an institutional context; 2) sectors will vary in the amount and pace of radical organizational change dependent upon the tightness and permeability of structure within the sector; and 3) sectors will vary in the amount and pace of

institutional change dependent upon internal organizational dynamics (Van de Ven & Hargrave, 2004).

Other innovation scholars studied organizational responses to external environmental pressures for change (Rogers, 1983) but focused more directly on the difficulties experienced by adopters who were mandated to implement innovations developed externally (Van de Ven & Hargrave, 2004). Before successful implementation within an organization, externally developed innovations may need to be “reinvented” (Rogers, 1983). This would imply that to be successful, every organization needs to invent and adopt project management best practices in its own way.

In summary, research has focused on the impact that external institutional pressures have on the structure of organizational entities, with the central focus being that in order to achieve legitimacy and survival, organizations must conform to these pressures (Van de Ven & Hargrave, 2004). Recent institutional scholars have begun to focus less on the causes and more on the processes of adoption by exploring agency and environmental pressures (Greenwood & Hinings, 1996; Greenwood, Suddaby, & Hinings, 2002). Responses vary and are based on strategic and organizational conditions; organizations do not react in standard ways to institutional environmental pressures (Van de Ven & Hargrave, 2004).

### *Institutional Diffusion*

The institutional diffusion perspective examines how institutional arrangements “reproduce, diffuse, and decline in the organizational field” (Van de Ven & Hargrave, 2004, p. 273). Part of the difficulty of understanding institutions is their pervasiveness and diversity:

An institutional arrangement may be very simple (e.g., a stoplight or school bell) or complex and highly contested (e.g., stem-cell cloning, environmental laws, auditing and

consulting practices by accounting firms). The institutional arrangement may apply to a single intuitional actor (e.g., a firm's internal hiring and promotion policies), to organizational standards, rules of market competition, or a particular organizational form), to all citizens of a country (e.g., taxation, property rights laws, tariff and trade agreements, international environmental treaties, foreign currency values). (Van de Ven & Hargrave, 2004, p. 261)

The details of how institutional form reproduction occurs, the degree that it infiltrates a field of organization, and the rate at which it occurs is generally the focus of institutional diffusion studies according to Van de Ven and Hargrave (2004).

The old institutionalists first wrote about institutional diffusion as a series of thoughts and actions that subsequently crossed over into other activities and organizations but not necessarily by intention (Van de Ven & Hargrave, 2004). Some new institutionalists documented coercive, normative, and mimetic mechanisms of institutional diffusion (DiMaggio & Powell, 1983), and others stressed the regulative, normative, or culture/cognitive aspects of the changes (Scott, 2001).

Westphal, Gulati and Shortell (1997) tested the idea that legitimacy drives diffusion by examining the diffusion of total quality management (TQM) among U.S. hospitals in the period 1985-1993. The authors attempted to determine if TQM adoption occurred because of efficiency or isomorphic pressures. The results show that early adopters customize TQM practices for efficiency gains, while later adopters gain legitimacy from adopting the normative form of TQM programs. This may give insight into why those in higher education copy the leaders, to gain legitimacy, but it does not help to understand the experiences of early adopting organizations who innovate.

Sherer and Lee (2002) investigated the contributions of the institutional pressures of legitimacy and the technical pressures of resource scarcity to the diffusion of human resource practices of law firms. They contend that in the organizational field of large law firms, a field where prestige matters, it is the highly prestigious or legitimate firms that initiate change. A similar claim is that the most highly esteemed and influential higher education institutions are also the first to initiate innovative change and that others then follow (Winston, 1999). Prestigious organizations are said to innovate first because their legitimacy allows them to get away with unconventionality; those less prominent adopt innovative practices only after they have become legitimized (Sherer & Lee, 2002).

Scholars have begun to look more closely at institutional diffusion at the field level in response to criticism of the lack of change details provided in previous studies. A conceptual process model of the institutionalization process addressed what was perceived as a lack of agency in new institutionalism. The model has four stages in the institutional process: *innovation*, new variations rooted in efficiency or politics; *habitualization*, others try out the new innovation; *objectification*, new structural elements become more permanent and widespread; and *sedimentation*, when full institutionalization takes place through low resistance by opposing groups, continued cultural support and promotion by advocacy groups, and positive desired outcomes (Tolbert & Zucker, 1996). The model allows for agency and deliberate institutional design into institutional theory by specifically viewing interest groups as knowingly playing a role in supporting or opposing the sedimentation of an innovation (Van de Ven & Hargrave, 2004).

Another study with agency as a critical factor found that the spread of professional programs was linked to the migration of leaders from one organization to another in a study of

liberal arts colleges during the 1970's and 1980's. Kraatz and Moore (2002) explained that more attention should be paid to actors as those who spread the diffusion of institutional structure while not denying that social and economic drivers still have a large influence.

In summary, institutional diffusion describes the duplication and transmission of institutional arrangements within an organizational sector as organizations strive for legitimacy (Van de Ven & Hargrave, 2004). The recent literature has focused on the spread of organizational structures in the quest for legitimacy and the conditions under which institutionalization occurs.

### *Collective Action*

Collective action is the last perspective in the Van de Ven and Hargrave (2004) institutional change framework. Scholars who study the collective actions of institutional change focus on the social and political processes that make possible and limit the development of a technological innovation or a social movement, and through which institutions take root or change (Van de Ven & Hargrave, 2004). The collective action literature, like that of institutional design, emphasizes decisive efforts to produce change, and it takes as its unit of analysis the industry or organizational field rather than the individual actor. Works by scholars focusing on social movements, technological innovation, and industry emergence have contributed to major theoretical and empirical advances (Van de Ven & Hargrave, 2004).

Researchers of social movements, defined as “an action system comprised of mobilized networks of individuals, groups and organizations which, based on a shared collective identity, attempt to achieve or prevent social change, predominantly by means of collective protest” (Rucht, 1999, p. 207), have studied collective political activities that address professed social and ecological problems, barriers, or injustices (Van de Ven & Hargrave, 2004). Technical and

industry emergence scholars have examined the institutional arrangements (such as property rights, standards, regulations, trade policies, legitimating practices, R&D efforts, financing arrangements, consumption patterns, market structure, etc.) that facilitate and encumber the development and commercialization of new products, services, and technologies (Hargrave & Van De Ven, 2006). Technology and industry emergence scholars view the advancement and commercialization of technological innovations as collective achievements in constructing an industrial infrastructure for economic development among distributed and partisan actors (Hargrave & Van De Ven, 2006).

The main ideas of this section are that the social movement and technology emergence literatures focus on institutional change through collective action with key themes of: 1) no single actor has power to produce change by itself; 2) change results through a process of cumulative synthesis to address unique problems; and 3) the process is path-dependent but not deterministic (Van de Ven & Hargrave, 2004). Because this dissertation has a unit of analysis focused on individual central university information technology project management groups, the current research of the collective action scholars will not be documented to any significant degree.

### Summary

Institutionalism and new institutionalism help to explain how structure and rules develop in higher education organizations. Early institutionalism allowed scholars to better describe the non-rational actions of actors (Selznick, 1949). Legitimacy strongly affects the actions of actors from this perspective. Those behind new institutionalism saw different and more complex sources of social structure; the idea of legitimacy through isomorphism is highly visible throughout Meyer and Rowan's (1977) seminal work. DiMaggio and Powell (1983) developed

the idea of institutional isomorphism further with the introduction of coercive, mimetic, and normative isomorphism. However, scholars argued that the concepts of new institutionalism lacked an understanding of the activities and processes that accompany institutional change, which became a focus of research in this area toward the end of the twentieth century. In 2004, Van de Ven and Hargrave introduced a framework of institutional change perspectives that includes institutional design, centering on individual actor agency; institutional adaptation, focusing on individual organizations; institutional diffusion, looking at macro organizational change; and collective action, focusing social movements.

## CHAPTER THREE: RESEARCH DESIGN AND METHODS

### Background

This dissertation used a case study design to investigate the factors that influence institutional change through the adoption of information technology project management best practices. Evidence explored included individual interviews and supporting documents that asked the following questions within a public research university environment:

1. What were the processes undertaken by a higher education organization in the adoption of best practices in information technology project management?
3. What factors influence an organization in the adoption of best practices in information technology project management?

### Research Design

When setting out to do research, scholars typically choose between a traditionalist quantitative approach, an alternative qualitative study, or a combined mixed method approach (Creswell, 2002). A qualitative approach is recommended when the questions are general and broad, the data being gathered are textual or words, and there are multiple sources of evidence (Creswell, 2002; Merriam, 1998; Yin, 1994). The term “qualitative research” covers several forms of inquiry that facilitate an understanding of how all the parts of a process work together (Merriam, 1998). This dissertation uses a qualitative research design because the purpose is to understand the multiple process characteristics of how change, namely, the adoption of project management best practices, occurs within a higher education central IT organization. A qualitative design allows a broad understanding and explanation of what processes occurred as the changes associated with the adoption of project management best practices came about. Using a qualitative design allowed for a broader, richer understanding of the processes of project management best practice adoption in the higher education IT case environments. The

institutional change framework that I use in this dissertation was developed by Van de Ven and Hargrave (2004) and includes the four perspectives of: 1) institutional design; 2) institutional adaptation; 3) institutional diffusion; and 4) collective action. A qualitative analysis allows me to recognize and understand which institutional change perspective best describes the processes that brought about IT PM best practice adoption within the institution being investigated.

Qualitative methodology includes a wide array of alternative and appropriate research methods, which can be confusing to the social scientist (Marshall & Rossman, 1995). Yin (1994) suggests that the case study is a research strategy that is appropriate for collecting and analyzing empirical evidence when: 1) exploratory “what” questions are being asked; 2) the research does not require control over behavioral events; and 3) the research focus is on contemporary actions. Benbasat et al. (1987) propose that although there is not a standard definition, typically a case study examines a phenomenon in its own setting, employs multiple methods of data collection and can gather information from one or multiple entities. In explaining the fit of specific research strategies, Merriam (1998, p. 19) put forth that “a case study design is employed to gain an in-depth understanding of the situation and meaning for those involved. The interest is in process rather than outcomes, in context rather than a specific variable, in discovery rather than in confirmation.”

The research questions of this dissertation align with each of these sets of case study criteria. This research is designed to better understand the change processes in higher education IT project management that are rarely examined and the factors that influence the adoption of PM best practices. These questions are best understood through the in-depth study of the situations and contemporary actions that influenced and implemented that change. Case studies are “particularistic”, meaning that they focus on a particular issue or phenomenon (Merriam,

1998). They are a method conducive to examining the experiences, problems, and innovations of practitioners (Benbasat et al., 1987; Merriam, 1998), which is precisely what I have attempted to accomplish with this research through a holistic view of higher education IT project management.

### Project Management Maturity as Change

In case study research propositions direct attention to an item that should be examined, the “how” and “why” questions important to the heart of the research often come from the stating of propositions (Yin, 1994). I propose that the questions asked in this dissertation are further clarified through this exploration of the adoption of project management best practices by an organization with institutional characteristics. While the assessment of project management maturity is not a goal of this dissertation, understanding what it means will be helpful to the reader because the concept is used in places throughout this dissertation. A certain higher level of project management maturity was also a factor in choosing which organization to study. The reader having a conceptual understanding of project management maturity therefore helps to better understand the study parameters.

For this dissertation I proposed that the adoption of an advanced level of information technology project management practices, allowing a higher education organization to reach an above average level of PM maturity, is an example of institutional change. This then brings forth the question, for sample selection, how do we determine that an organization has successfully achieved a higher level of PM maturity? The following paragraphs describe how PM maturity can be recognized and described.

### *Describing Project Management Maturity*

There are numerous project management maturity models (PMMMs). The models are generally described as “standards” and when applied to an organization’s project management processes, allow for a capable method of improving those processes (Crawford, 2007; Kerzner, 2001; Project Management Institute, 2003a). I followed The Project Management Institute’s (PMI) definition of a standard as “a formal document that describes established norms, methods, processes, and practices” (2008, p. 3). Best practices in project management are the basis of the models and are defined as “an optimal way currently recognized by industry to achieve a stated goal or objective” (Project Management Institute, 2003b). All of the PM maturity models that I investigated or discovered for this dissertation used the PMI Project Management Body of Knowledge (PMBOK) (2008) as the set of standard processes against which they assessed. PM maturity models allow organizations the ability to assess the current state of their project management structures against a model of standards such as the PMBOK. Organizations can then utilize assessment results as a path to improvement, if deemed necessary.

As shown by Table 3.1, PM maturity model assessments generally place an organization into a specified level of maturity. Each level represents a different degree of maturity in the achieving project management best practice capabilities and practices (Kerzner, 2001). The lowest levels of assessment reflect organizations that are just starting to define common, standard PM processes and language. As an organization moves into higher levels of maturity the processes become more highly standardized; additional controls and management processes are put in place. Organizations reach the top levels of PM maturity models by following a majority of best practices and optimizing and continuously improving PM processes (Crawford, 2007; Kerzner, 2001; Project Management Institute, 2003a).

**Table 3.1 – Project Management Maturity Model Levels**

| <b>PM Maturity</b> | <b>Maturity Models</b>                                 |                        |                        |
|--------------------|--------------------------------------------------------|------------------------|------------------------|
|                    | <b>Crawford</b>                                        | <b>Kerzner</b>         | <b>PMI</b>             |
| <b>Level 5</b>     | Optimized Process                                      | Continuous Improvement | N/A                    |
| <b>Level 4</b>     | Managed Process                                        | Benchmarking           | Continuously Improving |
| <b>Level 3</b>     | Organizational Standards and Institutionalized Process | Singular Methodology   | Controlling            |
| <b>Level 2</b>     | Structure Process and Standards                        | Common Processes       | Measuring              |
| <b>Level 1</b>     | Initial Process                                        | Common Language        | Standardizing          |

PMMMs also aid organizations in determining the capabilities and best practices needed in order to advance to a desired maturity ranking (Crawford, 2007; Project Management Institute, 2003a). An analysis of an organization’s PM resources and capabilities allows the determination of strengths and weaknesses, or more likely what an organization has the current abilities to accomplish (Kerzner, 2001). For instance, an organization could make a determination whether it has sufficiently skilled personnel to staff a specific project management training class.

#### Unit of Analysis

With my research questions in mind, I determined that the university central information technology units responsible for IT projects were the organizations that I wanted to explore to better understand the adoption of information technology project management best practices. Merriam (1998, p. 27) stresses that the “the single most defining characteristic of case study research lies in delimiting the object of the study, the case.” Deciding “...who can best answer your research questions and hypotheses?” is suggested (Creswell, 2002, p. 159) as a method for determining the unit of analysis. With this in mind I determined that I would limit my study to

only the central IT group. My unit of analysis, or case, was therefore the university central IT organization responsible for project management.

The members of the central information technology units who are in position to understand the PM processes undertaken and influencing factors are the leaders. The IT leadership team, the vice provost (or chief information officer), directors and associate directors were interviewed. The leadership team is in the best position to provide the institutional characteristics and political context needed to fully understand how and why PMM best practices were adopted.

### Site Selection

In this dissertation I conducted a case study of the IT PM characteristics of a public research university. This research investigated a case where project management best practices were adopted within higher education, an environment which is not known for best practices in technology PM; I therefore investigated atypical behavior within an institutional organization. I determined that the following criteria were essential to choosing the site for the study:

1. Institution of higher education that had reached a higher level of project management maturity than peer institutions.
2. Public research university: Public universities are most affected by cuts in state funding levels over the last 25 years (State Higher Education Executive Officers (SHEEO), 2009) and would benefit from the results of this research. Research universities will benefit from this study because they are likely to be large, decentralized, and inefficient in their use of resources (de Groot, McMahon, & Volkwein, 1991). I am also most familiar with the public research university, how it is organized and structured; it is therefore the surrounding that I perform most effectively in.

3. Organization with a central IT group that has made progress and achieved positive change in project management best practice adoption and project management maturity advancement.
4. Land Grant University: Merriam (1998) discusses the idea of “convenience sampling” where a site is chosen based upon time, money, location, and so on. Similar to my being familiar with public research universities, I am also more familiar with the land grant university environments because of my professional experiences.

I further investigated possible sites through web site reviews, discussions, and email with personnel at potential study locations. The site chosen, the Information Technology Services (ITS) organization at Northern State University was determined through the selection criteria, the information determined in initial investigations, and through discussions with highly regarded practitioners such as the Vice Provost of Information Technology and other leaders from my current institution involved in IT project management.

### Data Collection

#### *Interviewing*

My exploration of the adoption of PM best practices is guided by institutional theory (DiMaggio & Powell, 1983; J. W. Meyer et al., 2005; Scott, 2003) and the framework of institutional change developed by Van de Ven and Hargrave (2004). The following organizational aspects were investigated with the interview subjects: a) who were the focal institutional actors or change agents, and what was their involvement in the organization's movements through the spectrum of project management maturity; b) what was the generative mechanism behind the move to project management best practices; c) what were the processes followed, and the event sequence, in the adoption of project management best practices; d) what was the outcome of the institutional changes in the IT department and outside the department;

that of the political contexts in relation to the institutional project management environment; e) what are the characteristics of the participant institutions; and f) what was the political context prior to and during the change to a more mature project management environment? See Appendix B, Interview Protocol.

One-on-one interviews were arranged via email using an online calendaring tool one month prior to travelling to Northern State University. Interviews lasting approximately two hours each were conducted in person with the senior IT leadership team, including the vice provost (or chief information officer), the deputy CIO, all directors and some associate directors, the project management office director, and certain PM related associate IT directors. All interviews were digitally recorded and I took extensive notes during the interviews on my interview protocol documents. The first section of the interview collected demographic information about the study participants. The second section of the interview consisted of semi-structured interview questions that focused on the characteristics of the Van de Ven and Hargrave (2004) framework, introduced in Chapter Two, which the authors developed to categorize, clarify, and explain modes of institutional change (see table 1). In accordance with Creswell's (2002) suggestions, a detailed interview protocol with clarifying and elaborating probes was developed (see Appendix B) and used extensively during the interviews.

### *Supporting Documents*

Public records, personal documents, and physical materials are a ready-made source of data for a qualitative study (Merriam, 1998). Some project management related documents of interest and memos were offered by the participants and collected for this study. Additional information associated with organizational structure, strategy, and communications was gathered

from web site information All supporting documents were used as background information to better understand the organizational context or to substantiate interview discussions.

### *Data Organization*

Data are generally collected in case study research through documentation, archival records, interviews, direct observation, participant-observation, and physical artifacts (Merriam, 1998; Yin, 1994) One idea that is agreed upon almost universally is that data should be analyzed as it is collected (Creswell, 2002; Merriam, 1998; Miles & Huberman, 1984; Yin, 1994). Some of the methods of data organization suggested by Miles and Huberman (1984) that I used were:

1. A contact summary sheet: a single sheet that contains summarizing questions about a particular field contact.
2. Codes or coding: an abbreviation or symbol applied to a segment of words in order to classify the words, often into categories.
3. Reflective and marginal remarks: reflections and commentary on issues that emerge during field note write-ups, often containing interpretations, leads, and connections within the data.
4. Memoing: writing up the ideas and relationships about codes.

### *Data Analysis*

Because relying upon the theoretical propositions as the general analytic strategy is suggested as the preferred method for choosing among analytic techniques (Yin, 1994), the data gathered in this case study were supported by institutional change perspectives and organizational theories to understand the processes that Northern State took to bring about change and best practice adoption. The organizational factors that influenced the institutional changes in the adoption of PM best practices were also explored.

### *Within-Site Analysis*

Within-site analysis involves the “methods for drawing and verifying conclusions about a single site” (Miles & Huberman, 1984, p. 79). I took the following steps in the within-site analysis of my data:

- 1) Between interviews and in the evenings while on-site, I read the interview notes and did a preliminary analysis of the data.
- 2) I listened to some of the interviews while travelling home from the interview site and also took notes at that time.
- 3) I copied all mp3 files from the interviews to my PC and made a copy onto another drive.
- 4) I transcribed 11 of 13 interviews verbatim into text documents. The other two interviews I knew were not as detailed. I listened to those two twice and took notes of what I considered important.
- 5) I started my data reduction by going through the interview transcriptions and initially coding the data in different colors based upon which question the data were relevant to, or what it was answering, such as: participant background, promoting or blocking PM, reasons for adopting PM, steps in PM adoption, current state of PM, makeup of current group and services rendered, and organizational culture.
- 6) I next grouped all the like information into separate files.
- 7) For my next reduction pass, within the separated topic files I identified themes.

Initially I had too many to work with, some files had 25-30 themes. I further reduced the themes by consolidating them into 4-5 overarching ideas.

- 8) I also created numerous spreadsheets containing theme data that helped me to keep information organized and to look for patterns.
- 9) From this data reduction I wrote my findings and discussion.

#### *Trustworthiness*

All data were stored in an electronic data structure. Paper documents were digitally scanned and stored electronically. Multiple sources of interview data were used to strengthen the reliability as well as internal validity of the data (Merriam, 1998). A journal was kept of all steps in the process in order to increase reliability through a chain of evidence (Yin, 1994). I also sent electronic copies of the interview transcripts to the participants and asked them to tell me if anything was misrepresented. None replied with corrections.

#### *Ethical Considerations*

Proper organizational permissions and Human Subject Institutional Review Board approvals were attained prior to any research activity.

## CHAPTER FOUR: INSTITUTION AND PARTICIPANTS

### Introduction

This dissertation attempts to understand why some higher education organizations innovate through change and new ideas in spite of the trappings of the institutional organization environment in which they exist (H. D. Meyer & Rowan, 2006a) while others do not. This is done through the use of exploratory qualitative research to investigate the innovative project management processes and actions that one public higher education institution has implemented. The overarching questions under investigation focus on the processes undertaken and the factors that influenced the central IT organization at Northern State University in the adoption of best practices in information technology project management. Northern State University is a public higher education institution that has implemented various project management best practices. Thirteen senior leaders of the central information technology group at Northern State were interviewed to examine the processes followed and influencing factors in these achievements.

### Institutional Background and Context

The central information technology group at Northern State University has a history similar to many IT groups at older, traditional American higher education organizations. It was formed over time by the convergence of a number of discrete teams, many of which started out with academic faculty in the roles now occupied by support staff. When Northern State formed back in the mid 1800's, there was no need for information technology professionals. The curriculum at that time focused on the application of scientific principles to farming and agriculture. Now in 2012 the IT budget is close to \$250M and 6% of the university's annual budget. The central IT group has grown from an organization of 3 people back in the 1980s to approximately 500 today in a job family that did not even exist at Northern State until 1988.

Prior to the professionalization of information technology roles these “academic computing” responsibilities were fulfilled by a small number of specialists who may have also taught classes, conducted research, and performed service activities. The last faculty member working in Northern State’s central IT organization retired within the past year of data collection for this study.

