UNDERSTANDING UNFOLDING CHANGE AND THE VALUE OF STRATEGIC

UNIFICATION IN RECENT USU INFORMATION TECHNOLOGY

FUNCTIONAL REALIGNMENT

by

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ABSTRACT

Understanding Unfolding Change and the Value of Strategic Unification in Recent USU

Information Technology Functional Realignment

by

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This is a qualitative case study of the 2005-2008 Utah State University

Information Technology reorganization from the perspective of key change advocates.

The study identified and documented the unfolding change process involved in the

reorganization in terms of dissatisfaction, executive changes, internal executive strategic

planning, implementation and initial impacts, and continuous "in situ" strategic planning.

The study also answered a set of supporting concluding questions indicating increased

value to the institution in areas of customer service and confidence, organization,

financial resources, planning and policy, security, and increased/improved services and

service functions.

(204 pages)

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<div align="right">Eric S. Hawley</div>

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CHAPTER I

INTRODUCTION AND PURPOSE

Information Technology (IT) at Utah State University (USU) has a long and varied history of organizational, social, functional, and structural evolution. However, only beginning in 2006 have the managers of IT embraced a unifying, strategic perspective to manage technology change within its domain. During these last two years (2006-2008), IT in both structure and function has evolved significantly and represents the first successful unified institutional approach to the IT function at USU.

The purpose of this study is to understand the unfolding change process and associated outcomes (value) by identifying and documenting critical organizational change events, patterns, and value-added activities. To achieve this goal, I have explored and identified the change process as it has unfolded from the perspective of the key change advocates. The key change advocates are the senior USU and Utah System of Higher Education (USHE) IT executives that initiated the change initiative and/or significantly assisted in steering the IT organization to its current state. Specifically, analysis shows how these key persons were able to enact fundamental change to begin unifying the resources of a decentralized IT function across the USU campus, and also presents what institutional and organizational value was realized in making these changes. This study represents the first conducted at USU on the recent reorganization, as investigated through the perceptions of key persons to describe the comprehensive "emic," or inside, perspective.

   With respect to my experience with the IT change process at USU and my present understanding of the IT reorganization, the following research questions were created to facilitate the overall purpose of this study, which was to document key areas of the unfolding change process and determine associated institutional value: First, how did the key change advocates determine what needed to change? Second, what did they do to drive or instigate change? Third, how did the present organization achieve its strategic and unifying goals when previous organizational efforts have failed? Fourth, how has the IT unification strategy impacted the USU organization?

   Answers to these questions were discovered by reaching an "emic" perspective composed of rich description from the key change advocates of the unification initiative. In my quest for this "emic" perspective, I distilled common change themes from qualitative data collected and analyzed using the case study tradition. A set of coherent principles illustrating the unfolding change process and distilling value to the organization have also been prepared. The intention of these principles is to provide a future basis to inform the creation of a broadly applicable change model for information technology organizations involved in reorganizational change initiatives.

CHAPTER II

REVIEW OF LITERATURE

An overall topical theme is evident from the stated research objective and supporting questions: organizational change. In reviewing existing literature on organizational change from the information technology and management literatures, a dearth of studies fall in the mid to late 1990s with very few embracing a richly descriptive qualitative approach. Although there have been a remarkable number of formal change studies in recent years, this does not imply that older studies are not applicable, it is simply an indicator of an apparent gap in what seems to be an area of continued importance. It is my hope that this dissertation may assist in re-igniting continued study and focus in information technology organizational change subjects.

Foundational change research begins with Kurt Lewin's 1947 study that distills change into a most basic three-step, single-event process: First, "unfreezing" or deconstructing the established mind set; Second, "moving" or making changes while dealing with transition and confusion; Third, "freezing" or crystallizing the new mind set and settling into pre-change comfort levels.

It is impractical (and unnecessary) for the purposes of this study to review and cite the multiple hundreds of individual studies published in the last 60 years addressing general organizational change. With little new research in place in the present decade, the most recent comprehensive reviews of research material can be relied upon. Specifically, a salient 1999 review article by Armenakis and Bedeian selectively examined organizational change research, theory, and reviews published in the 1990s that were

based on research conducted between the late 1940s and the late 1980s. The focus of their

review was on research "…particularly sensitive to the dynamics underlying

organizational change [since this] …provides a sharper indication of the major

perspectives dominant in contemporary thinking on organizational change" (p. 294).

Armenakis and Bedeian (1999) distilled from their review four research themes

"common to all change efforts" (p. 293), accompanied by a review of research focused on

monitoring behavioral and affective reactions to change. These four themes or issues are:

> (1) content issues that largely focus on the substance of
>
> contemporary organizational changes; (2) contextual issues that
>
> principally focus on forces or conditions existing in an organization's
>
> external and internal environments; (3) process issues that address
>
> actions undertaken during the enactment of an intended change, and (4)
>
> criterion issues that deal with outcomes commonly assessed in organizational
>
> change efforts. (p. 293)

Armenakis and Bedeian (1999) summarized content issues by focusing primarily on two

studies – Burke-Litwin, 1992 and Vollman, 1996 – that identify content factors including

strategic orientation, organizational structure, and environmental-fit to define an

organization's character, mission, direction, and ultimately, success. Research grouped

into this category "…has typically attempted to define factors that comprise the targets of

both successful and unsuccessful change efforts and how these factors related to

organizational effectiveness" (p. 295).

Contextual research focuses on the successfulness (or unsuccessfulness) of

organizational responses to "…forces or conditions existing in an organization's external

and internal environments" (Armenakis & Bedeian, 1999, p. 295). Examples of "…external conditions include such factors as governmental regulations, technological advances, and forces that shape marketplace competition, whereas internal conditions include the degree of specialization or work specificity required by existing technology, level of organizational slack, and experiences with previous changes." (p. 295). Research in this category thereby explores the context within which the organization finds itself when dealing with change, and how it responds to the change situation.

Process research focuses on "…actions undertaken during the enactment of an intended change" (Armenakis & Bedeian, 1999, p. 295). Specifically, Armenakis and Bedeian focused on process research that "…deals exclusively with actions taken to implement changes within organizations and the nature of employee responses to such efforts" (p. 295). Research in this category thereby explores the process of change in an organization including the human response.

Criterion research focuses on "…the nature of criterion variables commonly assessed as outcomes in organizational change … using affective and behavioral criteria" (Armenakis & Bedeian, 1999, p. 295). Research in this category thereby examines change efforts by looking at outcomes based on a set of criteria established by the organization in conjunction with traditional outcome measures such as "…survival and profitability" (p. 295).

The Armenakis and Bedeian review provides a parsimonious categorization of the change literature by dividing it into four categories. Using the categorization scheme created by the authors, I can further refine the literature review for this study by exploring the category of change research that matches our research objective, namely process

research. This study is thereby situated in the change process stream as it deals with the actions of the key change advocates during the unfolding change process of IT unification at USU.

<div align="center">Process Research</div>

The root of process research stems from the Lewin (1947) article, wherein he conceptualized change as unfolding through three successive phases. Process researchers have extended his model to include more stages and complexities like the Kotter (1995) eight stage model. All of the change models introduced in the literature are similar in that on-going processes are involved, change processes occur in steps, steps can rarely be bypassed effectively, and mistakes in-process inevitably slow, or perhaps even reverse progress (Armenakis & Bedeian, 1999).

Process research within the context of change management is fundamental to gaining an appreciation of dynamic organizational life, and to developing and testing theories of organizational change (Van de Ven & Huber, 1990). Considerable research on the processes that facilitate change exists (Delbecq & Van de Ven, 1971; Hage & Aiken, 1970; Isabella, 1990; Lewin, 1947; Lippitt, Watson, & Westley, 1958; Orlikowski, 1996). One school of process researchers views change as a distinct movement from one state to another (Weick & Quinn, 1999). Within this school of thought, process models evolved into multiphase models for implementing change (Armenakis, Harris, & Field, 1999; Galpin, 1996; Judson, 1991; Kotter, 1995). A second school of thought views change as continuous (Isabella; Langley, 1999; Orlikowski; Pettigrew, Woodman, & Cameron, 2001; Van de Ven & Huber). Within this school of thought, change is viewed as

unfolding where different assumptions and orientations are required at different times in the process (Isabella).

This USU case study is situated in the second school of thought that views change as continuous and unfolding, which is consistent with the research objective and research questions posed; "A perspective that posits change rather than stability as a way of organizational life may offer a more appropriate conceptual lens with which to think about change in contemporary organizations" (Orlikowski, 1996, p. 65). Within this school of thought, Pettigrew et al. (2001) offered a succinct definition of process as the "sequences of individual and collective events, actions, and activities unfolding over time in context" (p. 700). This definition places process as the central pull artifact within the change process.

Managers involved in unfolding change need to undergo an alteration of their cognitive structures (Benne, 1976). That is, they need to shift their focus from stability to supporting the need to change, the process of changing, and maintaining value gained from change itself (Isabella, 1990; McCall, 1997; Starbuck, 1976). In her seminal article, Orlikowski (1996) introduced the notion of situated change to represent this paradigm shift from stability to constant change in contemporary organizational life. This perspective views change as ongoing improvisation through a series of ongoing and situated accommodations, adaptations, and alterations (Orlikowski, 1996; Weick & Quinn, 1999).

There is no deliberate orchestration of change here, no technological inevitability, no dramatic discontinuity, just recurrent and reciprocal variations in practice over time. Each shift in practice creates the conditions

for further breakdowns, unanticipated outcomes, and innovations, which

in their turn are responded to with more variations. And such variations are

ongoing; there is no beginning or end point in this change process.

(Orlikowski, 1996, p. 66)

Informed by Giddens (1984), Orlikowski proposed a situated change perspective grounded in the assumption of active adaptation rather than stability in dealing with organizational change. That is, change is fluid and ongoing and thereby inseparable from organizational life and the ongoing and situated actions of organizational members (Orlikowski). Informed by Orlikowski, Armenakis and Bedeian (1999) summarized that successful change may hinge on the ability of an organization to move away from bureaucracy and control to fluidity, flexibility, and self-organization. A common presumption is that situated change is emergent in nature, where "…the realization of a new pattern of organizing in the absence of explicit, a priori intentions … unprecedented environmental, technological, and organizational developments … which cannot be explained or prescribed by appealing to a priori plans and intentions [emerges]" (Orlikowski, p. 65). The distinctive quality of situated change is that "small continuous adjustments, created simultaneously across units, can cumulate and create substantial change" (Weick & Quinn, 1999, p. 375).

Weick and Quinn (1999) used metaphorically derived concepts to explain organizational compatibility with situated change. The metaphors are built around the images of improvisation, translation, and learning. The image of improvisation is one where "variable inputs to self-organizing groups of actors induce continuing modification of work practices and ways of relating" (p. 375). Change is realized through frequently

emergent ongoing variation in the "slippages and improvisations of everyday activity" (Orlikowski, 1996, p. 89) and that repeated improvisation leads to restructuring. Improvisation is informed by Orlikowski's idea of ongoing variation. The image of translation is one of continuous adoption and editing of ideas "that bypass the apparatus of planned change and have their impact through a combination of fit with purposes at hand, institutional salience, and chance" (p. 376). The act of translation creates a match between ideas and problem solving because "most ideas can be proven to fit most problems, assuming good will, creativity, and a tendency to consensus" (Czarniawska & Joerges, 1996, p. 25). The image of learning is one of organizational learning through "repertoires of action and knowledge" (Weick & Quinn, 1999, p. 376) creation from the change itself. Weick and Quinn succinctly summarized the three metaphors that conceptualize situated change in the following excerpt:

> In each of these three images, organizations produce continuous change by means of repeated acts of improvisation involving simultaneous composition and execution, repeated acts of translation that convert ideas into useful artifacts that fit purposes at hand, or repeated acts of learning that enlarge, strengthen, or shrink the repertoire of responses. (p. 377)

Process Change and Performance

Wischnevsky and Damanpour (2006) synthesized from the change literature three theoretical streams that provide insight into the possible impact of organizational change on performance – rational models, population ecology, and the institutional perspective. The rational model perspective conjectures that the primary motivation for initiating

change originates from top management who act to improve performance outcomes based on actual or anticipated performance pressures (Miller & Friesen, 1984; Tushman & Romanelli, 1985). This stream assumes that when performance falls below aspirations, the performance gap prompts organizational actors to search for new strategies and practice (Cyert & March, 1963; Manns & March, 1978; Wischnevsky & Damanpour, 2006). It also assumes that performance improvements are expected and thus organizations have to be adaptive to change. The population ecology stream argues that structural inertia prevents organizations from changing in pace with environmental variation (Hannan & Freeman, 1984). As a result, organizations are less able to perform reliably and accountably, and thus performance declines and the chances of organizational failure dramatically increase (Wischnevsky & Damanpour). This stream assumes that organizations are more likely to face performance declines and failure because inertia hampers the ability of an organization to adapt to change. The institutional perspective emphasizes the homogeneity of organizational forms and practices (DiMaggio & Powell, 1983). That is, it assumes that "organizations facing relatively high levels of environmental uncertainty are more likely to imitate the actions of successful organizations; even if those actions are not clearly justifiable by technical considerations" (p. 109). This stream assumes that change forces organizations to conform to industry, professional, and societal patterns rather than by performance considerations. Literature on the change process and performance were included because interview and consulting report data uncovered that performance issues were paramount to the key change advocate respondents when questioned about the process change initiative.