Although the university curriculum has expanded exponentially, there is still some focus on agriculture at Northern, one information technology director told of how his original office in the 1980’s looked out over a series of chicken coups. The farms have moved farther from the campus center and that chicken coup space is now filled with new buildings and modern facilities, one indication of the growth and expansion that has taken place in higher education over the last 60 years. Northern State went through much of the same expansion as other colleges and universities after World War II as the enrollment has risen almost every year since the mid 1940s when the central campus enrollment totaled approximately 7,000 students. The central campus now includes over 40,000 students, making Northern State one of the largest public universities in the country. Although Northern State has the highest enrollment in its history, it is faced with many of the same challenges as other institutions such as increasing costs of operation, rising competition, changing student demographics, and reduced state appropriations, all during an ongoing and widespread economic decline affecting the entire United States.

In spite of the economic challenges Northern State University offers a substantial number of graduate and undergraduate programs and has a significant online presence. Northern State offers top rated programs in among others things, aerospace and materials engineering, chemistry, psychology, landscape architecture, higher education, supply chain management and

business. The institution has a highly rated medical school and medical center, a law school, and many other impressive programs. Although the majority of students and programs are amassed at the central campus, the university also has numerous remote campus locations. As a research university, Northern State has had historically growing expenditures totaling over \$700 million for the 2009-10 fiscal year. Much of this research focuses on defense, agriculture, energy, healthcare, science, and education. The bulk of the university research, close to 60%, is funded by sponsored federal programs, with the remaining amount funded by the university, industrial contracts, and state contracts and appropriations.

Until recently the executive staff at Northern State has been extremely stable and long standing. The immediate past president started out at Northern State as a faculty member early in his career and later returned to spend almost two decades as president. The current president has been at Northern State for over 35 years, in one position or another. The vice provost for information technology has worked his way up through the ranks at Northern State, having started there over 25 years ago. Similarly the previous vice president for finance and business spent nearly 40 years working his way through various positions, eventually spending 15 years in the top financial role. There are numerous examples of others including coaches, faculty, and directors in the information technology organization that have spent a noteworthy amount of time in roles at Northern.

Like many institutions that rely heavily on public funding, Northern State University is now going through major planning and reorganization in an attempt to answer the considerable cuts in state and federal appropriations. Many campus organizations are attempting to become more efficient with existing resources; this includes the information technology environment. As defined in the university's strategic plan, one initiative is to balance the centralized and campus

unit-based information technology services. The equilibrium between these services can become unbalanced over time and result in a duplication of systems, inefficiency, and higher overall costs. Some services such as mass storage and email services may be more efficient and less redundant provided by a central organization. Selected information technology professionals from across campus have been asked to participate on an IT Leaders Council. The council was formed in early 2011 and has been charged to identify areas of the organization where efficiencies can be realized to save costs and to get more out of equipment and services. These types of changes almost always involve the difficult decision of choosing between efficiencies, quality, and customer service.

#### Description of Participants

Northern State currently has a large central IT organization and an even larger set of non-central, or decentralized, information technology service providers. The central IT organization, which is the focus of this dissertation, is composed of close to one third of the roughly 1500 information technology professionals (see Appendix C, Interview Personnel Organization Chart). It is headed by a single person whose title is vice provost for information technology (VPIT) and chief information officer. The VPIT began his career working for a medical center for two years before spending the last 20 years of his post-undergraduate career working his way up through various positions at Northern State with his last position being a senior director on the previous VPIT's staff. VPIT's staff is composed of an associate vice provost for information technology, seven directors of information technology groups, and several directors of the support units of finance, communications, and human resources (see Table 4.1). The VPIT, his leadership team, and two additional associate directors were interviewed during this case study.

**Table 4.1 – ITS Participants**

| <b>Role</b>                                           | <b>Total<br/>Years<br/>Exper</b> | <b>Years<br/>NSU</b> | <b>Years<br/>Curr<br/>Role</b> | <b>Indus<br/>Exper</b> | <b>Background</b>                                                                                                                                                       |
|-------------------------------------------------------|----------------------------------|----------------------|--------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vice Provost for Information Technology, CIO          | 25                               | 24                   | 5                              | Yes                    | Engineering degree and two years IT prior to the university. Worked way up through the ranks of ITS.                                                                    |
| Assoc VP for Information Technology, Deputy CIO       | 30+                              | 30+                  | 1                              | No                     | Faculty member. Quality and continuous process improvement background                                                                                                   |
| Director, Administrative Systems (AS)                 | 30                               | 11                   | 11                             | Yes                    | 18 years in industry prior to current role. Started PMO in AS. Highly connected through previous and current roles                                                      |
| Director, Consulting Services (CS)                    | 25+                              | 17                   | 3.5                            | Yes                    | Strong PM background through coursework, military, and defense work.                                                                                                    |
| Director, Library Technologies (LT)                   | 15                               | 5                    | 5                              | No                     | No industry experience. Two universities prior to Northern State. Engineering degree and attended graduate school at NSU. Industry experience prior to graduate school. |
| Director, Research Computing (RC)                     | 25+                              | 20+                  | 5                              | Yes                    |                                                                                                                                                                         |
| Director, Security Operations (SO)                    | 15*                              | 18                   | 18                             | Yes                    | PM experience a defense contractor.                                                                                                                                     |
| Director, Teaching & Learning with Technology (TLT)   | 15*                              | 13                   | 1                              | Yes                    | Private sector experience at a web start up prior to graduate school. Specialist role in a college. Social technology user.                                             |
| Director, Telecommunications & Networking (TN)        | 30                               | 25                   |                                | Yes                    | Advanced engineering experience at a corporate telecommunications firm. Project management background in graduate school.                                               |
| Director of Customer Communications (CC)              | 10+                              | 2.5                  | 2.5                            | No                     | No industry experience, strong mentoring in previous university role. Utilized web technologies early in innovation cycle                                               |
| Senior Financial Advisor, ITS Financial Services (FS) | 20*                              | 23                   |                                | No                     | Worked only at Northern State, highly process oriented, military background.                                                                                            |
| Director Human Resources (HR)                         | 30+                              | 25+                  | 15+                            | Yes                    | Military background                                                                                                                                                     |

**Table 4.1 (cont'd)**

|                                                                         |     |    |   |     |  |                                                                                                                          |
|-------------------------------------------------------------------------|-----|----|---|-----|--|--------------------------------------------------------------------------------------------------------------------------|
| Associate Dir. Project Management Office in Administrative Systems (AS) | 25+ |    |   |     |  | Strong PM background through systems development work. Certified PM.                                                     |
| Assoc. Dir. Service Management in Library Technologies (LT)             | 15  | 12 | 3 | Yes |  | Industry programmer, project management and development methodology usage. Worked in other high process campus IT group. |

The associate vice provost for information technologies has more than 30 years at Northern. He came up through the faculty ranks and spent a significant amount of time in one of the technology groups. He is relatively new to his current role and does not have any experience in information technology outside higher education. An emerging technologies group reports to the associate VPIT as well as the human resources director, the communications director, and the director of finance. The IT and support directors come from diverse backgrounds with varying degrees of project management usage within their groups. The IT directors report directly to the VPIT; the support unit directors report to the associate VPIT.

Administrative Systems (AS) is a group that participates in the development, maintenance, and security operations of applications using student, business, and alumni databases. The word “participate” is used because Northern State is distinct from typical other higher education institutions in that many non-AS IT developers working on student, business, and alumni applications are dispersed throughout other campus units. The director explained:

People in the departments, registrar's office, undergraduate, student aid, the bursar's office, the comptroller's office, were trained in a fourth-generation language and they were allowed to write programs to go against our central databases and retrieve what they needed. Fifteen years later those departments had servers, those departments had storage,

they're using ColdFusion (a web programming language). They were building real live applications and providing services to students from departmental systems. And Northern State has that distributed model.

AS is comprised of approximately 145 employees working on the Strategic Initiatives and PMO team, the Infrastructure and Operations team, the Solutions and Services team, and Business Operations. The director has 11 years of experience in his current role and over 30 years of total work experience. Prior to his current position, he came from a longstanding role as the account interface to Northern State for a substantial computer services organization. In his previous and current roles the director worked with many of whom are now the Northern State executives running the university. The director of AS has been a strong advocate of project management best practices within the Northern State organization. Also participating in the interview was the associate director of the AS project management office (PMO). The associate director had a significant level of experience as a project manager and is a certified Project Management Professional (PMP). Examples of AS projects, current, past, and future include Payroll Modernization, Student Information System, Business Intelligence, Financial Information Tool, Systems Development Modernization, EASY Re-engineering, and Workflow. The AS group and project managers have attended PM and leadership training, have engaged with consultants, and have worked with software vendors to increase their level of process rigor. They are consulted regularly by other campus units for guidance and direction in project management activities. The Project Management Office associate director discussed the PM best practices maturity level of AS:

... we've had the vendors, when they come in to demonstrate their products, typically they bring along a project management maturity model and we discuss what our practices

are, at what level they are. .... We're still a level 2, I would say we're at a level two or three. But we've established a much better process in the organization. The organization regularly initiates projects through a standard process now and defines them in a standard way.

Consulting Services (CS) provides an interface to the services offered throughout the central information technology group. CS is approximately 125 people strong and encompasses a service desk, the campus computer store, a computing consultant group, and a group that provides large scale services across campus such as email and calendaring, computer storage, and blog and wiki services. Many of the projects that CS takes on are reflective of the teams that comprise the group: data storage, email and calendaring, large software licensing, and auditing IT services. The customers of this group are much of the campus including students, faculty, and administrative staff from various campus units and departments. The director of CS had previous experience in other campus units before taking his current position 3 ½ years ago. He has a strong background in PM through previous coursework and his military and work background. He has introduced project management and leadership concepts into his team, and invested in PM and leadership training for his group. Within his group is one full-time project manager and many people who do projects.

One of the groups within CS, the Applied Technology team is currently transitioning from developing in-house products to looking more at commercial, off-the-shelf products, which involves a much different style of project management and involves working closely with vendors. The team is currently implementing an email, calendaring product that could touch as many as 40,000 end-users. When asked if he thinks there has been payback on the existing investment that he made in PM people and training, the director's replied:

Huge, huge payback that we think we're only beginning to see the returns on. Even in this University collaboration suite that we're deploying, people are coming back and saying this is the best deployment that they've ever seen. .... So far it has been a good deployment, but what we've done in the past hasn't been that good.

Library Technologies (LT) provides access to computer resources and services in support of the university libraries' programs and services. They offer technical support in the research and development of digital libraries initiatives. The teams in LT include Infrastructure Services, Security Services, Storage and Archival Services, Applications and Repository Services, Service Desk and Support Services, and Student Services. The LT team is involved as the primary or secondary on projects such as the Library Information Access System, Infrastructure (servers and networking) Implementation and Upgrades, Wireless Networking, Knowledge Commons, Microsoft SharePoint Server, and the central IT-wide Change Management System. The group has approximately 30 members including a dedicated project manager and service director. LT has been identified by other Northern State central IT participants as influential in both the adoption of project and process management. Their main customers are the administrators of the Northern State Library System and consequently the users of the libraries. Prior to coming to her current position at Northern State 5 years ago, the director of LT worked at two prior universities and spent a decade as a teacher; she does not have experience working in IT outside of the higher education environment.

Also interviewed from LT was the associate director of service management. She came to Northern State from industry with a strong grounding in process methodology, and also worked in the TN group, which has a strong process orientation. The customers and some of the employees of LT were initially resistant to the additional work that project management

processes entailed. The group was taking on additional work, not adding new staff and felt overworked. The associate director shared some of her thoughts on the transition:

I think initially people felt like maybe it was taking a lot longer time at the beginning of the process, but at the end of the process, having that structured approach saves immense time at the end of a project. ... So I'll tell you what was really different for our customers was that we started practicing project management where all the stakeholders were at the table so that customers were there with the IT even while we are hashing out pain points, gotchas, nothing rolled up, things we didn't anticipate, things we know about. They saw us working through all that and that was really a huge change for them.

Research Computing (RC) provides services that help researchers compute and manage data. RC provides large scale academic computing services to process large data sets for sponsored and non-sponsored research, graduate student work, and also includes visualization technologies. The customers of the team are faculty and student researchers who have data processing needs. The director sees a growing need for these services:

On the academic side there's substantial need. There is no dearth of the things that we can do for the academic enterprise at the University, both sponsored research, independent research, graduate education, undergraduate education. So the opportunities to make a difference are immense, simply because so much of so many disciplines, in such rapid ways are becoming compute-driven. So there's a great need right? But there's not enough investment. So how do you allocate? You try to meet the most needs with the resources that you've got. So obviously some needs are remaining unmet.

The head of the RC group has over 20 years of experience at Northern State, working his way up from a graduate student position to the current role as director that he has held for

approximately 5 years. He also has non-higher education experience working as an engineer.

The RC group is comprised of 12 people, with 3 open positions that the group is finding difficult to fill because of the stringent qualifications required. The director stated that the group does basic project management functions with minimalist tools:

We use the whiteboard a lot. And we use spreadsheets, those are the basics. We have discussed having more sophisticated software-based solutions but we have always felt that our group is not large enough to need that level of outside software. Obviously, we would like to get to where we standardized around software and maybe we just haven't had time to survey what the right software pieces are.

The Security Operations (SO) group develops, interprets, and enforces the university's computer and network security policies. The group responds to security incidents, and provides risk and vulnerability assessments as well as forensic and litigation support when needed. The customers of the SO can be any campus end-user of a networked computer but they tend to interface with other computer support groups including campus unit, department, and other central IT members. The group is involved from a security consulting aspect in many of the other team's projects but not as many as they think they should be. The director thinks her team involvement is often an afterthought instead of a planned participation:

...we run our own services. But security is a part of everybody's service. So sometimes it's not clear that that gets included. If we had a better project management structure that would be one of the check offs. You have to have security input to what you're designing and we're planning to deploy. And that tends to be way too casual now. I'd like to see that improved a lot. That's just the University, it tends to be "Oh yeah, we'll bolt something on after the fact." That does not work well with security. It's got to be

included in the upfront planning. Or it's gonna cost you a bunch when you get to the let's try to bolt something on later.

The projects they did were focused on new security and intrusion detection software and systems, configuration of intrusion detection software for campus units, and establishing security policies for the university. The director of SO comes from a defense contractor background and has been in her current role for over 18 years. Under her leadership the SO team grew from 1 to approximately 20 employees. There is not a designated project manager; the people who deliver the services also serve as project managers. As the director reported:

So you have the actual project manager, we have one for (product A), we have one for (product B) ... Now the guy who's the coordinator for most of the things that would involve hardware and software also has a background working DOD systems. So he's very familiar with project management methodology and he kind of supervises and if things are starting to get off track he's going to step in.

Teaching and Learning (TL) supports faculty use of technology in classrooms, labs, courseware, and other specialized services. There are approximately 90-95 people on TL including Education Technology Services, Classroom and Lab Computing, ITS Training Services, and WebServer. The director of TL came to Northern State 13 years ago after working in the computer industry, and has had roles in both colleges and the central IT unit at Northern State. He taught for-credit courses and is an advocate of and high end user of social media. The director instilled a sense of process in his group through guidance and coaching:

I wouldn't call it me driving the rigor into it, I think it's me constantly talking to my (associate directors) and the people that are managing projects and trying to remind them that this is what should be coming next and where we are. But I try not to be too

prescriptive or overwhelming as it relates to how they drive that process. The Web Development group, leans pretty heavily on agile PM sort of models that sort of match the open-source software model, they do the scrum's, and they do all sorts of stuff like that. But that's of a very different approach than even my software development team in ETS does things. They do very much milestones, lots of communication, lots of team meetings and things of that nature.

The TL group reaches many at Northern State; its customers include the faculty and others on campus who design either online courses or learning environments. It manages projects such as the online student evaluation system, the student blogging system, the course management system, the classroom clicker recommendations, and lab upgrades.

Telecommunications and Networking (TN) develops, designs, installs, and maintains telecommunications services for the various campuses of Northern State. The group has approximately 110 members and 4 teams, including Network Planning and Integration, Special Projects, Transmission Facilities & Operations, and Enterprise & Computing Support. The customers of TN could be anyone who has a network connectable device at Northern State University, the physical plant on new buildings, colleges, and departments. While TN is the central telecommunications and networking group on campus, it has an interesting distinction of sharing network support with many colleges and departments across campus, as told by the director:

Northern State is one of the, what seems to be a very small set of universities, especially large research universities, that grant high degrees of autonomy to different individual departments and colleges and in fact campuses. So while many of our peers have what I'll characterize as end to end authority and responsibility and control over their network

environments, we have less so at Northern State because the local environments are generally managed by the individual colleges and departments.

The director of TN has 25 years at Northern State with an advanced engineering background at a corporate telecommunications firm prior to working in higher education. He is working with his group to differentiate between projects and services, which can be complicated. Some projects provided by TN include network installations and upgrades, telephony systems, new building network installations, and engineering designs. The TN group is a strong user of project management as well as other rigorous IT and service management processes. TN has a project management group headed by a certified project manager. They are working through the steps of putting the first levels in place, the PM infrastructure that is needed and fitting for their environment. According to the director:

We have lots of work that we do that isn't project related, but there's a lot of things that we do that are projects, and in fact we're in the state right now that we have a definition, we have some cursory set of things that we clearly agree that these are projects.... It's all out of that gestation that with the undercurrent was for let's get on with doing something more structured here....And to be sure we're still learning, we're not what I would call mature yet in the sense of having adopted project management, I mean we're better at things like establishing charters, and in getting sponsors identified, and in making sure that we have solid team membership and that we have the objectives, and a precise date or a month or week or quarter, that's okay as long as we all know what we're working towards.

The Financial Services (FS) organization is a centralized budget and financial services unit that provides strategic thinking for Northern State central IT. The group is composed

primarily of analysts assigned to perform financial services for each of the central IT customer groups. FS was created 6 years ago through consolidating each of the financial analysts who at the time reported directly to IT directors. The FS director supervises financial support staff and the group provides training, mentoring, and professional development opportunities to the IT unit financial advisors. The director described her role this way:

It was my job to take the stovepipes and make more of an umbrella strategy view of financial issues across (central IT) because everybody did their own thing that we can easily pull that together. That's pretty much well, what I do. I do, financial forecasting, I do modeling. ...then there's nitty-gritty that the staff does so I supervise that whole function down.

The group is responsible for helping the central IT group make better decisions and issue more accurate reports through the cleanup of financial data. The director of FS has been at Northern State for 23 years in various financial roles at colleges and central units. She has military officer experience and a strong grounding in PM principles through training and work assignments. The financial services group has implemented some project management financial infrastructure projects that provided the financial and organizational ground work enabling more structure and rigor within the IT units. One such project helped the central IT groups better understand internal service costs. The team also led a useful effort to create longer term budget forecasts.

The Human Resources (HR) group is a liaison to the central HR organization for issues of recruitment, retention, benefits, development, and mediation. The director of HR has over 40 years of experience including a military background and more than ten years experience working

outside higher education, and has been at Northern State for 28 years. He was one of the original 3 employees of the central IT organization.

The Customer Communications (CC) group is charged with providing a more coherent focus on services the central IT organization provides to Northern State by creating greater visibility and understanding of products and services. The group's customers are the VPIT, the associate VPIT, the IT directors, and sometimes campus groups. The amount of work they are responsible for has significantly increased with interdependencies that have to be managed and they are using PM to control that work. The director of CC is the newest member of the Northern State senior leadership team with only 2 ½ years tenure and described using project management to coordinate the team's work this way:

Huge dependencies around the institution, and a lot of very strong personalities that we had to manage. This is how I've sold it to my team...I have a dozen people competing for our time, they all want what they want, and they want it now. Absent being able to demonstrate how all the pieces relate to one another, and how if we move this effort from here to there...the ripple effects that it's gonna cause downstream and our ability to get things done, if I don't have something on paper, or on a screen or whatever to be able to demonstrate that, I really don't have any way to argue why we should be doing this versus that and in what order.

The director has 13 total years in higher education and came from a significant position at a small private university with exposure to corporate officers. In that role he ran the web technologies and had strong mentoring in PM methodologies by consultants working with the university. The CC group is comprised of about 18 people, some part-time and the majority full-time, who are web designers, writers, and videographers. They consider all of their work to be

projects and they average 75 projects at a time. The projects involve developing websites, a monthly digital magazine, an online news source, and advertising campaign messaging. The director feels that the recent introduction of project management methods allow the team to take on much more than in years past:

Two and half years ago we were working on all those projects and did not have a single idea of who's working on what and where and ... and I mean they did a great job despite the fact that it was all very ad hoc....We're much more nimble and flexible and able to react.

The team prioritizes projects, uses a variety of electronic tools, has a dedicated project manager, and tracks the time that each employee spends working on identified tasks.

### Summary

The central IT group of Northern State University was chosen as the unit of analysis for this research. Northern State is a large, public research university with a significant number of highly rated undergraduate and graduate programs located in the northern United States. The university has had stable leadership and is the midst of a major strategic planning activity. The central IT group is responsible for many essential, primary IT services and systems utilized by other campus groups and makes up approximately one third of the roughly 1500 IT personnel at Northern State. The central IT group shows signs of information technology project management best practice adoption. The interview participants from the central IT group included the Vice Provost of IT, eleven of his staff of senior directors, and two associate directors. The leadership team came from a variety of backgrounds; some had industry experience, some served in the military, and a few had only academic assignments. All however,

appeared to be process oriented and most had previous experiences with project management, some good, and some unpleasant.

## CHAPTER FIVE: FINDINGS

### Introduction

This chapter reports the findings from the set of interviews conducted with selected IT members at Northern State University. Themes that emerged from the interviews are discussed under the broad headings of Promotion of PM Adoption, Processes Undertaken in the Adoption of PM, Why PM Better Practices Were Pursued, Cultural Environment. The chapter ends with a Summary of Findings.

### *Promotion of PM Adoption*

Directors each saw themselves as a primary advocate of project management within their own group; some accepted ownership of the actions immediately, while others needed probing and prompting to claim responsibility. Almost none accepted ownership without giving credit to others on their teams for the parts they played in bringing about the changes. This exchange with one of the directors was typical of the interviews; the director accepted ownership of the change advocacy, but also gave credit to others:

Interviewer: “So within your organization would you say you're moving towards using more project management methodology or less?”

Director: “Absolutely more”

Interviewer: “And who's responsible for that?”

Director: Ultimately I suppose me. In terms of (Central IT Group), we're just forming a group now under that fellow who I talked about that came out of industry to kind of coalesce it.”

Another exchange with a different director went along similar lines. He took some of the credit for the adoption of more project management best practices but also gave credit to others:

Director: “But now in the last 3 to 5 years, the burners have been turned up substantially. Not only because of some of the ITIL precepts, but much more pragmatically because of the scrunch on budgets and the limit on manpower and the ever, ever-increasing demand. So just to be able to survive, you’ve got to be able to do it better and more efficiently, and that’s where the project management thrust comes in.”

Interviewer: “Now when you said the burners have been turned up, by whom? By yourself?”