Theorizing from Process Data

It is important to note that the purpose of this study was not to establish or develop theory. However, understanding what has been attempted in generating theory from change process initiatives may assist in identifying process value and demands support for studies of a qualitative nature.

"Process research is concerned with understanding how things evolve over time and why they evolve this way" (Langley, 1999, p. 691). Research attempts at understanding the process itself consist largely of process data depicted as "stories about what happened and who did what when – that is, events, activities, and choices ordered over time" (p. 692). Such stories have provided insight into the fluid character of a process as it spreads out over both space and time (Pettigrew, 1992). To directly substantiate process stories (Mintzberg, 1979) and attempt to develop valid change theories (Langley), qualitative methods have been employed (Bower, 1997; Pettigrew; Van de Ven, 1992) to truly understand how and why events play out the way they do over time, in context (Pettigrew). "At the most general level, process questioning involves the interrogation of phenomena over time using the language of what, who, where, why, when, and how" (Pettigrew et al., 2001, p. 700).

Informed by Mackenzie (2000), Pettigrew et al. (2001) embraced a new paradigm for process research termed the "process approach."

Behavior in organizations is viewed as inherently processal in nature. Processes are often encapsulated in the form of variables. However, a variable about a process is not exactly the same as the process itself.

Hence, processes are closer to the actual behavior than their encapsulation

as variables. Processes are inherently casual because their outcomes are

the result of the process. Processes allow the systematic capture of

interdependence in their process frameworks. (Mackenzie, p. 110)

Langley (1999) agrees that process data is important to understanding the phenomena,

but argues that the exclusion of variables from process research is theoretically limiting.

She believes that "it may be important to understand the effect of events on the state of an

entity (a variable) or to identify the effect of a contextual variable on the evolution of

events" (p. 693). Process research may also deal with evolutionary relationships between

people or how people interpret or react to change (Isabella, 1990; Peterson, 1998).

To this point, this review has discussed process research and process data, but

what is a process? Charmaz (2006) offered a succinct definition as, "A process consists

of unfolding temporal sequences that may have identifiable markers with no clear

beginnings and endings and benchmarks in between" (p. 10). As a result, "single events

[within a given process] become linked as part of a larger whole" (p. 10). Even when we

believe that a process is regimented and well-defined it "may contain surprises because

the present arises from the past but is never quite the same" (p. 10). The experience and

outcome of a specific process is in some degree indeterminate (Charmaz) because the

present always emerges with new characteristics (Mead, 1932).

Mohr (1982) argued that variance and process theories should be developed

separately. However, it is logically difficult to separate the study of process from the

variations that inevitably occur within a process being evaluated. Variability

measurement is the only means to determine the performance of a given process (Neave,

1990). Referring to evaluating the value of a process, Neave commented, "[I]f I had to reduce my message for management to just a few words, I'd say it all had to do with reducing variation." (p. 57). Langley (1999) suggested that Mohr is artificially separating variables and events because, in practice, phenomena are intertwined. She argued that "the insistence on exclusion of variables from process research unnecessarily limits the variety of theories constructed" (p. 693).

Since theorizing from process data "needs to go beyond surface description to penetrate the logic behind observed temporal progressions" (Langley, 1999, p. 694), a qualitative methodological approach is paramount to obtain a rich description of the phenomenon (Creswell, 1998; Glaser & Strauss, 1967; Langley). Rich description allows "the reader to judge the transferability of the ideas [presented in the manuscript] to other situations" (Langley, p. 695). The most recent literature available argues that the change process should be studied within context, time, continuity, and content if processes are to be uncovered (Armenakis & Bedeian, 1999; Isabella, 1990; Langley; Orlikowski, 1996; Pettigrew et al., 2001). As such, rich description is critical to uncovering the subtleties, nuances, and richness of process data (Creswell; Glaser & Strauss; Isabella; Langley).

Theory creation "directs attention to previously established important dimensions while the actual data simultaneously focus attention on the theory's suitability as a frame for the most recent data being collected" (Isabella, 1990, p. 12). Theoretically-oriented qualitative research emphasizes fluid movement between theory and data to iteratively re-conceptualize emergent themes until saturation is achieved (Creswell, 1998; Glaser & Strauss, 1967; Isabella). Saturation is reached when no more data can be found that adds to the theoretical categories that emerged (Creswell). A category is a unit of information

composed of events, happenings, and instances (Strauss & Corbin, 1990). At the heart of

data analysis in the theory development process is category formation (Creswell). "Here

researchers describe in detail, develop themes or dimensions through some classification

system, and provide an interpretation…" (p. 144). Asmussen and Creswell (1995) created

a framework with emergent themes such as safety, fear, and denial. According to Glaser

and Strauss, created theory is more substantive if the emergent themes have potential

variation. That is, the themes can be operationalized into measurable variables so that the

theory can be substantiated.

<center>Unfolding Change Research</center>

The seminal article on unfolding change in the management literature was

published in 1990 by Lynn Isabella. Employing the grounded theory tradition of

qualitative research, Isabella developed a theoretical model of how managers construe

organizational events as change unfolds. To enable a better understanding of how

managers construe change, she drew on the cognitive interpretative literature. Interpretive

research examines human interpretations in light of theory-driven cognitive constructs

such as recall of process, pattern recognition, and attention. Consistent with previous

change research, she found that change occurs in clear stages. Unlike previous research,

however, her stage-based model of change (anticipation, confirmation, culmination, and

aftermath) emerged from her data set. Previous research on change had been either

conceptually construed from researcher conjecture or non-empirically validated anecdotal

evidence. Not only did Isabella's research produce a theoretically grounded stage model

of unfolding change, it went a step further by identifying salient triggers and processes

that facilitate movement from one stage to the next. In speaking with respondents, Isabella formulated questions following the notion that perception is reality. In support of this idea, she cited Schein (1985), who holds that events are critical when participants themselves perceive them as such. In her first round of interviews, Isabella determined the events perceived as critical by respondents. She then devised follow-up questions centered on the issues identified as critical. The overarching goal inherent in this approach was to reach an "emic" perspective. That is, to see critical issues through the "eyes" of her respondents. Coding categories were based on commonalities and similarities identified by interview data that lead to more specific, finalized, coding categories.

Isabella's approach in her research (1990) of discovering theory from careful scrutiny of the data is consistent with the grounded theory approach advocated by Glaser and Strauss in their seminal book published in 1967. While Isabella followed the basic tenets of the grounded theory approach suggested by Glaser and Strauss, her sample selection included managers from only a single organization. Glaser and Strauss suggest that to discover theory, the researcher must choose groups that will help generate properties of categories while coding and analyzing simultaneously "to the fullest extent possible" (p. 71). However, this is a serious limitation of her study in that the analysis of a single case, no matter how comprehensive, cannot establish a substantive theory without corroboration. Actually, I expect that my case study may offer either corroboration or refutation of certain aspects of her study. Given the limitation of analyzing only one case, her study does offer a significant contribution to the change

literature in that a sound methodology was followed that allowed her to discover a robust model of unfolding change grounded in data.

With one case, I cannot possibly discover grounded substantive theory. However, continued case studies, like this one, can serve as additional groundwork for future researchers to build on in an effort to create grounded theory – something that I do not believe has been fully achieved by the Isabella study.

In concluding the literature review, I would point to a significant critique that identifies change research as unfortunately being largely without context, history, or process (Pettigrew, 1985). In 2001, Pettigrew and colleagues strengthened this critique by citing several research studies that purport "context and action are inseparable… and that time must be an essential part of investigations of change if processes are to be uncovered" (p. 697). As such, Pettigrew et al. suggested that future research must study cases -- real organizations, in context -- experiencing change over time. A similar evaluation comes from another 2001 study examining the future of strategy research in management, suggesting that "greater sensitivity towards practical complexity will prompt a more comprehensive notion of rigour" (Whittington, Pettigrew, & Thomas, 2001, p. 486). This case study, in documenting unfolding change and value in a real organization, does precisely what Pettigrew et al. suggested is required of "future" change research.

CHAPTER III

METHOD

I chose a qualitative approach to gain insight into the unfolding change process and identify organizational value of recent and on-going change events in the USU IT reorganization. Qualitative research is ideal for this situation as it allows the researcher as an instrument of data collection to build a "complex, holistic picture, [to] analyze words, report detailed views of informants, and conduct the study in a natural setting" (Creswell, 1998, p.15). Qualitative research takes a deeply descriptive interpretive and naturalistic approach to develop understanding of subject matter (Denzin & Lincoln, 1994). Creswell affirmed the appropriateness of qualitative research in exploring complex social and human problems in study. Indeed, from my experience, and from data collected in this study, the social dynamic of the operation, organization, and structure of IT at USU is inherently complex and deeply human. The questions at hand necessitate a qualitative approach: How did the key change advocates determine what needed to change; how did they drive or instigate change; how did the present organization achieve its strategic and unifying goals when previous organizational efforts have failed; and how has the IT unification strategy impacted the USU organization?

Specifically, Schramm (1971) has endorsed the case study qualitative tradition as appropriate to "illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result" (p. 21). Further, Yin (2002) defined the scope of a case study as an "empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and

context are not clearly evident" (p. 13). Owing to the nascent state of the organizational

phenomenon in IT at USU and an underdeveloped body of literature as evidenced by the

literature review, especially within the MIS discipline, I found that separating the context

from the phenomenon would be problematic at best. As such, I believe that the case study

tradition has been appropriately employed to discover and document unfolding change

patterns in IT and value to USU. The intent of the study is not to draw generalizations

outside the scope of the case. It is to document, explore, and present an individual case,

focusing on recent unfolding change in IT and value to the USU organization. Lincoln

and Guba (1985) offered a practical guide for the design and implementation of a

naturalistic study. In principle, I have applied their basic tenets to form the design

framework and methodology of this case study.

Refining the Focus of the Inquiry

The final focus of this research, to document and understand the unfolding change

process and associated outcomes of the USU IT reorganization from the perspective of

key change advocates, remains largely unchanged from the study proposal. I spent

significant time refining the study focus through consultation with primary key change

advocates and with dissertation committee members during the proposal stage. The focus

began as something quite vague, a desire to investigate a specific, significant

organizational change. Through solicited input that desire was refined to the more

specific focus indicated in this study. This early development of focus was a necessary

and important process and confirms Lincoln and Guba's statement that "it is anticipated

that the initial focus will change… because of interactions with contextual

circumstances" (Lincoln & Guba, 1985, p. 259). Throughout the study and during the

proposal process, I followed Lincoln and Guba's technique to monitor and document

such changes, including establishing a schedule for regular monitoring. For example,

after each piece of data was collected and during the analysis, I constantly compared the

data with the problem statements to determine how well the fit might be. This was not

done to squeeze data into immoveable problem statements, but rather to adjust the

problem statements to fit the emerging themes. Due to formal pre-interview contact with

participants, long standing relationships with many of them, and my personal

involvement in the subject, the refinements which were in place at the time of the study

proposal fared well during analysis with no need to significantly modify. As part of the

"member-checking process" (Lincoln & Guba, p. 260), verification that the problem

statements were appropriate and sufficient from participants' viewpoints, however, was

obtained during the formal qualitative data collection process.

Data Collection and Sources

When conducting a case study, multiple forms of data assist in providing an in-

depth view (Yin, 2002). I followed this premise by collecting data not only through

purposely sampled interviews but also through targeted information obtained in reports

and studies from previously engaged consulting groups and from relevant strategic plans

that were identified during this study as influential in the IT reorganization efforts. I was

granted unrestricted access to these resources, both records and people, through the

Office of the Vice President for IT and the Utah System of Higher Education CIO. It is

important to note that observations as a data source were intentionally excluded from this

study as the research does not focus on behavioral aspects and relies on much information that is historical in nature.