Director: “By me, by my (associate directors), by our organization in general I think”

Two Northern State directors and their groups were specifically mentioned by others as responsible for promoting IT project management best practices. Adoption is too strong a term to use because the directors have influence over the other teams, but do not have control. The Administrative Systems group and its director, and the Library Technologies (LT) and its director were named by other central IT directors as influencing their adoption of project management best practices. The influence was developed through the exceptional examples of project management best practices adoption set within their own groups, the cultivation of open workshops and learning activities, advocating the use of shared software tools, and the lending of PM professionals to other groups. AS is the only group with a true project management office. The associate director of the AS PMO was mentioned by a number of Northern State central IT participants as also being influential across the university in the adoption of better PM practices.

The VPIT was pointed out by many of the participants for nurturing a collaborative and open environment that has at the same time encouraged process and rigor, as stated by one of the directors:

I think we're in a much more open kind of IT approach than we've ever been before. I'm sure that's to (the VPIT's) credit, the CIO, that we have. So I think it's that support and his vision of how he wants the organization to be for Northern State ...But what that's done is having that and having that trickle down is that now the whole committee that was formed from the project management community at Northern State, that was like from under and up and sideways. So what I'm seeing now is a real acceptance because of those upper-level philosophies...

Each director also mentioned certain key allies from within their groups such as associate directors, managers, or project managers, who were highly involved in promoting the adoption of project management best practices. When one director was asked if there are others in his organization "bubbling this up along with you?" his reply was, "Oh yeah, absolutely. But again you have a 100 person organization, and I would say 5 to 10 of them have that...are predisposed to sort of a more rigorous approach to that sort of thing."

There were also resisters to the adoption of IT project management best practices. Group members (employees) and customers were the two main resistive factions named by the Northern State central IT participants. One director described the reaction of his group to the changes he was attempting to bring about:

It was mixed, like I would have expected... it was kind of the 10-80-10 rule. 10% of my team was either absolutely on board or on board enough to say "Yes I'll give it a try." 10% on the bottom were like "oh my God this is never gonna work for us. What the hell are you doing?" Then there was the 80% in the middle that were sort like "I really don't know and it sounds interesting, but it sounds like it's going to be a lot of work."

Some resistors were in leadership roles as described by this director who had some pushback from managers on his team, “As I mentioned earlier, some of the existing managers just know how it's done. “That's the way it was done 30 years ago damn it”, so yes its cultural resistance and it’s all emotion.” Some of the directors noted that they had to have heart-to-heart discussions with some of the resistant employees along with discussions about the stated direction of the central IT group. Some employees were helped to move to other organizations or other roles when they did not agree with the more process driven direction of the organization.

Customers were also frequently mentioned as being opposed to the adoption of project management practices. The reasons mentioned most often for opposition were a perception of additional non-value added steps to the process of getting IT work accomplished, and previous bad experiences with IT project management. While some Northern State central IT groups discussed the project management activities with their customers and got their buy-in, other groups actually concealed many of the PM steps from the customer.

Without prompting, faculty related projects were mentioned by all participants as those presenting the most resistance to additional process and thoroughness. One director made the following statement to describe his experiences:

I think where we fall down is where you slide into the faculty projects side of the house because it's really, really difficult to impose any sort of real will or rigor on top of faculty. Even when I'm paying for their salary, like doing buyouts and stuff. It's just not the way that they think and the way they work.

An additional point was that the internal groups that provide information technology services to the central IT groups often got resistance from those central groups when they tried to introduce additional project management processes.

### *Processes Undertaken in Adoption of PM*

By rhyme or by reason Northern State University followed certain steps in a continuing journey to better PM best practices. Discussions with the senior leaders of the central unit highlighted common practices followed by many of the IT and support groups to improve project management practices. Some courses of action that were taken are process improvement, infrastructure, and rigor; the development of teams and allies; cultivating PM skills and common language; and communication and culture change. Each is defined in more detail below.

#### *Process Improvement, Infrastructure, and Rigor*

The step mentioned by most of the Northern State senior leadership that affected the adoption of project management was the general improvement of all IT processes within the central IT organization. This general improvement involved activities that bettered both project management and services management. Projects are “a temporary endeavor, having a defined beginning and end... undertaken to meet unique goals and objectives” (Project Management Institute, 2008, p. 5). Most information technology activities can be classified as projects or operations (also called services). Operations are ongoing work tasks such as fixing PCs, keeping the business systems and programs running on a daily and nightly basis, and answering calls on the help desk. While IT PM has better practice methodologies defined, so too does information technology operations, or what some call services. While there are different methodologies for implementing better practices in IT operations, Northern State chose to focus on the use of the Information Technology Infrastructure Library (ITIL), which is defined as a set of good practices for IT service management (Bon et al., 2007). Similar to PM best practices, ITIL describes procedures, tasks and checklists that are not organization-specific and can be used by an institution for establishing a minimum level of competency. Most of the Northern State

participants who were implementing better PM processes were also implementing ITIL processes including change management, which is used by both sets of methods. Because of the investment in resources needed to implement process changes and the value determined to come from each, some of the groups took more of a focus on the ITIL processes than the PM processes. As noted by the VPIT:

It is all happening at the same time and from my perspective, I'm not sure we'd be able to move all three...behaviors around project management, leadership around project management, behaviors and leadership around ITIL, behaviors and leadership around what we're imminently going to do around change management. I'm not sure we could do all three at the same time just given our overall capacitance and load.

Some of the participants felt that ITIL was appealing because it was believed to be more holistic and that project management only gets an organization part way to an all-encompassing solution.

Northern State added to the overall process improvement of the central IT group through such actions as establishing or following group defined standard operating procedures; implementing templates and standard operating procedures, putting up web sites, documents repositories, and wikis for consistent process delivery, the implementation of innovative tools to help technicians and analysts do their jobs, and putting guides and learning materials into the hands of team members. Group defined standard operating procedures were enacted by all of the Northern State central IT and support teams. A significant example of this was the use of templates, checklists, standard documents, and standard operating procedures. Following standard methods can make an IT organization more efficient and increase the level of quality because technicians are following tried and true procedures and methods. As noted by one director:

Here's a model, this is the way we do business in TL. This is the way we engage with the library, this is the way we engage with colleges. It's the same cookie. We talked about it before, let's build some cutters.

Standard processes and procedures were used for both services and project management and there were many examples of the standardization of project management practices specifically. The participants cited the use of standard PM documents for the development of project charters, scope definition, and requirements gathering. Project management specific measurements and metrics such as projects in queue, project beginning to end dates, and resources utilized were also mentioned. The TN group has started along the path to higher level project management maturity with a group of employees who are defining terms, processes and methods. The AS group is ahead of all the other central IT groups and has documented and defined many of the detailed methods, templates, and processes that would be expected of a relatively mature project management office. They are following the Project Management Institute's "Body of Knowledge" (2008) methodology and had consultative help. According to one of the AS directors:

We also had (a consultant) come in. They came in and did an assessment of what our maturity level was and they gave us a roadmap which we were able to follow. And those were very instrumental, that roadmap was very instrumental. It talked about where we had shortcomings and where we might be most stressed in some of the enterprise projects that we didn't apply some methodology in.

Another aspect of process improvement evident at Northern State was project portfolio management. Project portfolio management (PPM) is a term used to describe methods for analyzing and collectively managing a group of current or proposed projects based on numerous

key characteristics (Project Management Institute, 2008). PPM however was not known by many of the participants by its formal title, but when defined and explained during the interviews most would say something like “Ah, yes we do that.” As noted by one director about members of his team, “they meet every two weeks and they talk about priorities, and they have weighted spreadsheets and things of that nature.” Some of the groups started the practice because of ITIL training and often mixed projects and services when doing formal prioritizing. Some of the participants concluded that they mixed project and service prioritization together because the same human resources were used to implement projects and to support and maintain the systems, and so it was really a prioritization of all work, projects and services.

Another process improvement activity described by the central IT participants at Northern State was the employment of tools, guides, manuals, practices, and direction giving resources to facilitate more successful process improvement. This was accomplished through materials obtained from conferences, training classes, vendors or consultants, internally developed by the Northern State teams, through sharing materials and tools between groups and institutions, through the use of public domain resources, and by the use of materials and ideas that were brought from previous roles and positions. These tools guide or provide assistance with the execution of distinct projects; they enable higher quality and efficiency across all projects. The tools include operations and process manuals, software systems and programs, financial or human resource data, or other project quality increasing organizational information. The standards and processes may define processes or methods in a standardized way, which decreases project lead time and increases accuracy. Other electronic tools may provide information such as up-to-date systems and software inventories, or employee skill levels that are included in project or service planning activities. Some group specific examples of this

infrastructure of tools, processes and documentation at Northern State are the creation of a PMO along with numerous standard methods in the AS group; the selection of a change management system for the entire central IT group; the use of project management tools in many of the central groups; a cost of services database; time tracking by the communications team; SharePoint communications software and a configuration management database by LT. There is sharing of materials process improvement material between IT and non-IT groups at Northern State through process improvement committees and other activities specifically established for this purpose.

As noted by the director of the TN:

...now that we have this thing (PM manual) from physical plant we're looking to see if there's a pony buried in there somewhere for us that we might find useful to know of, or some tool that they use that we might find it advantageous to adopt.

In addition to central IT funding, student IT fees, and fees for services rendered, three financial arrangements have helped the Northern State's central IT group plan for future activities and adopt better project and service management practices. The additional financial arrangements are: 1) the Dean's Campus IT Accounting Model; 2) Cost of Services; and 3) 5 year Financial Planning. The Dean's Campus IT Accounting Model, or telecommunications access fee as it is also called, is a yearly "tax" collected from units across the university. A certain amount of money is taken per FTE from specified units across the University to fund telecommunication networking services and certain networking security initiatives. It helps fund the base activities of certain central IT groups such as TL and SO. As explained by one of the participants:

We have something called the telecommunications access fee that basically emerged because a decade ago we said look all these long-distance revenues are dropping. We're

not going to have any money to cross pollinate anything, we need to figure out how we solve this, and we had the deans and the execs say “why don’t you just freeze it at some point in time, transfer all the dollars that would've been spent permanently into the central budget and we’ll give you that.” That kept us alive through a lot of this.

The Dean’s Campus IT Accounting Model was explained by another interviewee as especially helpful to planning efforts:

But that means I can plan, because I know that I’m going to get a certain amount of money, which I didn't have that luxury before. And that's when a lot of good things started to happen. Once that came in, I can’t remember what year that was, but once that came in we could plan the IDS growth, we could plan the...we could identify ... like one of the things that we have on the horizon is security event management, that's gonna be expensive... But it definitely gives us the ability for my office to have a projected budget, and we didn't really have that before. So without that we couldn’t have gone through the growth that we've gone through. We couldn’t have really planned much of anything.

The Cost of Services activity allows the Northern State central IT group the ability to determine how much it costs to provide a certain service or implement a specific project. It was initially a project pulled together by the Financial Services team and is currently maintained by that group. It allows the groups and the central IT organization the ability to plan better because it helps them understand where dollars are being spent. It also gives the ability to project “what if” situations, such as, “how much will it cost us to do this project?” The director had this to say about the cost of services project:

So we actually now can figure out cost of services. What are people, what people are....when I first got here we had 34 million in personnel. I didn't know what they did. I mean we did individually, but we didn't have any way to be able to easily pull that up. Now that we have cost of services. ... (on a certain project) we were looking at kind of where do we go next,. Frank Smith (a pseudonym)...who is a phenomenal project manager ...would say, "what do we spend?" We're able to tell him now. This is what we spend. This is what it costs, these are the people that were involved, these are the types of.... So that from my perspective ... my projects are like the infrastructure to their project management.

Another strategic financial activity initiated by the financial services team that helps the central IT group to plan is Sustainable IT Accounts. They are capital-like accounts for IT purchases that do not get swept at the end of the fiscal year if the dollars are not spent, as are many non-capital accounts. This allows a group a longer period of time to implement a planned technology if needed, because the funds that are allocated for certain IT purchases can be kept in the local accounts longer. As noted by a participant:

It's not like it was extra, but you have some money from salary savings or something, you can throw it in there. It will be there in three years when you need to upgrade your systems. So it's like you're basically creating savings accounts for them.... I wanna be able to roll it out through the corporate controller and say hey, if we could do this across IT. We could see what Northern State's investing in IT and that kind of sustainable, keeping the wheels on the bus, on the infrastructure stuff.

### *Develop Teams and Allies*

Another strategy carried out by the Northern State central IT group in the adoption of better practices in project management was the development and structuring of teams to enable continued growth. This occurred primarily through two activities: finding allies with similar views on project and process improvement, and organizing teams to take advantage of individuals with project and process management skills.

One of the first organizational actions taken by many of the new Northern State IT participants was to change the way their organizations were organized. Some Northern State participants changed their organizations to align with projects and services, to better utilize senior resources on important projects, and to reduce redundancies or services. One of the directors felt that she came into an environment that needed a drastic overhaul, “My overall vision for my department was to completely change... to change basically our strategy of what services were. To deliver new services.” In some cases the reorganization involved separating the employees who were doing project management work so that the employees could focus on project activities to increase their chances of being successful. As stated by one of the participants:

The first critical step is identifying resources to be a project manager... if you don't carve somebody out that has time to just do that and make sure that they... own project management. ... if you really want to get something done have to say “Okay, John, this is your job for the next” whatever. I think that's number one, critical, in making sure that they have the resources to do what they need to do. Otherwise you're gonna basically set them up to fail.

Some participants discussed planning sessions held with their groups and with the VPIT to justify the addition of project managers. These planning activities at times involved creating funding models and justification to superiors. A recurring theme in the discussions was also whether to move forward with creating a centralized project management office (PMO) located within the VPIT office. The VPIT explained that he had to consider many factors, including the current levels of process and project management maturity of the various IT groups, the levels of technical difficulty and risk in those teams, the organizational reach of each group's projects, and the goals and intentions of better project management in each group. As articulated by the VPIT:

Ultimately sometime in the future it might be great to have this fully consolidated [a central PMO] but there is no hurry. If we start sharing best practices, we will influence one another's practices and we will start to move the refrigerator to the right place for the right reasons at a pace that's arguably going to be appropriate.

Finding project and process management allies involved hiring new employees from outside the director's current group, finding employees within the director's current organization and moving them into a new role, or in some cases, finding executive sponsors with similar ideas to move ideas forward. Many of the Northern State directors moved current employees into project manager roles within their organizations, looking for those with "PM sensibilities." These were employees who understood the business or technical issues of the group but who also had good people skills. They were described as having a project orientation and are people that "can help us be successful." The employees chosen to be project managers may already have a record of success and tended to be those that were more seasoned and connected in the organization. As described by one director, "We have certain people who are more well aligned to project management approaches," while another director shared,

But you know it's the same thing when you coach, right? You're going to have your favorites. The favorites are the ones that do what you asked them to do and are coachable. That's the same thing here, so there's a feedback loop that goes on, which might be labeled as groupthink in some context, but yeah I am influenced by people that want to do the same thing, or the same sort of thing.

Another director, after trying to turn some of the more technical employees into project managers decided that other dimensions of employee performance might be more instructive of potential success:

What I learned of course is what I think is pretty standard knowledge now.

Technologists, whether they be system administrators or developers, designers, they're not always the best project managers. And I did try to get everybody to do some project management, but I was not very successful at that.

Many of the directors expressed thoughts that to work best, project managers should be dedicated to the function of project management. Otherwise, the distractions of everyday operational work would sidetrack the actor from project management activities. Employees who fit the profile of what was considered "good material" for project management and who also expressed an interest in that career direction, were oftentimes sent to the Northern State IT Leadership Program and sometimes also to project management training.

When hiring project managers from outside the organization the directors were more credential-oriented and tended to look for those who were already certified as project professionals and who had strong qualifications and experiences from prior positions. Many of these newly hired employees were then given positions with responsibilities of coaching and mentoring other employees in project management methods and processes. The Northern State

AS organization, being the most mature in project management processes and methodology also has the most experienced set of project managers. They had more certified project managers than the other groups, most of whom were internally trained, and so was in position to “loan” a project manager to another of the central IT organizations. In some cases, the directors who “borrowed” project managers were pleased enough with the performance and skills to hire the PMs into full-time positions within their own groups. The Northern State AS group is providing a quasi-PMO function, not just to the central IT group, but also to campus IT groups. Besides lending project managers to other central IT and campus organizations, the AS team provides expert advice on process and tools, examples of templates and checklists, and short seminars and training to other campus organizations. The director of AS created the PMO for his group as a result of strategic planning for future directions along with the previous VPIT and other executive leaders on campus made possible through strong working relationships.

#### *Cultivate PM Skills and Common Language*

The Northern State central IT group also gave examples of how they worked to develop PM skills and a common language among their team members, including participation in training or specifically designed programs. Project management training was used by almost all the directors to teach their employees the basic concepts of managing projects. The training originated from a number of sources, vendors, consultants, and from a nearby university business school. Some of the more mature groups that have long term certified project managers conducted their own training and provided training for other campus groups. Many team members also attended specific training for project management tools. The AS group defined a training direction while delineating their strategic direction with project management as a whole:

The future directions paper prompted us to do that. We basically said we want professional project managers for our community... It needs to do a number of things. It has to have sufficient numbers of certified project managers to manage one or two major projects. It needs to create the methodology that we will use across the community. It will pick a tool that we will use across the community. And it will identify the training that individuals should go through... We put 12 or 15 people through it. But it was to develop better project leadership skills.

There is also a grassroots project management group started by the AS group that shares PM information.

ITIL training has likewise been emphasized at Northern State University. ITIL training is focused on the rigor of operations and service management. It stresses the use of repeatable processes in the management of assets, capacity, configuration, continuity, financials, incidents and problems, software releases, services, and others (Bon et al., 2007). It aligns well with project management because it encourages the use of best practice processes in the delivery of services similar to the approach used in project management; they are both descriptive frameworks centered on process and not technology. Much of the interest in ITIL at Northern State appears to have originated from within the TN group, as shared by the director:

One of my (associate directors) and I sort of took a focus on, he went off and got certified (ITIL) right away and came back basically with an assessment that this is something that we ought to pay attention to parts of. That basically served as a catalyst to get things going and people really warmed up to that we spent a lot of money and a lot of time and a lot of effort on not only leadership training but also on ITIL training. To sort of be able to all speak the same language, all understand the same concepts, and out of that came this

urge to what we really ought to structure more rigidly are our project management activities.

The TN group at Northern State is not as mature in project management as the AS group, but they are one of the more PM mature organizations. As noted above by the director of TN, the interest in ITIL may have been a springboard to their project management focus. Others, including the VPIT think that the focus on ITIL and the training have an effect on process improvement in general:

And I think we are actually seeing a secondary benefit of having made that investment in the ITLP...I think we've accelerated the time to market for, greatly reduced the variance in organizational maturity...we have people who are starting to go through it who are starting to speak the vocabulary, starting to recognize that he's sitting in that pew of the ITIL church and we're getting resonances there. .

The training program that was the most highly emphasized by all IT managers at Northern State was the Information Technology Leaders Program (ITLP). It was touted by all as a very good program reflected in these comments from the director of CS:

I went through it. I was in the first cohort to go through locally a couple years ago. And it's the best training I've ever received... It allows a common language. I did this before I came in to ITS. It helps to enter relationships because all of this is about relationships. Very good program.

The IT Leaders Program was developed for Northern State by a leadership consultant. ITLP emphasizes strategic thinking, relationship building, communications, employee development, and dimensions of effective leadership and management. Some participants suggested that the program created a common leadership language that helped them connect with peers and others

who attended the program. It has also been described as creating a “new way of looking at things” and as a catalyst for “critical thinking” and challenging the status quo.

The IT Leaders Program has been so successful that the training program was initially opened up to Northern’s non-central IT leaders and then to IT leaders from peer universities. The program has been attended by a significant number of all IT leaders from Northern and its peer universities. From the director of RC:

We've had a pretty good track record of getting some leadership training at Northern State. And as a part of leadership training it first was started out with more senior people. And now has gone fairly deep into the organization. I would say at this point in time over 25% of our employees in the central IT organization or maybe perhaps at Northern State wide. ... part of that leadership training is trying to draw some contrast and trying to find some differences between management and leadership.

Also mentioned in cultivating project management skills and a common language at Northern State was the importance of bringing in new ideas from outside the university. New ideas in project and process management came to the university through consultants, conferences, and training programs, interfacing with peer universities, the transference of ideas between groups within the university, and through the directors’ and leaders’ experiences in previous organizations and positions. Examples of consultant and training idea transference are the consultant groups that worked with AS, the project management, ITLP, and ITIL training programs, and IT conferences such as EDUCAUSE, a nonprofit association whose mission is to advance higher education through the intelligent use of information technology (EDUCAUSE, 2012).

Creating a common language was another process moving Northern State towards better project management practices brought up repeatedly by many participants. A number of the participants suggested that it was important to Northern State's progress to have a common language among the central IT employees, the leaders, the customers, as well as the campus IT groups. If an IT technician brought up the phrase "TN customer service representative", Northern State wants the customer and the campus IT groups to understand what that means. Many training programs for PM, ITIL, and ITLP were mentioned as a means to getting to a common language across the campus. Also mentioned were the IT Leadership Council, PM brownbag sessions, the PM grassroots group, and the numerous communications put out by the central IT organizations oftentimes through the Customer Communications (CC) group.

Many of the participants and others from their organizations regularly interface with counterparts at peer universities. Asked directly if they ever adopted a technology or idea because a peer institution did so, the Northern State central IT participants consistent answer was a prevailing "no." However, the technical details or specific problem solving "how-to's" appeared to be a frequent topic of discussion. The participants agreed that PM tools and know how were transferred between Northern State groups internal to the university including departments such as the physical plant project management group, other campus units through the grassroots PM group, the Office of the Vice President of Business, and from the medical center IT group. A number of participants acknowledged bringing significant knowledge of PM and other processes with them from previous positions and past organizations, and observed the same was true for many of their employees, as well. The knowledge came from backgrounds including the military, previous university and college experiences, and roles in industry where PM and process rigor was stressed. One director remarked:

And so we (former institution) did that and they, the organization as a whole, there was a lot of formal project management development. We developed templates, principles, practices, for all the stages of project management practice. And had put a ton of work online actually, and so some of that I brought here with me.

### *Communications and Organizational Alignment*

Planned communication helped the central IT group at Northern State improve their project management practices. Several key elements of the communication activities were encouraging new behaviors, creating a common language, taking steps to change the culture, and communicating the change message. One universal theme that came from all the central IT participants was the need for change on an ongoing basis. There were indications that continuous change was a message that many directors took away from the IT Leaders Program that most of them had attended. Some of the Northern State participants suggested that they went about these changes in a slow, purposeful manner. They thought about it a lot, and had plans, if not on paper in their heads on how to accomplish the needed changes. In encouraging new behavior, one director suggested that he was slowly tweaking and altering the conduct of his group to be more process oriented and to use more rigor:

I chose to not just drop it on them in one shot and expect everybody to jump on; I just did not think that that was a winning strategy. Like with anything, we started by changing some behaviors, the long play is to actually change the culture and so I've spent two years slowly tweaking and changing some of the different behaviors and norms of the group, getting them bought into a piece at a time and just sort of building over two years until we got to this point. And there are still some folks that are "uhhhhh, I don't know if I

can do this, and it seems like a lot.” And it is. It's taking time to do this, but the end result is the time you put in will actually save us more time in the long run.