This research has been conducted in an extremely advantageous position since it has been noted that the "researcher's number one challenge" in conducting rigorous and relevant qualitative research is "access to reality" (Gummesson, 2000, p. 14). Of course, the "advantageous position" in which I found myself was due in large part to my direct involvement in the IT reorganization, my role in the present IT organization, and the long term relationships that I have enjoyed with many, though not all, of the key decision makers. This direct involvement while certainly a strength, also opened the possibility of introducing bias into the study, a situation that I remained conscious of at all times. Disclosure of bias and the controls I employed to mitigate the negative effects of bias are detailed fully in chapter six.

Interviews

The principal source of data for this study was collected from interviews with those involved in and responsible for the IT reorganization and strategic planning processes at Utah State University. This source of data was critical in building rich description because the players involved in the strategic IT process were not only the most knowledgeable, but were also those responsible for planning and implementing process, strategy, function, and structure.

Consistent with Creswell (1998), one on one, oral interviewing was the norm as the individuals I selected for interviews were not hesitant or unqualified to speak on the topics that were discussed. Oral interviews are important in letting free response sculpt

direction to ensure complete information. All interviews followed a systematic process

described in "The Successive Phases of the Inquiry" section of this study. All participants

consented to have oral interviews recorded and transcribed. Member checks were

conducted to check the validity of the data.

Selection

To serve as a viable witness to unfolding events, interview participants were

selected who had a deep understanding of strategic processes and administrative

objectives within the USU IT domain. They also had to have working knowledge of and

strategic involvement in the unification initiative to be viable interview candidates.

Purposeful sampling is a practical selection method within the case study tradition

because qualitative analysis embraces unfolding discovery, iterative refinement of the

research focus, and flexibility in generating concepts and ideas that are substantiated by

the data (Glaser & Strauss, 1967). Moreover, the purpose of a qualitative study drives the

methods employed to substantiate the thesis (Feagin, Orum, & Sjoberg, 1991;

Gummesson, 2000; Yin, 2002). In the traditions of expert and critical case sampling in

qualitative research (Miles & Huberman, 1994), I focused on the pioneers of the strategic

planning process itself at USU for assistance in identifying appropriate individuals. Those

with considerable strategic planning experience in IT organizations who advised the USU

reorganization as well as those tasked with developing strategy for IT operations at USU

were consulted. This included the principal driver of the unification initiative, Vice

President and Chief Information Officer M.K. Jeppesen. From consultations with Mr.

Jeppesen and other involved executives, I was able to devise a set of additional

participants to interview who were directly involved in the strategic planning of the IT

unification initiative. The initial pool of interview participants was determined by reviewing minutes of principal IT governance meetings and committee rosters, principally, that of the IT Executive Advisory Committee. The list was extended by Vice President Jeppesen and me to a total of nine persons. Through contact with these individuals, essentially a "member-check" of the preliminary selection, participants made indication that while the initial list did not appear to be missing any key contributors, not all on the list were involved in the decision making processes to a sufficient depth to provide real insight. General consensus through the pseudo member checking process decreased the list to a final five. Initially this felt like a small pool of respondents, so I asked questions in later interviews to ensure sufficiency. Data obtained during interviews, particularly from Scott Hinton, Dean of Engineering and Chair of the IT Executive Advisory committee, confirmed the completeness of the final interview participant list.

The following interview participants unfolded from a synthesis of these interactions: Vice President for IT and CIO M. K. Jeppesen; Chair of the IT Executive Committee, Dean Scott Hinton; Associate Vice President for Information Technology, Dr. Stacie Gomm; Utah System of Higher Education CIO and Vice President/CIO of the University of Utah, Dr. Stephen Hess; and the President of Utah State University, Dr. Stan Albrecht. A remarkable depth of experience was discovered as I interviewed these people, allowing me to document not only events and outcomes but also values and motivations. Further detail on participants, including biographical information, interview framework, and raw data are found in Appendix B.

Successive Phases of the Inquiry

Inquiry was done in successive phases. These phases were modeled after the three phase approach defined by Lincoln and Guba (1985): phase one, orientation and overview; phase two, focused exploration, and phase three, member-checks/closure. Figure 1 summarizes the process I followed.

Overview Phase One
- "I don't know what I don't know."
- Participant introduction to topics, refinement of research questions and scope (informal: e-mail, phone, in-person)
- Participant selection refinement (review of participant involvements and relationships)
- Analysis: Creation of personalized questions appropriate to fill knowledge gaps during phase two interviews, questions reviewed with participants.

Exploration Phase Two
- "I know what I don't know...." Have member-checked questions to fill gaps.
- Informed consent obtained. Formal, transcribed interviews completed.
- Analysis: Identificaiton of categories, processes, outcomes. (Chapter 4)
- Preliminary conclusions drawn and answers to research questions pursued. (Chapter 5)

Verification Phase Three
- "We know."
- Member checks of categories, processes, outcomes. (Chapter 4)
- Member checks of conclusions and discovered answers. (Chapter 5)
- Filling-in and Refinement of the complete 'picture.'
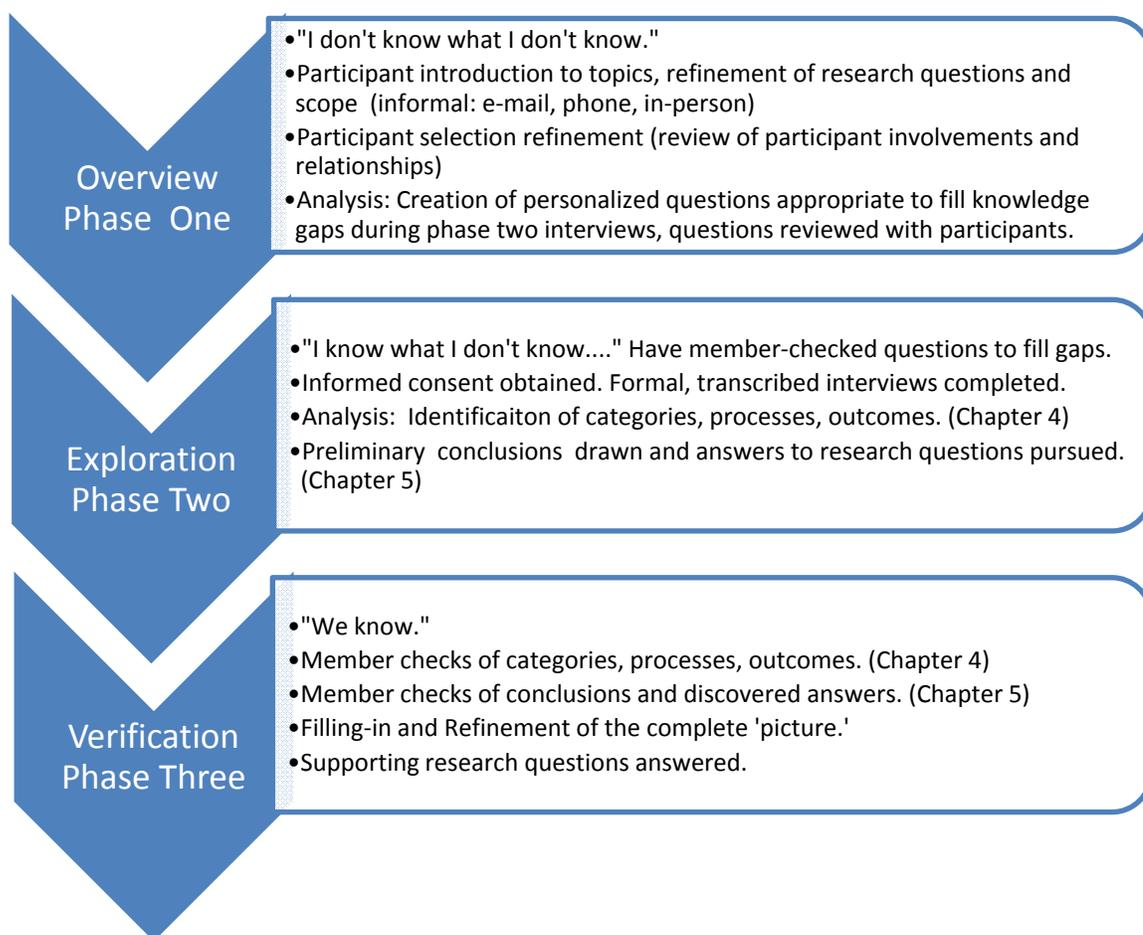- Supporting research questions answered.

Figure 1. Successive phases of the inquiry.

Lincoln and Guba (1985) plainly stated that during the initial planning period, "it is not possible for the naturalistic inquirer to specify exactly what will be done during each phase" (p. 236) since specifics of subsequent phases are contingent on occurrences of the previous. They do, however, recommend that the phases be identified provisionally with plans and timelines. The research proposal provisionally identified and scheduled each phase as an independent, formal interview. In practice, however, and based on early interactions with participants, the initial orientation and overview was accomplished fully through a comprehensive review of documents, and via informal contact by phone, e-mail, or in person to facilitate the creation of focused questions to be used in phase two as a formal interview. Focused exploration (phase 2) was conducted as planned through formal transcribed interviews, and phase three (closing, member checking) was accomplished using a similar approach to phase one through informal contact by phone, e-mail, or in person.

Orientation and overview (phase one). Lincoln and Guba (1985) used the phrase "I don't know what I don't know" (p. 247) to describe the state of knowledge at the beginning of this phase. The goal in orientation and overview, was to enter into "prolonged engagement and open-ended discussion" with participants to resolve that question (Lincoln & Guba, p. 266). Since I have a long-term deep working relationship with most of the selected participants over the last two years of reorganizational efforts, accompanied by significant involvement in, relationship with, and documentation of those efforts, the requirement of prolonged engagement was met.

I decided in consultation with participants that formal interviews focused on a "getting to know" stage as was previously planned were unnecessary due to the tight

schedules of the participants (all are executives) and the fact that I already know them well. As a result, limited time with participants would be better spent on focused discussion in formal interviews during phase two.

In preparing focused questions for the second phase, and in maintaining the spirit of "orientation and overview," I embarked on a collection and review of written reports and documents regarding the reorganization (consulting reports and strategic planning documents). I had already been in contact with most of the potential participants about the study during its proposal stage, but subsequent contacts as a formal part of this first phase provided an opportunity to re-introduce (for the sake of verification) the purpose of the study, which is to documents and understand recent changes in the IT organization and identify the value of these changes to USU through the eyes of those driving the change. While formal interviews were not necessary at this stage, I still conversed informally and directly, with study participants. These phase one personal contacts with participants also provided the opportunity to inform participants of the study's processes and procedures, and to obtain verbal consent of their willingness to participate. Formal, written, "informed consent" was obtained before phase two interviews were performed.

Preliminary formulation of focused questions was accomplished via these informal conversations and contacts, inquiring with participants to get their thoughts on potential interview questions. Questions were also influenced by informal reviews of the consulting reports and strategic plans, which highlighted ideas that influenced the reorganization. I also relied in this stage on past relationships and experiences with participants in the reorganizational efforts. In the end, focused interview questions used in the subsequent phase (while similar among the participants) were customized in

consultation with each participant. Questions carefully considered the specific

involvement and experience of each person. For example, Dean Hinton's roles focused

on his views as a customer or client of IT (external) and as the chair of the IT advisory

committee (external governance). Associate Vice President Gomm's roles, on the other

hand, were very "hands on" and internal. She, like Vice President Jeppesen, was involved

in the reorganization's day-to-day activities. These differing views (external/internal)

when analyzed together created the comprehensive vision or model of the reorganization

"experience" and were essential in mitigating bias.

　　　　Focused exploration (phase two). As Lincoln and Guba (1985) explained, with

phase one complete, "I [now] know what I don't know" (p. 209). It is in this second

phase of the study that critical oral interview data was obtained utilizing the preliminary

set of member-checked questions obtained in phase one to fill knowledge gaps. These

questions, while focused, were still open-ended and flexible. Conversation paths during

interviews were allowed to form naturally (see Appendix B for complete interview

framework and data).

　　　　Before proceeding with formal interviews, each participant gave his or her signed

informed consent to participate. Once consent was obtained, the interview process began

and each interview was carefully recorded and transcribed. Again, open-ended discussion

with participants in this phase was critical to deepen my understanding of their views of

the reorganization with respect to the case under study.