Other participants talked about slowly boosting the visibility of the change, creating a collaborative environment, and engineering the environment in ways that the employees want to change. One director who has made a number of investments over the last three years in PM tools, training, and people said, “We've tried to catalyze and then stay out of the way.”

Within each group were resisters or “change blockers” and the methods of dealing with the resisters seemed to be a function of the director’s management style. Some chose the slow, collaborative, ‘let’s talk about this’, ‘we’re all in this together’, nurturing style of change leadership. Others displayed a different style and were less patient with the change. This is from one director:

...our associate director in charge of that manager had, what seemed to me to be very frank and open discussions, and blunt. And they'll be a change in behavior, there's a half-life to that change, it's a muscle memory, it's more than just a decision not to cooperate in some cases. People fall back into different modes.

Additionally, a number of the participants made comments about the need to be “disruptive” to encourage change within their organizations. Some see it as their role to be disruptive and to bring about change within the organization so that quality levels, customer satisfaction, and efficiencies continue to grow and do not stagnate.

Discussions often brought up the topic of culture change, which participants frequently tied to how the central IT groups interacted and communicated with employees. The process and rigor associated with project and process management was a different way of thinking for many of the current managers and employees, as stated by one director:

As opposed to the day-to-day management of the technical task it's about timelines, and dependencies, and milestones. We're starting to, that's starting to be acculturated, that's starting, it's taking some time and some folks are on board right away and others frankly think project management is a challenge to their title as manager.

The tense economic situation was brought up as an additional impediment to culture change in that many employees are concerned that the efficiencies of process improvement are a move by the university to centralize services or to eliminate jobs. Employees may not want to be fully cooperative in what they see as an activity that may put them in the unemployment line. Open and frequent communications and information exchanges are methods that Northern State uses to face this, as one participant explains:

I have a list of myths that I have to dispel whenever I talk about this on campus. We're not reorganizing IT, I'm not trying to take over the world, here's the statement of work, here's the strategic plan. Nobody's going to change who they report to, that has nothing to do with this. This has to do with improved planning. That's it.

A large part of the culture change that Northern State is trying to bring about is not technical; it is about how all the information technology workers on campus interact with one another and the rest of the campus community. There is a shift to a more collaborative environment, sort of a "we're all in this together" attitude. Much of this is being attributed to the VPIT and his open and up front style. A large group of IT leaders from across campus have been pulled together forming the "IT Leadership Council." This group is guided by the VPIT but led by an elected board, and is charged with a form of governance of campus wide IT to determine how things can be made more efficient and run more effectively. Participants felt there are already some good signs that the group is making decisions and solving problems. The culture

change is being affected by ideas like the IT Leadership Council, the IT Leadership Program, encouraging communications through brown bags and other informal groups. From an associate director in the LT group:

I think the influence is coming from all directions now. I see it sideways, I see it at certain levels I see it from underneath up, but I also think what's also helped Northern State is that they participate. We participate in an IT leaders program with an outside consulting firm. And that has really helped network IT like I have never, I've never had that type of network before I went through that and it really connected me to people, in IT, that I would not have been connected to otherwise. It's was huge, it's the network.

Another aspect of the culture change may also be a positive result of the IT Leadership Program. There is a conscious decision at Northern State to develop new leaders and require decision making, growth, and critical thinking from the IT teams, another of the directors explained:

We've completely restructured the way that we do our planning processes; our retreat processes are totally different, very inclusive. We use wiki and Google docs and things to collaboratively build things. In the last couple of weeks I've stopped really even posting agendas and said we're not having the meeting unless you guys are the ones providing the agenda. So I've really tried to flip the power cushion a little bit. I'm going to empower them.

Directors spoke of requiring more planning, analysis and decision making from their subordinates. Many of the directors spoke of requiring more from their associate directors and that they do not "spoon feed" decisions and positions to their teams.

Not to be ignored is the cultural shift within customer expectations. A few years ago Northern State had some major problems with customer expectations and trust. One of the current directors was actually courted to the central IT group because of his strong criticism of the group with the hope that he could help solve some of the issues of which he was so strongly critical. While some of the distrust and criticism from the customers and campus still remains, the participants report that things have come a long way. This statement from the director of LT describes how some of the increases in process and rigor helped redefine the relationship:

Our customer at first of course would think that project management was going to be another hurdle that would stop them from getting what they want done quickly. And that still at times will come up, but not much because we're able to demonstrate that with better project management and better processes in place that we can actually do more for the libraries.

Many of the directors discussed how they had at first to "hide" the project management activities from their customers because project management carried a negative impression of more red tape and paperwork. The customers had to see the positive influences of project management in action. After some encouraging examples, customers started to buy in and participate in the project management formalities with the central IT group. In some cases it took 2 to 3 years and a lot of hard work to get that buy-in.

#### *Why PM Better Practices Were Pursued*

An important notion to help understand the factors that influenced Northern State University in the adoption of PM best practices is to appreciate *why* the central IT group made changes in the organization. Besides helping to answer one of the two major research questions of this dissertation, understanding the reasons behind why the participants took steps to improve

processes and adopt PM best practices gives a much deeper understanding of the Northern State University central IT organization. Four overarching ideas emerged related to why improvements were made: to achieve higher productivity; to reach a higher level of quality; to accomplish institutional objectives and priorities; and because of outside influences. Each of these ideas is further explored in this section.

#### *To Achieve a Higher Level of Productivity*

An important idea that helps one appreciate some of the directors' actions is to understand that at Northern State University, the directors have autonomy. The VPIT's management style was repeatedly described as that of a coach, giving advice and being open with information but not authoritarian in the least. As one director described it:

My level of authority and empowerment? My read is that I have the full trust of (the VPIT) to do what I think needs to be done. And without, without his involvement really, only to the degree, he trusts me to make the right decisions or to own the consequences of whatever happens should I make less than the right decisions. Yeah he is a hands-off leader in ways that are important and he's involved in ways that he needs to be.

Along with that autonomy is the responsibility for delivering projects and services within acceptable guidelines. The directors are responsible for getting the work done with the resources available and meeting the customer expectations. As noted by one of the directors:

But that's where the squeeze is felt, the managers, the directors to say we need to get this done, what resources do you need? This person is saying "who am I going to go to, how am going to get this done? How am I going to carve time out to do this because I also have to run the shop? So I think that's where the squeeze is felt, within each of the units.

And then within (the central IT group) they're kind of saying "we need to do this project management stuff a little bit better."

The directors perceive they are being squeezed because of *budget cuts, higher customer expectations, and less resources*. The intensity of the current economic situation is a reason driving the directors' attempt to become more productive with what they have. As one shared:

But now in the last 3 to 5 years, the burner's been turned up substantially. Not only because of some of the ITIL precepts, but much more pragmatically because of the scrunch on budgets and the limit on manpower and the ever, ever-increasing demand. So just to be able to survive, you've got to be able to do it better and more efficiently, and that's where the project management thrust comes in."

Another participant makes a similar point that the organizations have to drive themselves to plan well and utilize the resources that they do have as well as possible:

You could almost make the argument that just the current times that we're in and from a financial, from an economic perspective, and that accountability, I think having that structured project management. If you don't have that you end up having changes in the environment that may not go so well. If you don't have everything thought through and structured, so I think that was part of that for us, it just went naturally hand-in-hand.

It was explained by a participant that it was not just a central IT issue; the economic concerns are spread across all of the campus units that all can turn to process improvements and best PM best practices to work together to improve their effectiveness:

But I think there might be a nice opportunity for a paper which talks about, based on where universities are today with their aging systems, tightening budgets, and the pull between centralized and decentralized IT, this is a ripe time. It's not that centralized

organization needs to take this on but that the universities need to take on IT project management.

Talking specifically about being short staffed and using project management as a system for being more organized and doing more with less, one director explained that “The difficulty in my group has been that we have been short staffed. So in that sense project management is very important so that we have had to sort of devise ways to manage projects and to manage initiatives.” A leader has to be visionary to assume this view because the payoff from establishing project management methods is not instantaneous. Templates and documents have to be assembled; policies and rules have to be written. Project management may increase resource utilization in the short term, but reduce the resource needs in the long term. The participants assumed they were going to be operating with less resources in the future, and therefore needed to come up with methods that could allow them to continue to deliver services and projects at a high level of satisfaction, as expressed by one director:

We were deathly afraid for no ill-felt reason that budgets were to be severely cut and one of the things that we had really no option to do is we still had to provide services and to provide them as efficiently as we can and services geared towards is how can we do things better with as many people or less people than we got.

Discussing how they addressed efficiencies with their customers, one participant noted how unlike in business environments, actual dollar savings are rarely discussed in higher education. In higher education improved efficiencies translate to better service, less hassle, better quality. When asked how efficiencies were discussed with their customer, her reply was:

You mean actually saving money? No because we talked about efficiencies, but from the customer point of view; efficiency for them means that they get what they want sooner

rather than later. And with the least amount of pain. And so we are able to demonstrate that, “okay that's how we're gonna get to our goals in an orderly fashion, meeting expectations, no one's got unrealistic expectations.” And we can manage more projects and we can actually do more, that appealed to them.

Return on Investment (ROI) or similar financial measures did not come up often in the interviews. The finance director believed that most people on campus cannot articulate the financial value of higher education projects because of the complexity of the inputs:

How are you going to determine ROI... people are like “what's the return on investment?” I'm like “I not even going there. Nine times out of ten it's so anecdotal. But I can say what we cost, what we spent, and what we spend now. I can't say whether it's really worth it though.... I'm a little skeptical on people's ROI anyway. I want to see exactly what you're looking at so I can poo poo it all. .

As noted in the process improvement discussions earlier in this research, Northern State is starting to get better at understanding its costs, tracking consistent measures, and some of the other parameters that may allow for more realistic approximations of ROI and other cost/benefit analysis in the future.

#### *To Achieve a Higher Level of Quality and Customer Satisfaction*

The number one reason for pursuing more process and rigor at Northern State was to become more efficient with current resources. The second most prevalent reason given was to achieve higher levels of quality and to meet the high expectations of the customers. “Customer” was a word engrained within the common language of Northern State. Some higher education IT groups use words such as user, client, or consumer to describe what Northern State consistently

calls customers. The central IT group's customers at Northern State were described by one director as all encompassing:

We consider all the faculty, staff, students, their parents, the outside world, those that come to the library, those that might visit a farm, everybody that sees, touches, or feels Northern State, we want them to come away with a good feeling.

Focus on a higher level of quality and customer satisfaction was very important to many of the participants. Some Northern State leaders even thought customer satisfaction was interrelated with efficiency, as this director mentioned:

I'm a believer that they are correlated. Meaning that if you efficiently run operations, more likely than not, you'll have satisfied customers. Generally they're correlated. Now it's possible they can say that you can go for maximum resource utilization, go for efficiency. And not be as responsive to customer's questions. So you can reach high resource utilization possibly and have a section of your customers unhappy. It's possible but we haven't run into it.

Another of the participants discusses how he sees an interrelationship between efficiencies and providing better services to the customers. His group fixed a communication problem that had some confusing steps in the processes customers used to contact his team for projects or services. By establishing clearer processes, his group is now more likely to *provide a satisfying experience for their customers*:

We used to have eight or 10 different entry points for everything from mundane orders for another telephone to trying to get thoughts about what we do for the latest research computing initiative. And it was just becoming far too big to be able to handle. They were dropping things. So we dropped back five and said look here the entry points into

Telecommunications and Networking... So we streamline a lot of that and right now I would say that, through a lot of work, especially by about two or three people on the staff we've got things pretty well organized that people see us as an easy organization to deal with. That doesn't mean we always meet their expectations but at least they know how to place an order without a lot of headaches, they know to expect, we have confirmations, we have good checks and balances, we know what's going on, we know that the date is this, that type of thing.

Various participants discussed how they had seen *poor project and service management in previous roles*, at Northern State and at previous institutions. These prior experiences did not sit well with the participants who then took it upon themselves to improve the situations when they now have more control to do so. This is from a director who was at a number of previous higher education institutions where the processes were not very orderly:

To be perfectly honest, because I had worked in unit after unit where things were completely out of control, where there's no documentation, there were no formal practices. Even if there weren't documents, what happens when certain incidents occur? And I guess, it was just common sense to say, "How do we think we can operate without having guidelines and principles etc.?" That just doesn't make any sense to me.

A Northern State example came from a participant who was previously a campus unit customer of the university's central IT organization. He was unhappy with the services that he received and very vocal about it. Now as a director in the central group, he applies process and rigor in an attempt to make his customers more satisfied than he was:

I was a very, I was a bad customer for central services because I was demanding and also critical but also engaged. So I had a history, they knew me, blunt maybe comes to mind

sometimes, but in a positive way, I hope. But we (VPIT) talked about what changes he was trying to make inside the organization and they aligned completely with what I thought should change, and that sounds like hyperbole or smoke but it was true. So he hired me to help him affect some of this stuff I think.”

Many directors thought that customer satisfaction was suffering when they took over in their current roles. They explained that there were a lot of poor or nonexistent processes in place in the groups providing services to their customers and “hole plugging” when things did not go well. Many participants had a high degree of accountability and ownership of the circumstances. As one director suggested, she set out to fix the problems using project management and service management because it was the right thing to do:

I think it's for the accountability. If you're not practicing a structured approach to project management, what can you go back to? Where's your documentation? Where's everything that you worked through? The customer involvement, the decision points, your test plan, all your milestones, all your deliverables, what do you have if you don't practice it?

Some were also concerned about their reputations on campus and how their customers affected the way others perceived their group:

Well they're (campus unit IT customers) our primary communicator to end-users. They also communicate up to the deans. So if they're telling the deans that our product is garbage or they're saying this is too difficult for us to implement in our college. It's problematic.

Another reason given for wanting to provide a higher level of quality was being “...aware enough of our screw ups to seek to avoid them.”

While working with the unhappy customers, some of the participants discussed having to work to get buy-in to the solutions that were enacted. Relationships and communications were provided as important means to develop the trust needed to work closely together to solve problems with quality and inefficiency. The important nuances of working with customer expectations are articulated here by one of the participants when asked about the importance of efficiency versus customer satisfaction:

Internally it would be efficiency, but externally, if I can't get the customer to glom onto it, bottom line it's not going to be an effective project. Managing those customer expectations to the work that we're doing so that all the work that we've done isn't wasted. Because if I'm not managing those endpoints and we're not meeting, I don't think... it may be a great system, but nobody uses it. ...So I think ultimately for me, it has to be about customer. Know that this is what the customer wants too, before you can start the project. So I would say if I had to pick one, it would be customer satisfaction, or at least customer acceptance.

The AS group worked with their budget officer customer, who was also the chair of the business systems steering committee, to define a strategic direction for addressing the aging business systems at Northern State. The director of AS, together with the budget officer and others within the organization, collaborated to define a future directions paper as they were planning the replacement of an older, antiquated billing system. This future paper defined much of how the AS group wanted to use more active project management methods and it became the genesis for their project management office (PMO). The AS director described some of the creative collaboration in working with multiple customers and going as a group to the provost to help this come about:

Once we get started, the Student Systems Steering Committee felt that, you know this should represent all of what we are doing in Administrative Systems, so the chair of the two committees went to the Provost and said we're going to create a future directions paper for the entire community, again this is administrative systems. We built that document. What's the AS role as you look out the next decade? Or two? What's our role when we have more distributed development? One of the items that came out very clear is we need to take on the responsibility of providing career project managers to these major projects in the future.

*To Address Complexities and Accomplish Objectives and Priorities*

Another theme that surfaced in the interviews at Northern State was the idea that the increasing complexity in information technology is driving a need to be more focused on quality, processes, and best practices in order to accomplish meet service and project goals and objectives. As one director put it:

Incidents continued to grow over that whole period, so we had to come up with a methodology to deal with them, way more incidents then we ever had back in the beginning, and that required automation so we started developing things for that.

IT is getting more complicated because of such issues as the ever-increasing generations of tools which have to be mastered, more interconnectivity which causes multiple challenges, and additional third party vendor products that have to be integrated into current environments. As one director at Northern State put it, "The projects that we do are too complex for each organization to think about on their own anymore." Another director gave some distinct examples of his concerns:

I mean, we do so much, so many of our services are now third parties, I mentioned Lynda but Voicethread, iTunesU, TurnItIn, all these services are services that we don't host here, but they all have their own project manager. And every single one of them has to learn about Shibboleth and Entitlement Strings, and how to do this, and there's no go to organization that just does that.

Leaders who want to deliver quality products to meet customer expectations have to take steps to address the increasing complexity and communication concerns of working with others. The participants at Northern State have used increased maturity in process and project management to address this issue as this example from one of the directors illustrates:

And that methodology worked out very well but that's about the time when we started needing... because we're managing all the configurations for those things, we needed to get a little bit more disciplined. And we did. That's when we started to bring up documentation of what we were doing. And I would say that we had the moral equivalent of a project management manager for that even though he wasn't formally designated, because we only had five people in the office at the time. And he was responsible for ensuring that those configurations were kept intact that we could manage these distributed assets in an intelligent manner.

Also mentioned by a number of the participants was the idea that the management of information technology has systematically matured across the discipline. The processes and methodologies are becoming more refined, students are learning these new methods in college, and more practitioners are learning additional skills as they progress through the profession and many become certified. As one director put it:

Information technology has been around long time. IT was like a toddler, right? It got all the resources it needed then, it got everything. Now it's like 20, 25, 30 years old, when it's been really adopted. Well now you have to be accountable. Now we're getting pressure. ... now we've got to do things in a more process driven way.

Like his colleague quoted above, another director, a long-time IT professional, described his experiences having gone through a similar growth cycle when there was no time for process improvement

The environment's changed. Unlike in the 90s when it was a blank drawing board and we knew we had to do something, we really, really had a laser focus on "we've got to do this. Too bad that we have all this other stuff that's coming along that people want us to do (process), we're on a mission, there's where we've got to get to. We've gotta cable, gotta wire, gotta network, gotta get our IP space in order, we've gotta get telephony, we got satellites, we got to do interactive video, you know we're on a mission here gang." Up until about the year 2000 or so we were really, really focused on that. ...Now we're more in the sense that, okay we've got this, how do we make it better. Let's figure out how to capitalize on it. We've done good so far, let's leverage it.

### *Outside Influences*

The adoption of project management best practices by the Northern State central IT group was also influenced by outside factors. These influencing factors included *auditors, consultants, other Northern State groups, and other university IT groups*. Other university influences were mentioned earlier in this chapter while discussing the processes that were undertaken by Northern State in the adoption of PM best practices. In adopting processes, the other universities influenced *how* Northern State implemented PM best practices. Peer

universities, other universities in general, and EDUCAUSE were mentioned by participants when discussing *why* Northern State adopted PM best practices.

One example of this occurred in a roundabout manner. A few years ago a survey was taken of the Northern State central IT personnel that showed a lack of intergroup communication. This surprised the leaders because there was a focus on internal communication at the time. A number of collaboration teams were assembled to work on the problems. The teams all came back saying more structure was needed. This happened at the same time that ITIL was getting high exposure at EDUCAUSE national meetings. ITIL was picked up by many of the central IT groups as a mechanism to address the communication and structure concerns. Although better project management practices originated in some of the groups (AS, CS) specifically to do projects better, the increased use of ITIL at Northern State for process management was the catalyst for more project management adoption in some of the other groups.

Interviewer: “So there was no external influence that had to do with your implementing more PM practices? It was more of an internal activity with your own employees and yourself and your leadership team? There was no task force or committee? There was no top-down edict?”

Director: “No not really, it really stemmed from ITIL which my group, as well as two others of the central IT organization, got wind of and embraced, all for different reasons interestingly enough. We really tackled it more from the service definition and that angle.”

Other participants also mentioned national conferences as a means to learn what was happening with technology processes at other universities, as one director stated:

What's interesting too is how much of this our peers are doing, what I've noticed in going out to national conferences, meetings etc. talking to my peers, it was interesting that we're all at about the same point together. I don't remember a point, but we all said "hey we're all going to do this" or, even now there are special-interest groups and people who are sharing things but there wasn't a start up point where we said let's all do this together. There were other things where we all said let's do this together. Service management has really taken off in higher in IT but it wasn't a planned effort ironically.

Because of the role of information technology in areas such as business systems, payment card processing, and other secure transaction activities, university information technology auditors are having more of a say in the processes and practices that must be followed. This is true at Northern State where a number of the participants mentioned suggestions from auditors as the impetus for adopting more rigorous processes. Change management is an area of IT concerned with the use of standardized methods and procedures for efficient and prompt handling of changes to control IT infrastructure to minimize the impact of any related incidents (Bon et al., 2007). Change management is used for both project and process management control. As mentioned by one of the Northern State participants, "The auditors have also been making findings related to change management. I had asked for an audit last year and that was one of the findings that they'd like to see a more formal change management approach."

Somewhat related to the ever increasing complexity of the IT environment, higher education institutions find themselves with an increasing number of security and audit rules and edicts, one of the directors involved explained:

You're right having lived that experience many years ago it was never on the radar. But I'm not so sure if it's all economic, because I think its standards in general, I think that

there's standards that are out there for everything that's coming from all the different guidelines that are out there, and auditing, and all the things that are happening. I think it's a combination. I'm sure it's a combination of all those factors but it is very different than years ago from my experience coming here.

. Another activity that compelled one of the Northern State central IT groups to adopt better PM practices was work that was done on a network upgrade. State money was specifically appropriated for the work and it therefore required additional documentation and rigor according to the rules that had to be followed for the use of the money. The TN group used the experience to help usher in a higher level of process on subsequent projects, as their director explained:

What that (project) forced us to do at the time was to highly structure how this went because those dollars were managed through the (state's) office of general services and they are pretty rigorous in terms of how they deal things out and the documentation you have to have that justifies why you should now be eligible to receive funds that they promised you. So that developed sort of a strong project orientation in a group I affectionately called special projects ...and it was that rigor that we said what we need to do is structure more projects like this.

### *Cultural Environment*

Certain interview questions were designed to better understand the Northern State cultural environment, delving more deeply into such dimensions as the director's level of authority, the leadership style of the VPIT, how decisions were made in the organization, how metrics are used, and goal setting and director assessment. Three major themes developed: process and structure, governance and leadership, and collaboration to reach shared goals.

### *Increasing Process and Structure*

The Northern State leadership teams stated that a number of best practice changes have already occurred, are in process, or still need to occur in their move towards more process and structure and a more professional IT organization. Some participants suggested that changes in some areas, while moving in a positive direction, may not be as far along as they could be. Signs that participants brought forth were a shift in planning and governance methods including the creation of the IT leadership council, addressing the duplication of effort across IT units, ITIL training and implementation, a move toward more data based decision making, and the transition to academic staff and away from faculty based IT personnel. Some of these ideas were discussed in some detail in previous findings sections as influencing factors or processes undertaken leading to the adoption of better PM practices. They are being reviewed in this section because of their significance to changes in the cultural environment.