　　　　The interviews were designed to discover the participants' perceptions of IT

before the reorganization, their roles and thoughts in critical events (as identified by

participants), perceived goals and perceived outcomes of those critical events, and their

present perceptions of IT. Moreover, participants' organizational values and beliefs with

regard to the IT organization, and change management principles that may have had

influence in the USU IT reorganization, were discovered. Critical points of interest in

change processes, events, or outcomes, both in general and specific terms to the USU

reorganization were also identified. Interview questions in this phase were wholly

dependent upon how deeply involved each participant had been in particular details of the

IT reorganization at USU. Not all interviewees were involved in detail with *all*

reorganizational events or situations; therefore, approaches to questions, details of

responses, and even the questions themselves appropriately varied. Specific details on

each interview are provided in Appendix B.

Interviews were held at a location of each participant's choosing. Invariably, this

was done in the participant's office, which, coupled with our prior working relationships

allowed for a very comfortable and open discussion environment. All interviews were

recorded with permission of participants and transcribed, typically within two weeks of

the interview date. None of the participants felt that it would be necessary for their

interview data to be anonymous. As such, all agreed to be identified with their transcript

data. Identification of unfolding change event patterns and outcome values coalesced in

this phase. Analysis of these data combined with non-interview written material (as

described in chapter four) provided the foundation for much of the written case study.

Phase two data, after completion of analysis, was central to uncovering process, value

and answers to the supporting research questions restated here for convenience: First,

how did the key change advocates determine what needed to change? Second, how did

they drive or instigate change? Third, how did the present organization achieve its

strategic and unifying goals when previous organizational efforts have failed? Fourth, how has the IT unification strategy impacted the USU organization?

Proceeding to phase three required completion of the analysis and conclusions of this study as detailed in chapters four and five. As such, phase two consumed the majority of time in the study, lasting approximately five months.

Member checks and closure (phase three). The goal of this phase was "to obtain confirmation that the report has captured the data as constructed by the informants, or to correct, amend, or extend it, that is, to establish the credibility of the case" (Lincoln & Guba, 1985, p. 236). Input was critical to ensure that essential detail was not left out or lost. All interviewees participated at some level in member checking. Near-final drafts of the complete analysis and conclusion chapters were shared with all interview participants for review (with the exception of President Albrecht who had previously elected not to receive or review study information). All participants, including President Albrecht, received copies of their own interview transcripts to review as well. No indication of material inaccuracies in transcripts were identified at any time.

While all participated to some degree, as expected, not all participated to the same extent based on differing time commitments and individual involvement in the detail of the reorganization. As an example of how differing involvement in reorganizational detail affected member checking, I point to comments made by the chair of the IT Executive Committee, Dean Scott Hinton. He noted in his interview that while attempts to involve him and the Executive IT advisory committee in more minute detail of the reorganization were made, he felt such detailed involvement was unnecessary. Dean Hinton "told [Vice President Jeppesen that] he didn't have to [involve the Executive Committee in the

detail]… [He was] in charge of this and [he and his team] needed to continue to make

some major decisions… I told [VP Jeppesen] that he was responsible, so do it." As an

additional indicator of Dean Hinton's level of involvement, he said "I am not sure on the

detail, on how exactly the organization evolved, other than I was presented the more flat

organization, which I thought was very good." Based on his "high-level only"

involvement, I concluded that it was not necessary for Dean Hinton to member check

process detail (he elected not to participate, so it was fortunate that his involvement in

this process was unnecessary). He did, however, review conclusions and verify his

interview transcript. He did not indicate any areas of concern.

Similarly, President Stan Albrecht indicated reliance on the leadership *within* the

IT organization to handle detail:

> I am not an IT person, and so I simply must depend on someone in that role or
>
> that person's direct reports being IT people so that they understand the changes
>
> that are occurring and they keep us ahead of things as they help us be strategic
>
> and they help us deal with security and access issues; that changes on a daily basis
>
> and I can't do that. That person has to be doing that and has to be doing it well.
>
> (See Appendix B)

He verified his interview transcript data, but did not elect to receive or review analysis or

conclusions due to his busy schedule. Through the phase two interviews, two of the five

study participants were specifically identified in the data as having the most influence in

architecting event detail and outcomes, specifically M. K. Jeppesen and Stacie Gomm.

These two were able to spend significant time reviewing my analysis and conclusions

over a 2-week period in early September, 2008, which provided a deep and meticulous

review. Corrections and extensions to critical event timelines, suggestions and elucidations on preliminary figures, tables, and conclusions, while all minor, were provided. Consensus that study data, analysis, and conclusions accurately reflected their understanding was obtained in full.

Dean Scott Hinton, Dr. Steve Hess, and President Stan Albrecht, having not been involved in the specific day-to-day organizational change process events, did not express a desire to comment on specifics regarding my analysis. These "external" participants were, however, absolutely instrumental in identifying a significant portion of the general approaches and values identified and applied in the reorganization. The deep information they provided served as reliable indicators of institutional outcomes from an "external to the IT organization" strategic business perspective. All participants were specifically asked if the conclusions or use of interview data matched their understanding and perceptions (with the exception of President Albrecht as indicated previously). None of the participants responded negatively. Further confirming credibility, data provided by these "external" participants matched the perspectives given by the two "internal" interview participants without exception. Perceptions from all interview sources also matched information obtained from consulting reports. No contradictions were discovered at any point.

Consulting Reports and Strategic Plans

While much of the data in this case study comes from interviews and the phases of inquiry, two other primary written sources have been identified: consulting reports and strategic plans. The Office of Information Technology, under the direction of Vice

President Jeppesen, had contracted with two independent consulting groups for specific

studies during the reorganization. The first was done in August 2005.

At the time of this report M.K. Jeppesen's position was still interim and the

institution's new enterprise resource planning (ERP) system implementation had just

been completed. The purpose of the consulting study and report by SunGard Collegis,

titled "IT Services Organizational Assessment," was done "to ensure that the University's

IT Services organization [was] well positioned to effectively support [enterprise systems,

principally Banner]" (SunGard, 2005, p. 1). It took "primarily a 'customer service'

perspective in order to determine the extent to which the existing IT organizations on

campus are meeting the University's technology support needs" (p. 1). The SunGard

report's value to this study was found largely in the deeply documented snapshot it

provided of the USU Information Technology organization prior to implementation of

significant reorganizational events, and in identifying suggested outcomes and steps to

achieve those outcomes that were utilized in the reorganization efforts.