Central to the shift in planning and governance methods was the creation of a 70 member IT leadership council with representation and input from across campus. The council was created to address campus wide information technology strategy and concerns. Most participants declared that Northern State at the university level, and their own teams, have become more open, collaborative, and sharing with information and decision making in part because of the creation of this council. Prior to the creation of the IT leadership council, decisions were made without the full input of all who could be affected. As described by a director:

Prior to that governance was basically the commitment to do the right thing by each person in a leadership position. Trying to talk to their peers both within central IT and outside of central IT. And the governance was at the level of our VPIT speaking at the deans. ... And so the governance was by keeping general communication open and say meetings, making sure that we act in coordinated ways ... governance was more

coordination and now I think we're moving more in the realm of governance as the word is generally understood to be.

Another indication of a move toward a more professional organization is some progress toward increased data based decision making. Although some directors indicated that assessment and other performance data have been collected for many years, others have not been collecting data, and analysis and use of those data in decision making has not occurred on a regular basis though the trend is changing as this participant commented: "Absolutely. Yeah, I would say the trend is to be a more data-driven but a lot of places; we're not used to metering our services. And if you don't meter it, how do you know?" Another director indicated that he has data and is now starting to dig into it:

We do a faculty and staff survey; we do a teaching assistant survey. I mentioned the student survey, we do a classroom assessment. Every time somebody sits down at a computer on our campus and logs in I know. I know how long they sit there, I know what major they're in, I know how many pages they printed. So I have all this stuff but it's all over here. My former boss instilled this practice of collecting data in this organization. What we never did was sensemaking on it. So now the next step, I want to build on his brilliance in that regard, and start to be able to actually make data driven decisions.

While indicating that the organization is moving in the right direction with using data based decision making, one participant suggests that more still needs to be done:

I don't know that we get really good metrics on how well are we performing in area XYZ. And I can't do it in security either. I can slice, dice, do everything on what kind of incidents are we having. I can slice, dice what kind of attempts are happening. But being

able to tell you that gee, we really improved security in engineering by doing this initiative, I can't tell you that. I'm not sure that any of the other areas are able to measure that really well either. What impact are we really having? Have we made Northern State better?

Another participant gave an indication that data analysis was being thought about but was not quite where the organization wanted it to be:

And we wouldn't ask the customers much. We're still not great at getting customer feedback. That should be metrics that we're using. And actually our cost of services should show costs by metrics and also by what's (who's) the relevant customer, did we invest as much in this and our customer feedback went down, our customer satisfaction went down. We're not even collecting that yet. We should get there, but....

An additional aspect of the organization that appears to be inconsistent with a move toward more data driven decision making is goal setting and the VPIT's assessment of the directors. Some directors indicated that they work from a business plan that is integrated with a central IT business plan, which is integrated with the university plan. The directors with a plan suggested that they are assessed based upon how they performed to those plans, but not always as reflected in the comments of this director:

In the last few years we've come a long way, we, Northern State, have come a long way in terms of what we called job responsibility definitions in our evaluation criteria of staff when we do annual or semiannual reviews. And we're still learning as we go there because I think it's just a long arduous process to the point where you can quantify something, some things that you can measure people against. It's hard, especially for the managerial level to do that.

Another director indicated that his assessment was “typically prose driven” without the use of measures or hard indications of success or failure. As still another of the participants put it:

I think I’m assessed because of the process. It will be interesting to hear what (the VPIT) said. Cause I still don’t have a real clear ...to know how I’m assessed. .... But I’m not assessed by anything that’s really going to come out by metrics. By a number or something like that. I think it's more how I take the leadership, how I work with others, how I use influence.

Still another of the directors put it quite succinctly when asked how he was assessed:

We’re not. I mean we’re not, not formally. Conversationally, informally. There are conversations about what went well, what are we going to do better next time. There's no formal assessment. .... Again I don’t know so much at our level, at the director level. But there’s really no formal assessment. There's certainly no written goals.

As noted by another of the directors, “...measurement is a tough thing, especially in these jobs you know.”

A strategic initiative that was talked about by the participants was the campus’ attempt to move away from redundant services across the university IT groups. One explanation given for the growth of redundant IT services across campus was that it was in the university’s culture to do so. Colleges and departments have a history of creating new courses or services to meet the special needs of their patrons. It was explained as an overall culture that allows for duplication of services, which even includes IT services. The VPIT gives an explanation of the tradition:

...we have seven different calculus classes here at Northern State, on purpose. Right. We’re proud of it. Calculus for business majors, calculus for earth science majors, calculus for engineers, calculus for mathematicians, calculus for liberal arts majors. And

it's okay. There's tension between the raw duplication of effort. I mean come on, an integral's an integral, the area under the curve is the area under the curve in all these things, yet we've rationally come to the conclusion that business majors need to understand calculus a little bit differently than earth science majors. And I really believe it is so firmly in a large research institution...that we will never get rid of duplication of effort.

Much of the redundancy of effort in information technology is being addressed by the IT Leadership Council in response to an initiative in the university's strategic plan. This can be touchy and is being worked through in a collaborative way at Northern State. At many large institutions of higher education where both centralized and campus IT resources exist, there is a tension between the two groups that can at times be typified as mistrust. When asked about this tension, one director suggested that Northern State is attempting to address and minimize it:

I think this new push is saying, (the VPIT) is saying it's not we or they, we need both but what's the distribution of services to both? We all have to weigh in on that so there's a lot that can be better done centrally and there's a lot of things that can be, and must be done distributed. So what are they? And I think that there are seven opportunities that are coming up and are moving more towards centralized, things like e-mail, things like storage, and then what is it that really needs to be done, the support of faculty and staff needs to be done there (distributed). So that was kind of laid out through that IT assessment.

Another change taking place in the Northern State environment is that over a period of time, some IT organizations that were made up of primarily faculty are now supported by close to 100% administrative staff. Many of the groups originated as academic units with faculty and

academic staff initially filling the roles. As told by the VPIT, some groups, like Teaching and Learning (TL) and Research Computing (RC) had significant faculty makeup. Other groups, such as AS, traditionally an administrative programming group, and TN, wire pulling and networking, did not evolve with a lot of initial faculty. They were typically administrative from the beginning. The groups with more faculty and academic staff had a tendency to be run like a research project with less process and policy and more learning for the sake of knowledge and understanding. It may not be coincidental that AS and TN are the two strongest process driven groups in the central IT organization and the others are all playing best practice catch up. As noted by the VPIT:

Well the administrative systems really didn't have a whole lot of faculty in it. It was just doing the administrative stuff so it wasn't polluted or poisoned with the academy; it was kind of like way out there. Same thing with the telecommunications guys, but all the other IT organizations had lots of faculty appointments in them, some of them were joint, and their notion of project management really didn't exist. It was as much an academic exercise as it was, when you did academic computing it wasn't just support for the academy, it was you were doing some of the work of the academy. And it's taken 15 years maybe to start to squeeze that out and now you see in (the CS) shop and part of (the TL) shop have the vestiges of the old, large academic computing center. And I think, we are firmly now in the era where we are thinking like an IT shop as opposed to an academic shop.

### *Governance and Leadership*

A number of governance and leadership related topics were recognized in the interviews with the Northern State central IT group. One of the major topics discussed was committee

decision making. As expected in a typical higher education environment, committees are used to facilitate decisions in a number of IT spaces across the university. These committees include executive, student, and a number of faculty guidance committees. Many of the participants expressed that they had the authority to make decisions without the blessing of specific committees but that it would be career suicide to do so. As told by one of the participants;

I feel like for the most part I can make almost any decision as it relates to (my group).

The way that I go about using that power though is as one built around the notion of shared decision-making and sort of collaborative decision-making. I feel like I'm paid to make good decisions. I have most of the knowledge, but yeah, I feel pretty good, we have committees in place but you have to take advantage of those committees. Like if I wanted to decide to change the clickers for example I could wake up and say this is what I'm doing but that would be a bad, that would just be a poor decision to do that, right? Like I could know going in that this is the system but we need to allow the faculty Senate a chance to see and feel and hear, and our UCIF, which is our University committee on instructional facilities to see and feel and be a part of that. Faculty and pilots are all a part of that.

Some participants indicated that there is a directive from on high to be more inclusive of faculty and students. One interviewee put it this way:

(The VPIT) insists that we have more faculty engagement. He wants to touch more faculty. He wants to see the adoption of new technology rise for teaching and learning in appropriate ways. He wants greater participation from students and student groups. He'd like to see us better support our student affairs organization.

The term “coalition of the willing” was mentioned numerous times from participants. There is an expectation that the Northern State central IT leadership team should be able to convince the organization to take the chosen direction, as this participant shared:

(The provost) cannot spell the word “mandate”; (the CIO) does not have it in his spell check. Our security group can mandate some things and whenever they mandate something there is some blowback. Top down stuff does not work very well here, that is simply a part of the culture.

Longevity of leaders is a recurring theme that was brought up by many participants. It was used along with terms like “trust” and “understanding” and implies that the longevity of many leaders at Northern State makes it easier to affect change. Things have recently changed and there are some new actors involved, but still many remain with a lot of longevity. As suggested by one of the long-term directors:

... (the CFO) was very stable, the CIO was very stable, the Provost was very stable, they knew each well and they understood technology. All the stars lined up. With the new set of executives that we have they are trying to get the stars lined up again. ...Very stable environment, very little turnover of people, very little turnover of executives. They have a culture of using technology. They trust IT whether it’s central IT or IT in the departments. And there has never been any pattern of abuse from the IT community. No projects that failed miserably. It just hasn't happened here... It’s a good environment, that's a good IT environment. It’s not just the IT, its good executives.

### *Collaboration to Reach Shared Goals*

The last set of cultural findings relates to how the Northern State central and campus-based IT units collaborate to reach shared goals. There has been an effort across the whole of the

campus IT units, prompted by the need to reduce redundant efforts and to become more efficient; to work more collaboratively to help the university lower costs. Adding a level of complexity, the VPIT and his predecessor have had the job of molding the existing central IT organization into a single cohesive unit. The central IT organization was created when separate, siloed groups were pulled together into a unit that now reports to one leader, the VPIT. Some participants stated that there is still independent, “siloed” thinking in some of the central IT groups. As one director explained:

When I read about and learn about the history of how this organization came to exist, and this is true about other universities as well, it's a marriage of independent IT units, or mostly independent IT units that were mostly responsible for specific chunks of the IT enterprise that have slowly over the last two decades come together to form this now unified IT operation. But you still have remnants of independence, and I can't blame some of them for that. ... (most of the central) leadership members, they run operational units. They're responsible for making sure that systems continue to function 24 by 7, that they turnout the widgets every day.

Adding a second level of complexity is the size of the campus IT organizations. Northern State's campus to central IT personnel ratio is approximately 3:1, as noted by one director, “...our central IT organization ..., has roughly 520 people. There are 1600 people that wake up in the morning doing IT at Northern State.” There are more information technology people, projects, and dollars spent outside the central organization than inside. The central IT group is responsible for many of the larger, more institutional systems, however. There are 119 IT operations at Northern state each with its own goals and initiatives, and as told by one participant:

IT directors are out there in the colleges and other units. They are responsible to their Dean who is telling them what they need to do, or their faculty who is demanding that they do something, and meanwhile you have (the VPIT) over here and some of the central IT leadership saying “yeah but... but we really need you to do this with all these other folks over here, and the I know your faculty are demanding you do that but we need you to not do that, instead we need to do this over here”. They’re torn. Many of them are just a terrible position. And many of them are not supported in a way that makes this any easier for them.

Participants believe that Northern State has historically granted more autonomy to campus units than many other higher education institutions. Many campus units maintain their own networks, as stated by one participant:

As an example throughout the university we have 1000 or so of what we characterize as local area networks and some of those may be trivial almost, you know they may be a printer, a server, or a handful of them, but the flip side of the coin, some of them, such as the one managed by the college of engineering probably has 15 buildings and several hundred different nodes approaching on, but they're all local-area and networks to us.

There has been a push by the VPIT to be more collaborative with the campus units. The IT Leaders Council is one solution to that new way of planning. Campus groups have also been invited to many of the meetings, picnics, and employee gatherings that have previously been for central IT only. Indications from many of the participants appear to be that a more collaborative environment is taking shape:

In the last year now, in the second year, in great part to (the VPIT’s) leadership, as well as (the former Associate VPIT) before he retired, and a few other of the directors that are

in that group, I've seen more of a shift towards "yes they have responsibility for some of the independent operations but they're starting to look at how do we work together, what's the relationship? How do our services and projects and all these things overlap with one another? Where can we build efficiencies? Where can we collaborate better? How can we share resources?" That sort of thing.

As another director put it:

I think we're getting closer to a point where we will see more of that, where's there's actually some integration across different units, the independent sort of silos of the IT organization, and really more so across all of IT at Northern State. Cause we're at this moment now where there's this new sort of esprit de corps across the community, the IT, the greater IT community.

And as stated by another of the central IT directors:

I think we're at this moment, or at the beginning of a moment, over the next probably 2 years, I would say 2 to 3 years where there's going to be a pretty big shift in how we plan, how we think, and maybe even how we execute the work of IT at Northern State across Northern State.

The Northern State central IT organization is highly focused on customer satisfaction, a recurring theme with all the participants and what they indicated was the second most often mentioned reason for adopting PM best practices. The customers of the central IT group can be students, faculty, other administrative staff, other central IT members; it does not seem to matter who the customer is but there is strong attention paid to providing a good experience for that patron. As one director stated:

We talk to customers all the time sure, so the customers know us. So I would think I talked to a broad spectrum of our customers all the time. So I rely on customers being able to tell me or send me an e-mail. Call me, I'm very accessible. Everybody has my cell number. I happily encourage them to call me anytime, weekends included. So I think that I would know that I would have a good sense, a good pulse of what the customer satisfaction level is. So it's not wishful thinking on our part.

### Summary of Findings

#### *Promotion of PM Adoption*

The IT and administrative directors of the Northern State central IT group saw themselves as the primary promoters of PM adoption. They also saw others within their groups who were generally associate directors or project managers as driving forces. Some others such as a business vice president, the chief financial officer, and the VPIT were also mentioned as being highly influential in the development of process and collaboration across campus. Participants believed that resisters and blockers of PM adoption, including central IT group employees and customers, thought that additional work was going to be required and either did not understand the benefits or did not agree that benefits would be generated. Faculty were frequently mentioned as resisters to additional rigor.

#### *Processes Undertaken in Adoption of PM*

Northern State University is an organization moving towards more rigor and process in project management. The university and IT leaders have taken a number of steps to nudge and coerce the central unit information technology employees, the campus units, and their customers to keep moving in the same direction. The steps focused not just on project management but upon process improvement and thoroughness across both services and projects.

Northern State focused on developing both ITIL and project management processes, often at the same time. In some groups, adopting the set of ITIL processes served as a mechanism to focus more on project management. Some of the participants believed that ITIL helped the organization to all speak the same language, understand the same concepts, and gave them the framework for project management best practices.

Understanding that they wanted more structure and rigor in their processes, directors managed their groups to facilitate that growth. They improved their processes by implementing the templates, guides, documents, and frameworks of project management and ITIL. They cultivated project management skills and a common language through the use of education, training, consultants, and exposure to outside ideas at conference and a consortium of peer universities. Northern State made good use of communication and culture change activities. They encouraged new behavior in their employees, nurtured a desire in the groups for improved processes, and built support with leadership and customers. The organization had a belief that organizational maturity correlated fairly well through project management maturity. As suggested by the VPIT, service quality breeds PM quality.

#### *Why PM Better Practices Were Pursued*

Northern State participants discussed numerous reasons for seeking a higher level of project management best practices adoption. The top reason mentioned in one way or another by all of the participants was to achieve a higher level of productivity. Higher productivity through better process rigor was sought because of real or anticipated budget cuts, trying to do more with less, and a general sense of accountability. Another top reason given by the participants was to achieve better quality. Higher quality through PM adoption was sought because of problems with current services, the need to meet customer expectations, and because of the attitudes

brought with many of IT staff from previous roles. Many participants saw the need to bring up the level of PM adoption to address complexities in the IT environment. Also discussed was how process maturity in information technology may be increasing at Northern State because of the overall increasing process maturity in the IT field. Lastly, outside influences such as other institutions of higher education, EDUCAUSE, auditors, and consultants have also been influential in Northern State's adoption of best practices in information technology project management. There is no one reason given for why Northern State's central IT groups have moved to adopt more rigorous IT processes, and perhaps even distinct reasons for each group as noted by the VPIT:

I don't know empirically if this is the case, but my sense is that the administrative group needs rigor and discipline and project management because they're in an environment that is dominated by having too many customers with too many requests, that, it's a weapon against the lack of institutional prioritization in the space. On the telecommunications side, it looks really more to me like a yield play. Like we need to get more out of what we currently have and the only way to do that is to more effectively manage what we do. It isn't to say that they don't have the too many customers, too many requests problems and it isn't to say that AS, that the administrative folks aren't concerned with yield. It's just that I think the launch point, the genesis point, just looking at those two organizations is pretty different and as a result, I wouldn't want to overnight, change the ill that someone thinks that they're solving, curing, by having them embrace project management. Also, there's great variance, there's lots of ways to word this, but I think in this space there's a pretty great variance on how risk is perceived and acted against across all of these organizations.

### *Cultural Environment*

Increased collaboration with campus IT organizations is a goal of the central IT group. While the various campus groups appear to be moving towards the open, sharing environment that the VPIT is trying to achieve, there are issues that complicate that goal. The central IT environment continues to show remnants of independence carried over from prior autonomy. Additionally, the campus IT organization dwarfs the central group; it is more than 2 times larger in terms of people and projects. The campus IT organization also has more independence in areas such as networking and administrative programming than most campus organizations possess. What has helped the central IT organization's relationship with the campus IT groups is that the central IT group has a longstanding focus on customer satisfaction. The campus units have been customers of central IT and their quality focus over the years.

## CHAPTER SIX: ANALYSIS AND DISCUSSION

### Introduction

The public higher education economic and competitive environments make it crucial that organizations react to their circumstances and make better use of available resources (Duderstadt, 2000; Floyd, 2008; Shulman, 2007; State Higher Education Executive Officers (SHEEO), 2009). Higher education's conservative view of change can include a significant skepticism to ideas associated with management efficiency and innovation (Birnbaum, 2000a; Kezar, 2001; Tierney, 1999) compounding the situation. An increasingly important segment of higher education where changes in costs and efficiencies can be studied is information technology. Practically all aspects of higher education now include the use of information technology, including distance learning, the classroom, reporting grades, collecting tuition dollars, conducting and reporting research, and the environmental control of buildings and classrooms (Green & Gilbert, 1995; Nelson, 2005). A sub-section of information technology shown to help organizations become more economically efficient and competitive is information technology project management best practices (Kerzner, 2001; Thorp, 2003; U.S. Government Accountability Office, 1994). Best practices in project management are defined as "an optimal way currently recognized by industry to achieve a stated goal or objective" (Project Management Institute, 2003b, p. 13). This dissertation studies how one higher education institution has adopted information technology best practices as a means of becoming more effective and efficient, improving customer satisfaction and quality, and addressing environmental complexities.

This study is guided by an institutional change perspective framework assembled by Andrew Van de Ven and Timothy Hargrave (2004). The authors define institutional change as

“the difference in form, quality, or state over time in an institution” (p. 261). New institutionalism is a perspective that focuses on how social structure affects the makeup and nature of organizations. Institutional change has as its roots in institutionalism and new institutionalism. New institutionalism has been found to be an effective perspective for studying the social characteristics of higher education (H. D. Meyer & Rowan, 2006a, 2006b; J. W. Meyer, 1975), including much of the “sameness” displayed in this environment. It can help to understand why changes, including those in information technology and project management, would be slow in gaining acceptance in higher education (Cameron, 1984; Carrol, 1993; Gumport, 2000b; Kraatz & Zajac, 1996; H. D. Meyer & Rowan, 2006b; J. W. Meyer et al., 2005). Framed by these perspectives of institutional change, the study asked the following research questions:

1. What were the processes undertaken by a higher education organization in the adoption of best practices in information technology project management?
2. What factors influenced an organization in the adoption of best practices in information technology project management?

An exploratory qualitative case study was used to better understand the multiple process characteristics of how change occurs in one higher education central IT organization, specifically, the adoption of project management best practices. This research design facilitated a better understanding and explanation of what processes occurred as the changes associated with the adoption of project management best practices came about (Creswell, 2002; Merriam, 1998). I received permission and conducted on-site interviews with 13 members of the central IT leadership team. I later conducted a phone interview with an additional leader that was unavailable during the week of my onsite visit. With the exception of the 60 minute phone interview, I spent approximately 90 minutes to 2 hours with each participant asking a series of

questions designed to explore my research questions within the Van de Ven and Hargrave (2004) institutional change framework. The interview questions focused on understanding of who the institutional change agents were, why the changes took place, the steps and sequence of changes, the outcomes, and the characteristics of the organization.

### General Findings

As I started to analyze my findings I revisited the details of institutionalism and the Van de Ven and Hargrave (2004) framework. It became clearer to me how traditional organizational theories were used as a foundation to the institutional writings and to explain the many behaviors of organizations. Institutionalism came about as a way of clarifying some of the organizational behavior that could not be explained by traditional organizational theories. Institutional authors use both institutional and organizational theories to support and explain their ideas. For example in criticizing new institutionalism's lack of agency characteristics, Oliver (1991) cites early institutionalists such as Selznick (1949; 1957) who use *agency* as a generative mechanism of action. The author reinforces many of her arguments with the writings of organizational theorists using ideas such as *resource dependence theory* (Pfeffer & Salancik, 1978) and the role of active *agency* and resistance in organization-environment relations (Perrow, 1986). I found that I also needed institutional change, organizational, and leadership literature to help explain what I saw happening at Northern State. While my discussion still relates the findings back to institutional change perspectives as originally planned, I also use a number of organizational and leadership writings to support or critique actions.

The organization of the findings in Table 6.1 is reflective of the themes derived from the interviews the Northern State University central IT group participants. The interview questions were derived from Van de Ven and Hargrave's Four Perspectives on Institutional Change (2004).

**Table 6.1 – Major Northern State Findings Themes**

| Findings Theme                  | Primary Findings                                                                                                                                                                                                 |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Promotion of PM Adoption        | Directors and key team members<br>Blockers – some team members and customers                                                                                                                                     |
| Processes Undertaken            | Process improvement and rigor<br>Develop teams and allies<br>Cultivate PM skills and common language<br>Communications and Organizational Alignment                                                              |
| Why Best Practices Were Pursued | To achieve a higher level of productivity<br><br>To achieve a higher level of quality and customer satisfaction<br><br>To address complexities and accomplish objective and priorities<br><br>Outside influences |
| Cultural Environment            | Increasing process and structure<br><br>Governance and leadership<br><br>Collaboration to reach shared goals                                                                                                     |

Project management adoption was promoted and facilitated primarily by the Northern State central IT directors and secondarily by others in leadership positions. As stated by the participants, some in the organization, including employees and customers, were obstructionists to best practice adoption. The participants also specified that PM best practices were adopted to address a need for more efficiency because of budget cuts, to achieve a higher level of quality and customer satisfaction, and to address IT complexities and accomplish objective and priorities. There were also outside influencers of Northern State's PM best practice outlook

including consultants, peers from other universities, and symposiums and conferences attended by participants.

The Northern State central IT organization undertook many steps in the adoption of PM best practices. The steps discussed the most were improvement of processes and additional rigor in general, finding allies and creating teams, developing PM skills, cultivating a common language, communicating the right message, and instigating culture change. From the perspective of the Northern State participants, three factors stood out as having a hand in shaping the environment. The first factor was that participants had a sense that an overall increase in process and structure in general was taking place. Another factor was the feeling that the organization was moving towards tighter governance and a stronger leadership focus in recent years. The third factor discussed was a perception of more collaboration among all campus IT groups to reach shared goals.

The Van de Ven and Hargrave (2004) framework, which includes the four perspectives of institutional design, institutional adaptation, institutional diffusion, and collective action, helps understand the adoption actions taken at Northern State. Institutional design centers on individual actors who create or change institutional arrangements through conscious, intentional decisions and actions. Individual actors at times displayed agency at Northern State through their reactions to budget cuts and customer satisfaction issues. Institutional adaptation looks at transformation of institutional actors as they conform to norms, beliefs, and rules in the institutional environment in order to achieve legitimacy. The central IT organization adjusted to the overall complexity of the environment and increases in process and rigor at Northern State University with increased project management best practices. The focus of institutional diffusion is the details of how institutional forms reproduce, the degree that it infiltrates a field of

organization, and the rate at which it occurs. Northern State adopted processes, consciously or not, that other peer universities were adopting at the same time. The fourth perspective of the framework is collective action, which is concerned with the social and political processes in an industry or organizational field that make possible and limit the development of a technological innovation or a social movement.

Overall, the findings of this study can be better understood through the lenses of the first three dimensions of the framework; the last, collective action, is concerned much more with the macro organizational field, which in my study would have been the university itself. The unit of analysis of this study is the Northern State central IT group not the entire university.

## Discussion

### *Promotion of PM Adoption*

In this section I discuss findings that address *who* promoted IT project management adoption within the Northern State central IT organization. This is important in acquiring an overall understanding and appreciation of what transpired within the Northern State environment. Not everyone at Northern State was a supporter of additional IT project management processes. There were some resistors to the changes being pursued because of perceptions of additional work or little additional benefit to the organization.

### *Directors and Key Team Members*

The findings indicate that the primary actors who influenced the adoption of PM best practices were the group leaders who included the central IT directors, certain associate directors, and project managers. Additionally, the vice president of IT (VPIT), other campus business officers, and to some extent consultants and other non-Northern State leaders had a degree of influence. Each of the Northern State directors saw themselves having a major role

within their group promoting PM adoption. The directors were ultimately responsible for the overall results of their groups and some autonomy in adopting ideas and solutions. Each participant seemed intelligent, a first-class communicator, innovative, and had a high level of energy, attributes in line with their current leadership positions. As directors, they hired or promoted allies who thought in similar ways about project and process management. The directors understood that they could not change the organization on their own and needed the help of skilled and creative allies and group members to accomplish their goals.

The Northern State leaders came from varied backgrounds. Some had military experience where they were exposed to standard operating procedures and best practice concepts; most did not. Many, but not all, had a background in the private sector where they were heavily immersed in project management best practices. Others came from primarily academic institutions where they similarly got a taste for more process and rigor. Some of the directors have been at Northern State for 20 years or more, others only 4 or 5 years. No pattern of similar technical background or past assignments was uncovered. Each director who indicated a strong adoption of PM best practices brought a strong set of previous experiences that shaped their operational vision. Although many of the Northern State central IT directors' motivations for bringing additional project and service management best practices into the environment were similar, the shaping experiences were different. This indicates that leaders who have the ideas and the abilities to successfully integrate project management best practices into IT organizations can come from a variety of backgrounds. In these specific cases at Northern State, the backgrounds of the leaders provided a strong grounding in process improvement. The leaders also had the drive and the motivation to make the changes they did. This strong entrepreneurial

agency aligns with aspects of Van de Ven and Hargrave's (2004) institutional perspectives of change, and helps show how individual motivation can influence institutional change.

An additional consideration is that the leader's success may have something to do with past assignments where they were exposed to certain project management successes and failures. The transfer of knowledge through leader movement can help explain some of the proficiency of Northern State leaders in the adoption of PM best practices. Argote and Ingram (2000) found that a significant portion of the knowledge that organizations seek is embedded in their people. When people move between organizations, they can apply this technical knowledge to new environments, therein transferring knowledge across organizations. As leaders move through different positions throughout their careers, they build on complex technical and social skills including project management and other expertise. Northern State leaders have put skills accumulated from past academic, military, private sector assignments, such as project management and change management, to work solving problems in the central IT organization. In the search for new leaders, organizations should consider all sources. As shown at Northern State, having the right knowledge and experiences comes in many ways and may be more important than having industry experience or being immersed in an institution's university culture.

Adoption promoting activities were put into motion at Northern State through various means. One method was the agency of the directors, and others, who promoted project management best practices to their groups to address inefficiencies, customer complaints, and other problems, and to create or change existing institutional arrangements. These actions align with the institutional design change perspective that posits institutions are a "reflection of conscious, intentional decisions and actions" where rules are developed to solve problems (Van

de Ven & Hargrave, 2004, p. 264) At Northern State directors had full responsibility for the results of their teams within the bounded agency that higher education afforded them with its committee decision making and group expectations (Birnbaum, 1988). Each director came with a certain degree of personal commitment to improve the situations in which they had responsibility.

The Northern State leaders also used additional PM processes in reaction to complexities in the work environment, a second example of PM adoption. Audit requirements, complex business systems, and highly technical network and security environments required that the team leaders put processes in place to avoid undesirable consequences. The directors displayed normative and coercive isomorphism (DiMaggio & Powell, 1983) through their responses to the intricacies of this environment. They shaped groups, defined and directed training activities, and took other actions to adopt more PM rigor to address the changing professional and regulatory environment. The institutional adaptation perspective (Van de Ven & Hargrave, 2004) suggests that institutional actors must conform to norms, beliefs, and rules in the institutional environment in order to achieve or maintain legitimacy.

A third example of increased best practice adoption at Northern State was a broader change occurring across the entire population of IT actors at the university. The findings indicated that this change was an evolutionary increase in the adoption of process and overall rigor involving many institutional actors over a span of many years. Participants suggested that the global IT environment has been maturing, standards are more prevalent, processes are getting tighter, and new employees are coming in with better skills both right out of college and from previous positions. IT conferences and symposiums focus on more discipline in project and process management. This increase in the adoption and overall rigor manifested itself at

Northern State as an environment with stronger procedures and thoroughness where many institutional actors in the IT environment contribute to the adoption of increased PM best practices. IT leaders have had to learn more about these methods and institutionalize this way of thinking into all aspects of the organization. This aligns with the institutional diffusion perspective (Van de Ven & Hargrave, 2004). The participants indicate that the increase in process and rigor is not only occurring in the university's IT environment but also in areas such as physical plant and finance and accounting. Higher expectations of professionalism abound across the university.

Some directors had more influence across the IT environment than others and were described by participants as leaders in adopting and promoting project and process management. One of these influential directors came from a very strong IT industry background. He has connections and relationships across many levels of the university reaching into the executive offices as well as across the country into many university and industry organizations. Another influential director who seemed to be similarly well connected across outside organizations and was relatively new to Northern State had a background primarily in academics. Each of these leaders' influence seemed to exist for a number of reasons. Each leader appeared to have an understanding of his or her vision e.g.; one had written white papers and other formal documents articulating a long reaching IT plan. Each had strong communications skills and the ability to articulate their vision to team members and peers. Additionally, each appeared to be a collaborator willing to make team sacrifices for the greater good of the central IT group and the university. Edward Schein (2009) indicates that managed culture change in organizations often comes from boundary spanning individuals who have acquired objectivity and insight from past experiences. These boundary spanners may come from diverse settings outside the current

organization, bringing objectivity and independent thinking. Some directors that appeared to be successfully influencing the Northern State central IT organizations fit the definition of boundary spanning individuals. Additionally, a number of outside consultants, hired at various times by Northern State, brought objective and independent thinking (E. H. Schein, 2009) to help realize cultural change through adapting to complexities and environmental problems similar to the university boundary spanners.

The role played by the VPIT in the adoption of PM and other process best practices was brought to light by each participant. Referred to as “hands off” and as a “coach”, the VPIT appeared to shape an environment of collaboration and trust that included the campus IT organizations. He created this environment through communication, shared training and education, and working together to solve problems. The VPIT also let his directors run the operational aspects of the organization while he focused on larger issues such as the relationship with the campus units and the cultural impacts of the changing environment. As more trust and commonly shared values were developed, the VPIT could be less and less authoritarian and focus more on leading the culture change (M. Amey & D. F. Brown, 2004).

Research shows that executives are most effective when shaping the organization’s views of external entities and strategic change, and typically, act at the boundary between an organization and its environment (Keck & Tushman, 1993). Effective executives spend time on external demands and internal political dynamics and not on operational decisions. Although mainly hand off operationally, the VPIT at Northern State was involved in strategic decisions on budgets, staffing, and where to apply resources and focus. With all the current budget issues and the perceptions of the public at stake, the organization wants to manage the perception that spending and resources are being “wisely” used.

### *Critics: Some Team Members and Customers*

The major promoters of project management best practices within the Northern State central IT organization also had to address critics or resistors along the way. When resistors are employees, as was often the case at Northern State, the situations can be attended to directly. At Northern, communication, training, and coaching were the first steps. If that did not work, the employees were changed to other roles, or dismissed if necessary. The situation can be much more difficult when customers are critics or resistors; customers cannot be dismissed. Some of the Northern State customers had bad experiences with too much project management process that did not result in a dividend for them. Efficiency and standard processes to a certain level are good; cross a fuzzy threshold and it becomes too much. The IT leaders solved this in many cases by absorbing the additional process steps involved in project management into their own groups so that customers did not have to do more. This is okay for a time if groups can absorb the additional work and understand the customer business well enough to “speak” for the customer. Eventually, the customer has to agree that the processes are valuable and assume the work themselves. If they will not, the process likely has to be changed.

Faculty customers were mentioned often by participants as PM process critics and resistors. This is not entirely surprising as some faculty members often believe that the next new management fad is right around the corner and if they can wait out the current one, it will go away as attention gets drawn to the newest craze (Birnbaum, 2000a). In the minds of some faculty, IT project management best practices will go away just as did other “fads” such as total quality management or business process reengineering, and so they often choose to resist participating in the adoption. However, the author also suggests that faculty members often look out for the humanistic values and the goals of the academic mission. Their criticism is often

valuable in ensuring that the organization does not lose sight of the true aims of education while becoming too focused on running the institution like a business.

Customers were not included in this dissertation in order to limit and bound the study, controlling the scope of work. If customers, including faculty, had been included they may have had entirely different views on many of the questions asked than did the Northern State central IT group participants. The lack of customer input is a limitation of this work.

### *Processes Undertaken in Adoption of PM*

The findings from Northern State indicate that PM best practice adoption was accomplished through many different steps, some planned and some serendipitous. The more prevalent actions were the advancement of overall process improvement, developing organizational teams and allies, cultivating common skills and language, and planned communications by the central IT senior leaders. Participants suggest that many of the steps taken by Northern State in the adopting PM best practices were not always thought out and planned in any particular order. Additionally, some of the activities mentioned by participants were not followed by all the central IT groups. For example, many of the directors talked about “having a plan in my head” but they did not have anything written down. However, a few directors had their ideas documented and included in a business plan and white papers.

### *Process Improvement, Infrastructure, and Rigor*

When discussing the steps taken that advanced PM best practice in their particular groups, the participants suggest that many pieces of a puzzle contributed to the changes. The following discussion of *process improvement, infrastructure, and rigor* encompasses some of these “puzzle pieces” including the general improvement of all IT processes; the use of project portfolio management; the employment of tools, guides, manuals, and directional resources.

The general improvement of all IT processes was described at Northern State as moving toward an overall more standardized and well documented environment. Some of the project management best practices in place in the central IT organization include using dedicated project managers; purposely involving customers in projects; establishing and documenting startup processes; defining and putting into place policies, project control processes, communication, program information processes, planning methods; and using estimating and measuring techniques. The Northern State central IT groups have all adopted many of the project management best practices, even though some are more advanced than others. The larger, more technical teams adopted more practices than some of the smaller teams. The Administrative Systems (AS) group has gone the farthest in adopting PM best practices, including establishing a project management office (PMO) that has become a valuable resource to many Northern State IT groups. Kerzner (2001) posits that a PMO is similar to a center of excellence and its existence suggests that project management is considered essential to and a commitment of the organization. The IT Communications group is an example of a smaller, less technical group that has adopted a significant level of project management best practices. According to participants, the group's advanced nature is because of the agency of the director who brought a significant level of PM knowledge and experience from past roles.

Along with project management best practices, the central IT organization at Northern State has also adopted service management best practices. Services are the day-to-day tasks that keep the systems running and deliver ongoing information technology. Projects have a start and an end date, services are ongoing activities. The central IT group adopted service management best practices with guidance from the Information Technology Infrastructure Library (ITIL) framework (Bon et al., 2007). Some of the service management best practices adopted by

Northern State central IT group include the definition of service portfolios, understanding service costs, adopting an enterprise change management system, putting inventory management in place, and implementing risk management. As with project management best practices some central IT groups are further ahead than others in the pursuit of service management best practices. The Telecommunications and Networking (TN) group as well as the Library Technologies (LT) group appear to be at the forefront in adopting service management best practices because the directors of these groups see service management as a valuable tool for achieving high quality.

The central IT groups also showed signs of overall process improvement through such actions as establishing or following implementing electronic templates and standard operating documents, putting up sites, documents repositories, and wikis for consistent communications and process delivery, implementing innovative tools to help technicians and analysts do their jobs, and putting electronic guides and learning materials into the hands of team members. While best practice methodologies do not require or encourage the use of automated or electronic methods or tools (Bon et al., 2007; Project Management Institute, 2003a), acquiring and establishing these in the work environment is a sign that the Northern State central IT organization has implemented a process to address a best practice activity.

Further overall activities that facilitated the adoption of PM and service best practices were financial, sometimes arranged by the financial services team. These financial activities helped the Northern State central IT group plan for the future, build a structured set of accounting and analytic tools, and adopt better project and service management practices. The dean's campus IT accounting model is a campus accounting procedure that helps support day to day operations of certain central IT services by allocating a certain percentage of funding for the

responsible groups that allows for hiring necessary staff to do project and service management effectively. Similarly, sustainable IT accounts allow the central IT groups to keep certain unspent IT project dollars in a capital account for a number of years. Instead of the funds being swept back to the university coffers after a year or two, they are available for specified equipment and services. The cost of services analysis allows the Northern State central IT group the ability to determine how much it costs to provide a certain service or implement a specific project. All of these financial strategies allow for better long-term planning of campus IT projects, and in turn, better PM and service practices.

Do all these additional processes and standards facilitate additional or better PM practices? Is the increase in project management process adoption affected by the increase in service management adoption? Does process beget process? Some of the Northern State participants seemed to think so. It may not be as straightforward as that, but Richard Bettis and C.K. Prahalad (1995) put forth that organizations adapt to environments, make decisions, and plan based upon the dominant logic of the organization. The dominant logic; a fundamental aspect of organizational intelligence is used as a filter to produce the values expectations, competitive strategy, performance measures, and reinforced behavior of the organization. So process can create process if process is ingrained in the dominant logic of the organization. Increased process then becomes part of the organizational values, strategies, and other reinforced behaviors. These “institutional rules” that were put in place by the Northern State central IT groups can be seen as form of internal legitimacy whether intended or understood to be at the onset. One focus of the institutional adaptation perspective (Van de Ven & Hargrave, 2004) are changes in the character of institutional actors as they conform to norms, beliefs, and rules in the institutional environment in order to achieve legitimacy, which enables them to acquire resources

and improve their chances of survival. If the dominant logic of the organization is towards process and best practice implementation, the adoption of more process by individual groups within the central IT organization helps those groups create legitimacy within the rest of the organization. At Northern State, having an orientation towards more project and service management process increases the leader's legitimacy within the central IT organization, hence the director's survival rate (keeping one's job) is more likely.

#### *Develop Teams and Allies*

A second category of actions taken by Northern State in the adoption of PM best practices was to *develop teams and allies*. This involved taking the steps and getting approvals to hire and promote "right" or "similarly minded" personnel, and reorganizing current teams to better serve the direction of the organization in adopting additional project and service management practices. As will be noted later, this was not the full account of how the central IT group went about developing teams and leaders. When looking for current employees or new hires to move into project manager roles, the Northern State directors had a formal profile of traits and competencies they used that was developed in conjunction with the central IT HR director. The participants described looking for people with "PM sensibilities", people who understood both the business and the technical side of things, and people who could "help us be successful." The employees with the right attributes were hired or moved into positions such as project manager where they could implement projects, create process and policy, and influence others in the group. The skills and experiences of people hired into project manager roles from outside the current organization were more formally scrutinized and held to a higher level of qualification than those promoted internally.

In discussing what to look for when building a team to initiate change, John Kotter (1996) suggests that the team should have position power, key players to help move things forward; expertise, which includes work experience and technical understanding; credibility, a good reputation; and leadership to drive the change process. Teams are not made up solely of direct report employees. While many directors looked to build these qualities through promotion and hiring in their teams, some participants discussed getting the key customers on board. The director of the AS group gave evidence of working with executives, including key executive customers in many of his team's PM adoption steps and the establishment of the PMO.

The Library Technologies (LT) and the Telecommunications and Networking (TN) groups also worked with customers to educate them about the benefits of project management. These groups wanted the customers to be partners with them in their move towards more PM adoption. This involved convincing the customer that the changes were good for them as well as for the central IT project and service performing teams.

The Northern State central IT groups reorganized their teams into an organizational structure that each considered best suited to meet their goals including the adoption of PM and service best practices. Many participants deemed it important to separate and assign some individuals as full time project managers, believing this was the only way to make sure project work was not neglected because of the consuming nature of everyday activities of running an IT organization. While many project management maturity models do not require full-time project managers, they do recommend assigning a project manager to all projects (Crawford, 2007; Kerzner, 2001; Project Management Institute, 2003a). Much of the institutionalism research of the 1970's argued that organizational structure was rationally designed to promote firm-level efficiency and performance (Drazin, Glynn, & Kazanjian, 2004). The findings from Northern

State support this idea in that the directors modified the organization to solve inefficiencies and problems by adopting project and service management best practices. However, Drazin et al. (2004) indicate that current research sees structure as the product of the social process coming from normative based trait imitation and conformity. Whether the managers are aligning the structure to be more efficient or to meet normative rules would seem to happen based upon what the bigger problem seemed to be at the time, or even what the researcher was looking for. In the current economic situation, efficiency appears to be the structural focus at Northern State.

#### *Cultivate PM Skills and a Common Language*

*Cultivation of PM skills and a common language* was the third set of steps taken by those at Northern State in adopting PM best practices. The central IT participants indicated that many types of training were utilized by all the groups to teach employees skills and concepts. Certain employees were trained in project management skills and concepts, and some became certified in project management, which involves learning the details of how project management best practices are applied to a work environment. As in many fields and disciplines, software programs and other automations tools have been developed for performing project management and many central IT employees were trained in the use of specific tools and program. Additionally, because the Northern State central IT organization has a strong focus on service management, and that is where the central IT leaders think a bigger impact will be made, a higher number of employees were trained in service management ideas, practices, tools, and software than in project management.

The most common training for central IT leaders was a specially designed IT leaders program. One repeated goal of the training was the institutionalization of a common language among the Northern State IT employees. The training was also designed to create a team of

critically thinking leaders who question current methods and strive for excellence. As estimated by some participants, IT Leaders Program was attended by 25% of the central IT organization and many campus IT leaders, as well. The enthusiasm of participants for the program indicates its strong impact on the leadership culture of the Northern State IT environment. Woodman and Dewett (2004) argue that along with socialization, managerial behavior, and organizational change programs, training is an important organization influence on change in individuals. They note that training is becoming increasingly popular in industry due to the rapid pace of technological innovations and the need for additional skills to keep up with the environment. It is fitting that the Northern State central IT organization use training programs to teach their employees new project management skills and concepts. Participants indicated that an occasional associate director was included in the project and service management training sessions but few in the senior leadership team attended. In my discussions with participants, some had stronger understandings of project management concepts than others, however, it is understandable that the directors of the larger, more technical groups may have a better understanding of PM for many of the same reasons that their teams are farther along in the adoption of PM best practices. Some common understanding of project management and common language is needed at the director level to facilitate planning and inclusive dialog (Kerzner, 2001).

Members of the Northern State central IT organization also participated in outside conferences such as EDUCAUSE and the Project Management Institute. Through member presentation and participation, the conferences provide up to date technical information, share implementation experiences with other, similar organizations, and develop leadership skills. Northern State also participates in learning and experience sharing amid cross-university peer

groups with similar operational goals, such as the security teams or teaching and learning groups. The influences of these professional groups upon one another is another example of institutional adaptation (Van de Ven & Hargrave, 2004) being driven by normative isomorphism (DiMaggio & Powell, 1983). This adaptation helps explain why the director of LT thought that many universities were taking up project and process management at the same time. According to new institutionalism scholars, many organizations look similar because they must conform to the norms, beliefs and rules in the institutional environment in order to maintain legitimacy. By participating in conferences such as EDUCAUSE and working with peer universities to study common problems, Northern State and other IT groups gain knowledge and solve problems but also gain legitimacy among peers.

#### *Communications and Organizational Alignment*

The fourth set of steps discussed by the Northern State interviewees related to PM best practice adoption was *communications and organizational alignment*. Participants indicated that the Northern State central IT group used communications to influence and encourage new behaviors, celebrate wins, create a common language, take steps to change the culture, and communicate the change message. Strategic communications from organizational leaders was a key element used to facilitate those changes. As promoters and adopters of change within the central IT environment, participants discussed their methods for sending consistent messages, addressing resisters, changing the current operations of their organizations, encouraging collaboration, talking to *their* leaders, and attending to customers. While it was clear that communications was important to the efforts at Northern State University and some directors were very good at it, no participant mentioned the use of a communication plan. William Bridges and Susan Mitchell Bridges (2000) suggest that communications plans be used in change

environments to help explain the changes. They also suggest that organizations provide not just simple communications but information to help the change followers, reiterating the “4 P’s” of transition communications:

The *purpose*: Why we have to do this

The *picture*: What it will look and feel like when we reach our goal

The *plan*: Step-by-step, how we will get there

The *part*: What you can (and need to) do to help us move forward.

Many Northern State participants also indicated that some of their communication and other activities such as training were aimed at creating a common language. They felt this was important in reinforcing the cohesiveness of various teams, including the leadership teams and the working team. Creating a common language allows groups of individuals to work together interpreting what is happening around them, permits goal setting, and allows for the creation of categories or meaning to organize perceptions of what is important while filtering out what is not (Schein, 2010). Having this common language allows teams like the Northern State central IT group to quickly understand abstract and complex ideas, like PM best practices, that are included in the group “dictionary.”

The Northern State central IT participants also spoke of “changing the culture” of the organization to become more process oriented and to use more best practices in project and service management. One way of directing this change was through the leadership and organizational communications to employees, partners, and customers. This included encouraging more process rigor, dispelling myths, supporting collaboration, and explaining the change benefits. Schall (1983) argues that there is a strong interrelationship and integration between an organization’s culture and its communication rules. This suggests that the culture of

organizations such as Northern State is defined somewhat by the communication rules used with internal and external entities. Over time, what is communicated could contribute strongly to what becomes the culture.

### *Why PM Best Practices Were Pursued*

The findings from Northern State indicate that project management best practices were adopted for many reasons, including: to achieve a higher level of productivity, quality and customer satisfaction; to address complexities and accomplish organizational objectives and priorities; and because of the influence of outside entities.

#### *To Achieve a Higher Level of Productivity*

Participants in this study were primarily the central IT senior leadership team responsible for delivering a host of projects and services across campus. In addition, the leadership team was fiscally responsible for their particular group or hierarchy. A prime reason given by the participants for adopting additional project management best practices was the concern that they still had to deliver a great product with a smaller budget and less resources. The moves to increase project management practices were made in anticipation of expected cuts or no resource increases. In some groups the budgets were not cut but the work was increasing and the resources were at best going to stay static; these groups had fixed resources but increasing work. Project and service management best practices were used to become more operationally efficient, to cover where groups were short staffed, and to meet customer demanded efficiencies.

The senior leaders took purposeful actions to address the problems of efficiency by adopting PM best practices, not particularly common in higher education. This aligns with the institutional design of the Van de Ven and Hargrave's (2004) change framework and with the belief that individual agency through deliberate actions can modify or change the environment

(Barley & Tolbert, 1997). This helps to understand how Northern State IT leadership purposefully addressed the issues of inefficiency by taking the inventive actions of adopting PM best practices.

#### *To Achieve a Higher Level of Quality and Customer Satisfaction*

Along with wanting to improve on efficiencies, the Northern State central IT participants wanted to improve their level of quality and their customers' perceptions of the work that their groups were doing. They specifically made changes to address customer perception and to increase the quality of the projects and services delivered. Findings indicate that there is a strong focus on customer satisfaction at Northern State. The participants' responses indicated that they took a personal interest in ensuring that the projects and services were delivered at the highest levels possible. Various respondents indicated that they were unhappy with the level of service when they took over as the leader of their group. These comments indicate a high level of accountability and ownership in the central IT leadership. Many of the best practices that were adopted to address the issues of inefficiency also created a positive effect on quality concerns. Some specific PM and service actions taken by the central IT groups to address quality issues were the coordination of communications, organizing processes, the creation of a project management office (PMO), and managing the customer expectations.

The Administrative Systems (AS) group has a project management office that appeared to be the de-facto PMO for many of the campus IT groups. This organization, while fully funded by the AS group, provided cross-organizational leadership through coaching, training, and other forms of mentoring and guidance. The AS PMO was the most advanced project management organization on campus that I interacted with and had many established tools, standards, and document libraries of best practice information. Crawford (2007) argues that project

management offices make the work of project team members better by supporting many areas of need. He goes on to state that the PMO consults with and mentors project managers and facilitates improvements in project management maturity by being the focal point for consistent application of processes and methodology. The AS PMO appears to be filling the role of a center of project management expertise at Northern State for many of the campus groups.

*To Address Complexities and Accomplish Objectives and Priorities*

Another reason given participants for adopting project management best practices was to address complexities in the work environment and to accomplish their work objectives and priorities. The Northern State central IT participants indicated that the increasingly intricate IT and business environment made it difficult to maintain a high level of quality. The technical challenges and the complexities of coordinating the work and integrations at this level were specified as the most vexing and taxing for some. Best practices not only in project management but also in service management through IT Infrastructure Library (ITIL) adoption were options that the leadership utilized to address the complexities. This is another example of agency on the part of IT leadership to change an institutional concern. It fits within Van de Ven and Hargrave's institutional design perspective (2004) and also follows Oliver's (1991) point that organizations respond purposefully to institutional pressures and do not just conform. The Northern State central IT leaders wanted to make the customers, the VPIT, and other institutional executives think highly of them and their groups and they took actions to do so.

Findings also indicated that project and service management best practices have become valuable to the Northern State central IT organization in handling day-to-day administrative activities e.g., team planning, managing existing work, and department goals. To some, this showed that the overall management of information technology matured and is handled in a more

systematic way. An issue raised numerous times by Northern State central IT leaders was that while project and service prioritization occurred at the group level, it did not take place at the enterprise level. Project portfolio management (PPM), called project prioritization management by some, is a business practice used by many organizations in an attempt to choose the right mix of projects and investments that are in sync with enterprise strategies. It is a CIO best practice that enables an organization to realize the most business value out of IT investments by doing the right projects at the right time, even while it is not frequently used (Jeffrey & Leliveld, 2004). Although no specific estimates exist, because of the lag between industry and higher education in adopting new management practices, the usage of PPM in higher education could be assumed to be even lower which would help to explain the lack of use at Northern State. Lack of assigning priorities at the highest levels caused the IT organization to make educated guesses about what was most important to the organization.

### *Outside Influences*

The findings indicated that Northern State was influenced in its adoption of project management best practices by auditors, consultants, other university groups, other university IT groups, and industry experts. For example, auditors required the IT group to use change management methods, which is a best practice in both service and project management (Bon et al., 2007; Project Management Institute, 2003a). This is an example of coercive isomorphism that takes place when organizations are subjected to external pressures, in this case formally, originating from other organizations on which they are dependent (DiMaggio & Powell, 1983, 1991a). It is fitting that this type of regulatory pressure would affect Northern State's decision making since state and agency rules and laws are the most common form of coercive isomorphism in education (Rowan & Miskell, 1999). This and previous examples show that

while there is a great deal of agency and freedom of choice in some of the change adopted at Northern State, there are still many actions taken because of institutional pressures.

Many central IT participants regularly meet with industry executives and specialists who inform them of how PM tools and methods are currently used in the private sector or at other universities. Likewise, participants interact with other Northern State groups and leaders who share how PM best practices are used effectively in these other places. Additionally business consultants, paid for their expert knowledge and their boundary spanning characteristics, have brought many new ideas to Northern State. These forms of influence are a type of learning gained from the success or understanding of others. This also involves imitation of others' methods or the methods others have recommended.

Northern State is modeling the methods of others that they deem to be more advanced in best practice adoption. A subtle difference between mimetic and normative isomorphism has to do with the reason that one organization is influenced by another. If an organization is pressured into copying another organization that it deems to be of higher prestige in times of uncertainty it is reflective of mimetic isomorphism (DiMaggio & Powell, 1983, 1991a). In this case the uncertainty is about the technical specifics that may not be fully understood by Northern State's central IT group and they therefore have asked for help in establishing project management best practices. The employees of Northern State are also exposed to new project management ideas and structures through professional interactions with others through meetings, conference attendance, and various other direct or indirect interactions and communications, which could also lead to mimetic isomorphism when ideas are copied in times of ambiguity and vagueness (DiMaggio & Powell, 1983).

In addition to examples of coercive and mimetic isomorphism already mentioned, the third form of institutional homogenization, normative isomorphism, occurred. DiMaggio and Powell (1983) assert that normative isomorphism results primarily when the professionals in a field profess a method or structure to be better. The authors posit that the collective efforts of members of a field define the conditions and methods of their work and this establishes an intellectual base and legitimacy for their occupational standards. Normative isomorphism occurs at Northern State through exposure to actions of IT groups from other universities at conferences such as EDUCAUSE and direct meetings.

Striving for higher levels of PM maturity is striving for more legitimacy in project management occurring through normative isomorphism. AS is the central IT group most likely to push for higher PM maturity as a form of legitimacy, mainly because they are the most PM advanced already. The Northern State central IT groups all suggested that they pursued project management best practices for reasons of efficiency, effectiveness, customer satisfaction, but none suggested that the driving reason was to achieve a level of legitimacy. When asked directly if they pursued ideas or copied from others to achieve legitimacy, participants answered that they did neither. It seems hard to suppose that they were not being influenced to copy or to compete with so much interaction taking place. DiMaggio and Powell (1983, p. 149) emphasize that actions often “involve managerial behaviors at the level of taken-for-granted assumptions rather than consciously strategic choices.” The PM institutional arrangements were not as large and identifiable as some measures of legitimacy identified by Winston (1999) such as the physical plant, the sports teams and facilities, and the richer menu of student services. However, the pursuit of higher levels of project management best practices is in itself the pursuit of legitimacy through normative isomorphism. The legitimacy being reinforced and displayed may be

technical, related to intellectual capital, aimed at other campus IT organizations and not necessarily to other institutions. In a sense, the AS group maintained its position of respect as the team at the top of the PM pecking order at Northern State.

### *Cultural Environment*

Mahoney and Thelen (2010, p. 31) argue that the “interaction between features of the political context and the properties of the institutions themselves are crucially important to explaining institutional change.” In an attempt to better understand Northern State’s political and institutional circumstances, my interview questions probed the culture and context of the central IT organization. From the overall findings I developed major themes associated with the political and institutional culture of the organization. These themes are interrelated and some of these ideas may have been touched upon in previous discussion. The major themes from Northern State University discussed here are: 1) There is an increasing amount of process, structure, and rigor embodying itself in all aspects of the environment; 2) Governance and leadership is a focus coming to the forefront; and 3) Collaboration to reach shared goals is an organizational priority. Each of these ideas will be discussed in more detail.

### *Increasing Process and Structure*

As the findings have shown, there is an increase of process and structure in all areas across the campus, not just the central IT group, and not just in IT. Business processes are being tightened up and the university is becoming more businesslike. Some of this seems to be in response to the economic situation; some is because of the increased global competition with other institutions; and some is from an overall institutional professionalism which was described earlier as normative isomorphism (DiMaggio and Powell, 1983). As the VPIT asserted, the “IT hobbyists” are fading away; there are less faculty and graduate students performing in non-

academic support roles. Duplication of effort is being eliminated, project management and ITIL best practices are being adopted across campus, data based decision making is more prevalent, and the business infrastructure is more professional. If this “process and rigor” is propagating across academic institutions, as was stated by some participants, then this is an example of the institutional diffusion perspective described by Van de Ven and Hargrave (2004). As has happened in the various examples at Northern State, theorists suggest that institutional diffusion can occur through coercive, mimetic, and normative isomorphism (Scott, 2001).

### *Governance and Leadership*

Northern State is a traditional higher education institution with organizational characteristics resulting in loose coupling (Weick, 1976), committee decision making, and rule and regulation legitimacy determined by their fit with academic ideology (Dill, 1982). The participants indicated that there is a renewed focus on IT governance and leadership across the Northern State IT organization. This is evident in many examples including the creation of IT Leadership Council; sending a significant number of influential personnel through the IT leaders program; the special communications, events, and activities; and an emphasis on operational authority and empowerment of leaders. Many comments on these topics indicated that the central IT leaders were strategically focusing on leadership and growth activities so that the organization would have future leaders solving organizational problems and making decisions. The VPIT and other senior leaders purposefully took themselves out of the day to day operations of the organizations to focus more on strategy and “big picture” activities.

While leadership means different things to different people, I suggest that the Northern State central IT group is moving towards a transformational leadership model. Bennis and Nanus (1985) document the differences between what managers do, transactions, and what

leaders do, transform. Transformational leaders set out to make followers into self-empowered leaders, and into change agents. The transformational leader's job is to articulate the vision of the organization and the values clearly, so the self-empowered employees know where to go. In defining *transformative power*, Bennis (1984, p. 66) argued that effective leaders do not spend their time on the proverbial “nuts and bolts” of the organization but focus instead on creating and clarifying a compelling vision for the future, communicating the vision and aligning the organization to it, persistently focusing the organization, empowering the capacity in others to bring about the desired results, and ensuring that organizational learning takes place to monitor performance, set objectives, and make changes to the environment. I believe that the actions taken by the central IT senior leadership at Northern State align well with this idea, reflected in statements and the examples given by the central IT senior leadership. The participants were not observed, only interviewed, however traces of transformative leadership themes were apparent across all conversations.

#### *Collaboration to Reach Shared Goals*

A final contextual element that was clear at Northern State was the move toward more collaboration across campus. Many recent activities initiated by the central IT organization show a clear plan to become more aligned with the campus units in the delivery of projects and services to IT end users. Participants believed that the purpose of the IT leaders' council is to address cooperative efforts across campus. Although many agree that there is great value in the freedom of IT autonomy at the college and departmental level, the financial saving inherent to the campus collaboration efforts to reduce the redundant delivery of projects and services is also beneficial. Jim Davis (2008) argues that the centralized-versus-decentralized approach no longer aligns well with the objectives and regulatory requirements of higher education institutions. He

posits that the answer lies in a hybrid model where administrative and business systems remain centrally provisioned to the end user without the involvement of local IT, while those projects and services that are only relevant to one unit require no institutional involvement and should remain decentralized. The current economic times make this a model that many institutions are moving towards, including Northern State.

To be successful a quality product will have to be acceptable to all parties. This includes the Deans and department chairs who have traditionally established their own decentralized IT service groups because of needs deemed not adequately met by central administration in the past. Northern State, like many large higher education institutions has to address issues of past history and possible mistrust, adding to the challenges the VPIT and leadership team undertook in their attempts to create a collaborative environment. Northern State has engaged in numerous activities, including group goal setting, reinforcing communications, and team building events to create sustained teamwork across the university IT organizations and central IT. Leading the Northern State IT teams through this multifaceted transition is not traditional hierarchical work and requires a complex approach that learns and adapts to the changing needs of the group. Amey and Brown (2004) studied a group of interdisciplinary faculty working on a project together in a collaborative environment. They found that the leadership needs of the group changed as the project went through its various stages. A leadership challenge that developed was the difficulty of being in “sync” with the leadership needs of the group. They found that the complex and varying leadership needs of the group needed to be addressed in ways that required higher order leadership with cognitively complex skills including critical thinking, active listening, and knowing how to learn. Groups such as Northern State that are attempting this type of complex change to a collaborative environment with such a large base of involved leaders

would benefit from this type of higher order leadership. The needs of the Northern State IT leaders collaboration group will change as the journey progresses. A focus on active listening, watching, and adjusting quickly to the needs of the group will help any leader successfully guide this type of complex situation.

The findings and discussion indicated that the Northern State central IT unit leaders acted with agency and purpose in their pursuit of project management best practices and other process improvements. Many examples were documented of the steps taken to adopt additional rigor, infrastructure, and foundation; and the practices put in place to change the culture, and actions of the central IT group *and* campus personnel. Also discussed were the reasons why the leaders pursued project management best practices and how the macro campus organization played into these changes. The next chapter proposes what the implications of these discussion points are to Northern State University.

## CHAPTER SEVEN: SUMMARY AND CONCLUSIONS

### Introduction

The purpose of the study was to determine the processes undertaken and the factors that influenced a higher education organization in the adoption of best practices in information technology project management. The findings suggested that a multifaceted set of activities and factors took place at Northern State University over the past years. The environment has become much more complex and process oriented, the economics and state funding have worsened, and regulatory concerns have increased. This is the same situation in which many, if not most, state higher education institutions find themselves. One of the strategies that Northern State's central IT group used to address these issues was the adoption of increased project management rigor and process. This study showed many of the steps taken by this organization in the adoption of these best practices. Throughout this research, I tried to frame this in a way that the implications and lessons learned could be used by others in adopting varied best practices or initiatives. In this section I synthesize the implications for practice and the implications for further research from the discussion and analysis.

### Implications for Practice

#### *Outside In - The Need for Team Exposure to Outside Ideas*

The Northern State central IT senior leadership was a mix of current employees promoted from within the central IT group, people brought in from other IT groups on campus, and new employees hired from outside the university. Those hired from inside the central IT organization may have a firm understanding of the culture and how to get things done within the organization. Those hired from within the university, but not from the central IT organization, bring a different understanding of technologies as well as customers and users of the central IT group's services.

Those coming from outside the university bring an understanding of how other organizations may solve problems or adopt best practice solutions. Diverse hiring practices allow the organization to build a team with varied knowledge and skill sets (Argote & Ingram, 2000) and still allow those truly qualified to be promoted from within.

Additionally, Northern State has an aggressive schedule for leaders to attend the IT Leadership Program training, which has a goal to create independent thinking and encourages leaders to challenge conventional methods and the status quo. Many in the organization were trained in project and service management methods, and some were also certified in these fields. EDUCAUSE, Project Management Institute, and other conferences are liberally attended by central IT employees who see how other practitioners address and solve similar problems. In a similar vein, IT leaders purposefully exchange information and sometimes discuss and resolve complex situations with those at peer universities. These are examples of how the Northern State central IT group enhanced the knowledge, skills, and experiences of its personnel, including project management best practices.

As shown with Northern State's successful leadership development, it is important that organizations bring diverse skills and points of view into the team. Additionally, employees who get out of the office and see how other units address important issues also bring new ideas and valuable reflection back to the organization. Organizations with longstanding labor markets, little leader movement, no outside interactions, and sparse professional development will find themselves on the short end of innovative adaptation and insightful points of view. As Bogue (1994, p. 45) tells us about organizational learning:

Leaders and their organizations need moments to recharge. Their ideas can fossilize, their values can decay, and their energy can dissipate...The antidote to both personal and

organizational fossilization is renewal, the recharging of personal and collective batteries. Leaders need renewing moments to replenish their reservoir of energy, to reexamine values and convictions, to rethink the merit of objectives, to break the confines of traditions, and to reevaluate policies and procedures.

In addition to looking internally when hiring, organizations should look across a diverse set of candidates from different sectors, institutions, and departments in an attempt to create a team with the best knowledge and skills available.

### *Important Processes Should be Planned*

The Northern State central IT group is in the process of recreating itself and rewriting its IT business plan. Planning allows for the design of a strategy to allocate important programs and resources that help the organization to meet goals (Marchese, 1997). Project management is important in helping the central IT organization reach its goals and should be considered a priority in the planning process. Service management is another important area that should be strongly considered in the planning process. With the exception of a few Northern State central IT groups, such as AS and TN, the drive towards best practices in project management appears to be an organic one, moving forward without significant formal planning. AS and TN appear to be more driven by white papers and business plans that lay out their future goals, implementation steps, and detailed actions. At the risk of oversimplifying, these two groups also happen to be more mature in their project management best practice adoption than the other central IT groups. Kerzner (2001), a widely known project management scholar and consultant, suggests that organizations can improve their chances for success if they include project management as an element in the planning process. The author notes that by doing project management planning, organizations can develop their own standard methodology, which gives it a greater likelihood of

success when executing projects. He also suggests that without this structured approach, decisions are made incrementally, and discontinuous and contradictory choices occur. When an implementation process is made explicit, “objectives, missions, and policies become visible guidelines that produce logically consistent decisions” (Kerzner, 2001, p. 21).

Northern State, and all higher education information technology groups, should consider prioritizing important business enablers in the planning process such as project management. Going through a controlled planning process around project management would help an institution determine the level of project management maturity appropriate for its needs. Some high risk organizations, such as NASA or those constructing nuclear reactors, need a higher level of project management maturity than others less hazardous (Crawford, 2007; Project Management Institute, 2003a). Some university projects may fall into a high risk category such as the replacement of enterprise wide business systems or some research projects that are costly and/or dangerous. Proper planning allows an organization the ability to identify the resources and wherewithal needed to achieve defined goals. An appropriate level of planning also helps an institution identify the organizational differences between project management and service management practices. The lack of clear distinction in some Northern State central IT groups between service management functions and project management functions results in ambiguity. IT Groups often implement multiple strategies such as project management and service management in tandem and could encounter similar ambiguity as Northern State. With proper planning some of this uncertainty could be mitigated.

#### *Planning Includes Project Prioritization*

Many of the Northern State central IT groups prioritize projects within their own group environments, which is valuable and commendable. The need for *executive* level prioritization

of the university's IT activities and projects (PPM) was raised by the Northern State VPIT and several directors because without it, the IT group has to make educated assumptions about what the organization deems important. Executive prioritization of high level initiatives, including IT, is good advice for all organizations. Establishing and prioritizing the organization's strategic projects through PPM is a consensus best practice (Crawford, 2007; Kerzner, 2001; Project Management Institute, 2003a). PPM aids organizations in choosing the right mix of projects and investments that are in sync with enterprise strategies. It is a concept that enables an organization's IT group to work on what the executive leaders deem important instead of deducing or supposing what the institution considers a high priority. Even units that function well, that can be very innovative or best practice oriented, cannot be fully effective if those around them are not doing what they need to do. Without this high level prioritization each college, department, and unit will attempt to give projects in their best interest the highest precedence, thus sub-optimizing where resources are eventually allocated. Focusing the limited funding available for IT on the right mix of projects is all the more important in the current financial circumstances.

Convincing upper echelons of the organization to take on the task of prioritizing IT projects will be no easy task. While PPM has been proven successful (De Reyck et al., 2005; Jeffrey & Leliveld, 2004), industry and more so, higher education have been slow to adopt the practice. The authors assert that some organizations may be prioritizing projects in other, less strategically effective levels of the organization, but that overall there is a general lack of research into why this recommendation is not followed. The lack of progress in higher education is also under- researched but could be attributed to the lag of general management innovations between the private sector and education (Birnbaum, 2000a). PPM is best done through

executive committee action, ensuring all major parts of the organization are represented.

Individual units and departments should have a say in supporting their interests and sponsored projects and in setting overall priorities, which aligns well with higher education's inclusive decision making culture (Dill, 1982; Duderstadt, 2000).

### *Foundation is Important*

A key to Northern State's success is that they had certain foundational elements in place that aided in their increased adoption of PM best practices. Examples of those elements include an established PMO in the AS group, financial tools such as cost of services, electronic tools such as wikis and MS Project, the use of project prioritization at a group level, and a project manager job classification competency description. These and other infrastructure fundamentals were put in place over time and may have been aided by the central IT group's dominant logic (Bettis & Prahalad, 1995), or culture, of using process and procedure to solve organizational problems. Laying the groundwork and having these foundational pieces in place increased Northern State's project management best practice capabilities. The Project Management Institute (2003a, p. 15) defines capabilities as a "specific competency that must exist in an organization in order for it to execute project management processes and deliver project management services and projects." They go on to specify that capabilities are incremental steps that lead up to one or more best practices. Northern State's competencies additionally help the organization improve services in other practices, such as service management.

An organization becomes better and moves up through maturity levels by setting a goal, allocating resources, paying attention to details, monitoring results, and controlling and adjusting efforts (Crawford, 2007). All organizations, if they want to improve in any practice, have to start

somewhere. Establishing a foundation of capabilities is a start and provides the groundwork for best practice achievement and facilitates overall organizational process improvement.

*Leadership – Transformative, Adaptive*

Northern State has a program in place designed to develop critically thinking leaders who question why things are done the way they are and strive for doing things “the right way.” Leaders attempt to create an atmosphere in the IT environment where agency, empowerment, and autonomy are encouraged; they push responsibility down the chain to lower levels. Developing leaders and promoting agency go hand in hand; leaders want to take action and solve the organization’s problems. Developing critically thinking leaders without giving them the ability to fashion change could, in the end, create a group of frustrated leaders without an outlet for their positive energy.

Organizations that want to encourage change should consider developing transformative leaders (Bennis, 1984). A leadership team with such attributes is beneficial to an organization that wants to enact change. By aligning and communicating the organizational vision downward, and encouraging empowerment and responsibility, the central IT senior leadership team ensures not only that the work is lead by those closest to it but also grows future leaders. It is also important to note that Northern State does not limit the appointment of all future leaders to internal sources. Leaders bring skills and knowledge from previous roles into the new workplace (Argote & Ingram, 2000). New managers from outside the organization come “bearing different skills, values, assumptions, understandings, and commitments” and are largely responsible for contranormative changes within organizations with institutional characteristics (Kraatz & Moore, 2002, p. 139).

It may be most effective to look both outside for as well as develop internally the knowledge, skills, and experiences needed to successfully operate the complex environment that now makes up the modern IT organization. Much has been written about the increased effect a culturally diverse team can have on creativity, innovation, and problem solving (Cox, 1994). In a similar fashion, the diversity of a leader's knowledge and experiences is also vital to the creation of a team with broad strengths, knowhow, and understanding.

#### Implications for Theory and Further Research

I wrote my research questions thinking that participants would give me obvious examples of institutional legitimacy in which Northern State copied other prestigious or peer universities. I naively believed that when I asked participants if they replicated certain project management best practices because other, high status schools followed them, they were going to say "yes, absolutely." This did not happen. I found that there were examples of all forms of isomorphism in the Northern State central IT group, but the institutionalism and legitimacy behind it was much more subtle.

The input of customers would have been highly valuable in corroborating the views of the interview participants. Many statements indicated that customer satisfaction had been improved but those statements had to be taken at face value without further follow-up. A similar study in the future should include interviewing both the IT provider and the customer receiver to strengthen the study findings.

Change from coercive isomorphism (DiMaggio & Powell, 1983, 1991a) occurred when the central IT organization followed federal and state regulations or when they tracked security changes as suggestions by their own audit group. While this was institutionalism, it was more about following regulations than it was about building prestige; however it was still about

building legitimacy. Additionally, IT leaders often sought advice of other institutions on how to accomplish certain technical tasks. I saw this as being a form of mimetic isomorphism, described by DiMaggio and Powell (1983; 1991a) as replication originating from uncertainty. When Northern State was uncertain about how to configure a certain type of network router, or how to use a type of project management software, they may ask another university with more experience for help. While asking another organization for help and copying their processes does not seem like a way to gain legitimacy, it does in fact gain Northern State legitimacy if those processes are adopted correctly. The organization that set the example also gains additional prestige, or intellectual capital for having the knowledge and expertise that other organizations want to copy.

While I came to realize that both coercive and mimetic isomorphism built legitimacy, they did not initial fit my impressions of legitimizing behavior, which I thought had to be less subtle and more expansive. The examples discovered at Northern State that were the closet to what I thought was traditional legitimacy-driven behavior fit into the category of normative isomorphism. Normative isomorphism occurs when all the members of a field define work conditions and methods, therefore establishing an intellectual base and occupational standards (DiMaggio & Powell, 1983). When PM best practices are being adopted, an organization follows the standards and methods established by the entire field. Even when an action that gains legitimacy is clearly visible, such as a university installing luxury boxes in their football stadium, or a multimillion dollar food court style cafeteria for students, the organization is unlikely to proclaim that it was done in response to what another institution did. The organization with the new facility is going to announce it as required to satisfy student or constituency needs. With my focus on an IT organization, I did not have a clear indication of

what legitimacy looked like in that environment. Legitimacy looks different to an IT group than it may from the perspective of the dean of a college, or a provost. Further research or study of how legitimacy is established and maintained within the field of information technology in higher education seems warranted.

It is easy to think that institutionalism happens at the highest levels of the organization and not down lower in the IT department. It happens at all levels, but the level at which you are operate may determine your level of institutional thinking. Organizational executives are involved in a different type of institutionalism; they are marketing the university and may be ultimately responsible for the institution's level of prestige. The deans are marketing their colleges and viewing institutionalism from that point. The central IT team is many steps lower and has a technical accomplishments and intellectual capital view of institutionalism. While the IT group wants the university to excel as much as the others, they are not as focused on marketing as they are on solving technical problems. Implementing IT solutions in the institutional environment in which the central IT group operates; their form of legitimacy is often based on technical merit and intellectual accomplishment.

As a result of this research, I came to a different understanding about Van de Ven and Hargrave's (2004) four perspectives of institutional change. Even though I spent a significant amount of time studying it over the past 15 months, I did not fully grasp how it would be of value in writing my discussion and findings. I came to realize two things over time. One was that I, like many of the other authors writing about institutionalism, needed the addition of leadership and organizational theories to help explain the Northern State environment and the suggestions I would make for improvements. All theories have their limits; multiple perspectives

are needed to explain complex situations. The institutional theories only explained part of the Northern State circumstances.

Using institutional theories and Van de Ven and Hargrave (2004) perspectives, I not only began to understand them better but began to think about them in a different way. I thought of the perspectives like typologies and each finding would only fit into one perspective but came to realize that each of the perspectives was a distinct way of looking at the situations that I was uncovering. Sometimes more than one perspective could be used to explain the same instance. Each perspective looked at a finding from a different angle, which sometimes made sense and other times did not. Take for example the finding that the central IT leaders applied additional project management best practices to address quality issues. From the perspective of institutional design (Van de Ven & Hargrave, 2004), one could see how individual agency is displayed by purposeful actors creating rules and solving conflicts and problems. Looking at the same finding from an institutional diffusion perspective, one sees how environments have become increasingly complex and that many IT groups in similar higher education environments imitate one another and adopt project management best practices to solve comparable problems. On the other hand, using the collective action perspective (Van de Ven & Hargrave, 2004) at Northern State does not give a lot of insight into what happened there. A similar study of IT project management best practice adoption using a different theoretical lens, such as leadership theory or agency theory, would be interesting to compare results and implications.

In addition, had I understood how difficult it would be in sorting out the motivations of the Northern State actors in their move to PM best practices, I may have written some of the interview questions differently. Many participants gave an acceptable answer to an open ended question about why they pursued certain PM best practices. However, when probed about other

possible explanations for their pursuits, many agreed that there were other reasons as well. Was I to assume that the first answer held more weight because it came to mind first? To get to the participant's foremost reason of adopting PM best practices I could have developed the questions differently to more fully uncover participant motivations to take the steps they did. Doing so may also have helped with my use of the Van de Ven and Hargrave (2004) change perspectives. The more that is known about the institutional impetus for adopting the changes that it did, the more likely one is to get to the heart of which perspective best explains the change adoption.

Because this was a single organization case study I do not know anything about the adoption of PM best practices across other higher education institutions. While intuitively I believe them to be correct, I only have my own perceptions and the opinions of the participants that PM adoption is increasing across higher education. This is an area that has not had much research. There are some practitioner-written case studies available but very little scholarly research looking at why organizations adopt PM best practices or how they make these changes. It would be very interesting to continue this research topic across a wide range of higher education institutions to determine which institutions are the most advanced in the adoption of project management best practices and why. Additionally, how do higher education organizations differentiate between the adoption of project management best practices and service management best practices? What are the important touch points and integrations between these two themes? There are many unanswered questions that could benefit from additional research.

## Limitations of Study

There were several limitations of this qualitative study. First the results were the impressions of the interview participants who were purposely selected at an institution that also was purposely selected. The Northern State central IT group was selected because they had achieved a certain level of success adopting project management best practices. The specific interview subjects were chosen because they were in leadership positions and responsible for planning and carrying out change; I may have gotten different answers from individuals working at other organizational levels. Additionally, customers were not included as participants in this dissertation. Customer participants may have had entirely different views on many of the questions asked of the central IT group participants. Second, the use of a single case study limits the generalizability of this study. The descriptions of the steps taken by one organization in the adoption of IT PM best practices provide one example specific to the university under study. While there are still lessons to be learned from the experience of this institution, it is plausible and highly likely that other organizations have taken different steps to reach a similar course of action. Third, this study was done through the lens of institutional theory, which tends to focus on the macro and structural view of the organization. Another framework, such as one focusing more closely on individual agency could possibly provide insight not considered here. Fourth, my own unavoidable subjectivity was a limitation of the study, since my judgments and perspectives led to the inclusion or exclusion of certain material or explanations that may have been important to the study.

## Conclusions

My study at Northern State University was not a measure of how many best practices the organization had put in place but rather how change was adopted in an institutional environment. I found the organization made some progress with project management best practices but more importantly that there was a lot of multifaceted organizational coordination and communication that helped them get to where they are. It is fitting that the steps taken by the Northern State central IT group to adopt project management best practices were just as complex as the IT and business environments. Many factors were involved and none was determined to be most important in isolation. There was no one driving, forceful, charismatic leader. Instead, there was a strong team of leaders taking steps to transform their groups while at the same time shaping effective leaders for the future. The VPIT is a boundary spanning individual who lets his directors run their own organizations while he addresses cross-unit collaboration, establishing and communicating the organizational vision and goals. Leaders are promoted from within the central IT group, hired from other Northern State units, and brought in from both outside universities and industry. This practice ensures that the group has diverse knowledge and experiences. Higher education is a decidedly institutionalized environment (Rowan & Miskell, 1999) and the Northern State central IT group is very engaged with peer groups through conferences and face to face meetings to ensure they maintain their intellectual legitimacy.

There was no single major step taken. PM best practices are built a process at a time and the central IT group has been steadily building key infrastructure competencies over time. This adoption of skills and knowledge has created within the organization a complex culture and highly technical environment, which includes at various levels: electronic tools for project management; documentation, communication, and financial processing; prioritization tools and

methods; and an effective project management office, albeit arguably not at an organizational level where it has been planned and determined to be most effective. These and other components establish a set of capacities that the Northern State central IT group can build upon to reach the next level of PM maturity to which it aspires. Just as important to an organization as building these skills and capacities is establishing the goals and participating in the planning.

A centralized design is not at the root of the Northern State central IT project management best practice adoption. The organization is only now in the process of working with a consultant to first determine and then implement a long range strategic vision for the campus IT services. More planning around project management and service management is recommended to help differentiate and delineate the lines between the two initiatives and get the most value from each. By their own admission, some Northern State directors adopted and implemented project management and service management best practices without written plans, identified goals, or communication strategies. Although some organizational scholars have touted the benefits of strategic planning in higher education since the 1980's (Marchese, 1997), many continue to run their institutions without the benefits of proper planning. While some in academia have a certain amount of skepticism towards strategic planning, reengineering, and other forms of scientific management (Keller, 1997), planning is not a short term management fad (Birnbaum, 2000b); it has staying power and continues to be successfully used by many organizations. One thing that scholars agree on is that doing strategic planning right is difficult. Keller suggests that this change requires "a difficult combination of thought, insight, daring, and persuasiveness that few persons possess" (1997, p. 197). Mintzberg (1991) similarly argues that strategic actions are not so simple that they can be programmed and easily followed and are a matter of feel, intuition, artistry and even luck.

The steps involved in determining its next goals helps an organization determine and communicate where it wants to go next. This also involves communication up and down the organization. To focus on the right projects, input from executive and university business leaders is needed with a well defined project portfolio management process. Strategic planning and changing the organization is hard. The current economic and competitive environment of higher education is not a good reason to ignore it and let changes come about unplanned and haphazard. Now, more than ever higher education institutions should take the time to prioritize, plan, reengineer, and shape the organization to be competitive, efficient, and effective. This is not to suggest that Northern State, or any other organization adopting complex changes should follow lockstep what worked for another organization. Institutionalism is about organizations looking alike in the end, however each of these organizations has to get there on their own, often reinventing another's solution to fit their own environment (Rogers, 1983).

Not just one accomplishment but a combination of many helped the Northern State central IT group get to where they are in the adoption of project management best practices and more importantly in building an infrastructure for future change and innovation. It is not the plan but the planning that matters. It is okay to make ITIL and service management more of an organizational priority than project management, as some of the central IT organizations did, if the choice was consciously determined and communicated. It is the alignment of the leadership team, the communication of direction, the coordination of resources, the setting of future targets, and getting the organization marching together towards those goals that matters most. Effective change is always complex (Fullan, 2001); it cannot ever be a checklist. It is always custom built to the organization where it is being adopted. That is why it is important to have the right leaders, who both understand the current organization and are in agreement with the

organizational direction, to plan and carry out the detailed intricacies of change that are different for each organization.

I purposefully chose an institution believed to have made progress adopting change. While examples of institutionalism can be found, it happens that this organization is nicely aligned but for reasons that are not wholly based on institutionalism. The changes and alignment are more related to leadership, communication, and attention to detail. Even organizations with the ability to bring about change because they have leadership that works well together can benefit from additional communication and coordination. Organizations that are not as advanced should focus all the more on the specifics of building additional technical and leadership competencies through sound planning activities.

## APPENDIX A

## DEFINITION OF TERMS

Portfolio Management – The centralized management of one or more portfolios which includes identifying, prioritizing, authorizing, managing, and controlling projects, programs, and other related work, to achieve specific business objectives (Project Management Institute, 2008, pp. 8-9).

Project - A temporary endeavor, having a defined beginning and end (usually constrained by date, but can be by funding or deliverables), undertaken to meet unique goals and objectives, usually to bring about beneficial change or added value (Project Management Institute, 2008, p. 5).

Project Management – The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements (Project Management Institute, 2008, p. 6).

Project Management Best Practice - An optimal way currently recognized by industry to achieve a stated goal or objective (Project Management Institute, 2003b, p. 9).

Project Management Body of Knowledge (PMBOK) Guide – A recognized standard for the project management profession that describes established norms, methods, processes, and practices (Project Management Institute, 2008, p. 3).

Project Management Capability – A specific competency that must exist in an organization in order for it to execute project management processes and deliver project management services and products (Project Management Institute, 2003b, p. 9).

Project Management Maturity – Kerzner defines project management maturity as the foundation for achieving success in project management through common language, common processes, singular methodology, benchmarking, and continuous improvements (2001, pp. 42-43).

Project Management Standard - A formal document that describes norms, methods, processes, and practices (Project Management Institute, 2008, p. 3).

## APPENDIX B

## INTERVIEW PROTOCOL

### Demographics:

For the record, let's start with name and current title.

Could you briefly tell me about your responsibilities?

How long have you been with the university?

Before you worked here, where did you work?

What is your background in project management? Are you familiar with best practice concepts and project management maturity?

### Change Agents:

[Committee Note: These questions are influenced by institutional change theories and the Van de Ven and Hargrave (2004) framework for institutional change. Probes are listed on the second level. The first question attempts to understand who were the *focal institutional actors or change agents*, and what was their involvement in the organization's movements through the spectrum of project management maturity. To better understand the influencing factors and practices undertaken by PM best practice organizations I intend to ask the following questions.]

Today, I want to focus our interview on the university's transition to project management best practices and in particular the steps in the process and influencing factors.

- 1) Who was responsible for your organization's move to more disciplined project management practices, the driving force behind the changes?
  - a. Whose idea was it to implement IT PM best practices?
  - b. Did anyone influence the rationale behind the change? Immediate leadership?  
Other IT employees? Faculty or industry leader?)

- c. Who influenced the steps taken in the process? Committees? Task forces?
- d. Who decided who should be involved? On what grounds?
- e. Was there resistance to more disciplined project management practices? From whom? How was it handled?

Generative Mechanism:

[Committee Note: The second question seeks to better understand the reason (generative mechanism) behind the organization's move to higher project management maturity.]

- 2) Why did your organization implement better project management practices?
  - a. Was there an edict from above? A goal or initiative to satisfy?
  - b. Was there a problem to solve, such as low user satisfaction ratings, or a project that did not go well?
  - c. Were you attempting to meet the performance levels of another organization? Who? Why? What was important about that?
  - d. Many higher education organizations do not care about efficiency, why did you or your organization care?
  - e. Were there any written goals or rationale behind your changes? What were the IT employees told?

Process and Sequence:

[Committee Note: The third question is focused on the *implementation processes* that were followed, and the *event sequence*, in the adoption of project management best practices.]

- 3) What were the steps taken in the adoption of better project management practices?

- a. What was the first step(s) that you can remember?
- b. Can you tell me what other actions were taken?
- c. Were there any change roll-out events?
- d. Were the changes related to any new IT projects or were they stand alone processes independent of new projects?
- e. Was the change sweeping or did it transform slowly, a piece at a time?
- f. How long did it take from beginning to end?
- g. What was the organizational investment?
- h. Did you copy anyone else processes?
- i. Did you get help from anyone? Consultants or paid help?
- j. What did you use as guides or learning materials?
- k. Did you do any self assessments anywhere along the line?
- l. Where any policies or operating procedures developed? When? By whom?

Outcome:

[Committee Note: The fourth question attempts to understand the outcome of the institutional changes in the IT department and outside the department; within the political contexts in relation to the institutional project management environment.]

- 4) How would you describe the project management practices today?
  - a. Could you describe how the PM best practices are being used?
  - b. Where there any specific projects that you can tell me about that used the new best practice processes?
  - c. What types of projects is it being used on? (All IT, at colleges and non-central units? Outside of IT?)

- d. What is outside the scope of your PM processes?
- e. What types of training do you have for your PMs?
- f. Do you have any metrics or measures?
- g. Has there been payback on initial investments?
- h. Can you give me examples of process and procedure documents?
- i. Do you have any current committees or groups associated with improving your PM practices?
- j. Have you done any recent assessments of your practices?
- k. Who uses it?
- l. Do you have a Project Portfolio Management process? Can you describe it?

Political Context:

[Committee Note: The fifth question seeks an understanding of the characteristics of the participant institutions and what the political context was like prior to and during the changes to a more mature project management environment.]

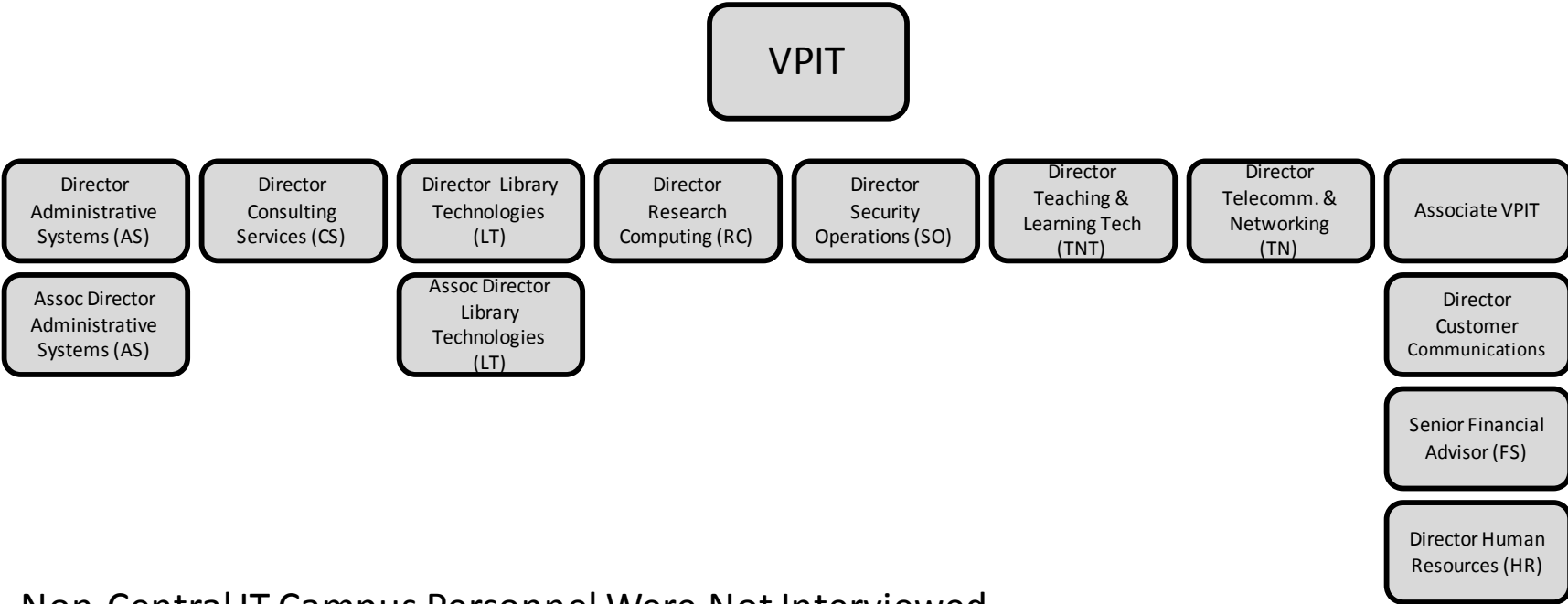
- 5) Tell me a little about your institution's decision making practices?
  - a. How would you describe your level of authority and empowerment?
  - b. At what level are hiring/staffing requisitions approved? By whom?
  - c. Describe your budget process
  - d. Describe your governance process for IT. Do you have any committees?
  - e. Describe how changes or decisions are made in your organization, by committee, behind closed doors, by individuals?
  - f. Are formal lines of authority always followed?

- g. Are data or metrics used for decision making? Do you have examples?
- h. How are those changes or decisions communicated throughout the organization?
- i. Do you have clear goals? Where did they originate?
- j. How are you assessed? How often? What is the criteria used?
- k. Do faculty or staff unions exist at this institution?

## APPENDIX C

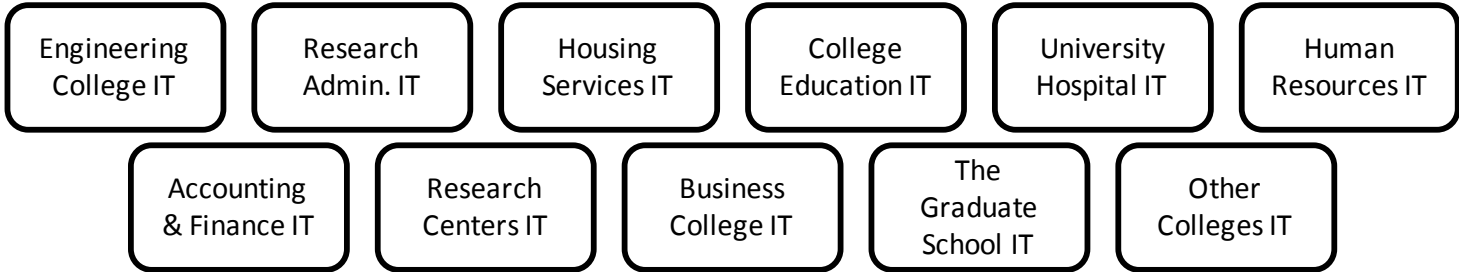
# Shaded Central IT Personnel Were Interviewed

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# Non-Central IT Campus Personnel Were Not Interviewed

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