> [The 2005 SunGard study data was obtained] during three site visits to the
>
> campus. Six days were allocated to meet with and interview a good cross section
>
> of individuals; in total 38 people provided their thoughts and insight, with
>
> positions ranging from IT Technical staff through the University President. (p. 2)

In addition to the President and Provost, 10 Vice Presidents were interviewed, 6

academic Deans, 15 Managers, and 7 Technical Staff. With such a broad cross section,

the report provides an accurate and detailed view of perceptions of the IT organization

prior to reorganization efforts and provides an independent analysis to help mitigate

personal bias on my part or on the part of any single participant.

The second consulting study by Burton Group was done in November 2007, approximately 15 months after the formal implementation of the revised IT organizational structure and over two years after the SunGard report. The purpose of the Burton study was initially to evaluate the technical status of the USU data network and make recommendations towards a major service upgrade. Vice President Jeppesen, Stacie Gomm, and I, however, recognized the opportunity to expand the purpose to also include an "expert assessment… of [the IT] organization and provide recommendations based on industry best practices" (Burton, 2007, p.4). It is primarily because of the inclusion of the organizational and financial analysis that this report had value in this case study. The SunGard and Burton studies provided independent, comparative, and insightful qualitative data reflecting the before and after state of the IT organization that was useful in distilling and documenting value, impact, and outcome. This additional third-party analysis helped mitigate the effects of personal bias that I or participants might have introduced without independent assessments.

Finally, all related written strategic plans that were written over the course of the USU IT reorganization were identified for their value in explicitly defining the organization's self-intended scope, mission, vision, values, goals, and objectives. The strategic plans also include results of an "environmental scan," defined as a tool to "identify present and future internal and external forces and client needs that will impact USU IT" (Utah State University, 2006a, p. 5). Three strategic plan documents were identified: the founding strategic plan for the USU IT organization finalized in 2006, the 2006 University of Utah (U of U) IT strategic plan, and the 2006 Utah System of Higher Education (USHE) strategic plan. The U of U and USHE strategic plans were included as

they were authored in part by Dr. Stephen Hess, a principal advisor in the USU IT

reorganization, who recommended them as a suggested model and provided insight into

principles utilized during the reorganization. The influence of the ideas in these

documents in the reorganization was verified by the key decision making participants.

  The combination of interview data, independent consulting reports, and other

written material produced a comprehensive set of verified information ready to be coded

and categorized. In finalizing this research, I was uncertain as to whether the coding and

categorization of the data itself should constitute "methodology" or "analysis." Dealing

with this uncertainty reminded me of a statement made by John Creswell that: "no

consensus exists for the analysis of the forms of qualitative data" (1998, p. 140). Whether

consensus exists or not, a basis for making a particular decision can still be identified. In

choosing to place the coding and categorization of data in the analysis chapter of this

study, I note the following influential examples: Isabella's 1990 study, which provides an

exemplary basis for portions of this research, placed the development of coding

categories and data categorization in analysis. Creswell (1998) characterized the

development of coding categories, the sorting of material, and the classifying of data also

as "analysis."

CHAPTER IV

ANALYSIS

As a basis for analysis and as discussed in the literature review, I drew from the

successful techniques employed by Isabella in her 1990 study titled "Evolving

Interpretations as a Change Unfolds: How Managers Construe Key Organizational

Events." While her study utilized a grounded theory approach, she applied the mechanics

of qualitative analysis to a single case involving significant organizational change on a

related topic. As such, it provided a proven and effective fit for analysis of the case data

in this study. In short, the employed analysis technique required an iterative and adaptive

coding process throughout the data collection phases in order to: (1) distill coding

categories from general to specific and from preliminary to final; (2) identify critical

events, laid out over time; and (3) link emergent categories to timelines through

combined analysis to produce a deep and complete picture, from the "emic" or "insider"

perspective, of the unfolding change process in the USU IT reorganization. The end

result is the descriptive set of change process and associated outcomes presented here,

which I drew from to form the conclusions in chapter five.

Coding and Categories

During data collection, as transcription of the first interview was completed, I

grouped similar thoughts together in just that interview and identified major, very general

themes. I intentionally resisted the urge to categorize specifically at this point. As

transcription of the second interview was completed, again, and only for that interview

the process was repeated, identifying major, yet still general, themes. At this point, I joined the identified general themes from the first two transcripts to form the preliminary organizing categories for the study. The subsequent three interviews, immediately following transcription, followed the same process, being coded into the emerging general categories where they clearly fit and creating new general categories where they did not. A new category was only discovered in one instance, at that time I again reviewed interview transcripts that had been coded prior to identification of that category to ensure nothing was missed. It was not unusual to join categories to maintain the original intent of keeping preliminary categories general in nature. No miscellaneous category was allowed, though a particular point of data could reside in more than one category if necessary. This was facilitated, again, by focusing on keeping the categories general enough so that every theme in every interview would have at least one clear categorization. Every data point in each category was either a paraphrasing of a topic mentioned by a participant, or a direct quote from the transcript. Consulting reports and strategic plans were coded using the same approach as interview data.

As more data was gathered, the general categories were refined and revised. Over 150 excerpts from interviews and approximately 40 points from written sources were utilized to identify the resulting four broad, general categories. Each piece of data was then "systematically and thoroughly examined for evidence of data fitting these categories" at least one more time to ensure that significant items were not missed (Isabella, 1990, p. 13).

The finalized general categories that emerged from this coding analysis are as follows: Pre-Reorganization Recollections, or comments on how things were; Post-

Reorganization Perceptions/Outcomes, or comments and perceptions on how things are

now; Critical Change Events, or major turning points situated in time; and finally,

Values, Counsel, and/or Approach, or general philosophical and/or directional comments

on what drives IT and how IT or the reorganization should be approached. These

categories are presented in the first column of Table 1.

Table 1

Final Coding Categories

General Coding Categories	Specific Sub-coding Categories
Pre Reorganization Recollections/Perceptions (Then)	Customer Service/Confidence
	Organization/Process
	Resources (People and Infrastructure)
	Leadership
Post Reorganization Perception/Outcomes (Now)	Customer Service/Confidence
	Organization/Process
	Resources (People and Infrastructure)
Critical Change Events	Leadership/Management Style
	Organization/Process
	Partnerships
	Products and Services
Values, Counsel, and Approach	Customer Service/Confidence
	Expectations of IT
	Organization: Centralization/Decentralization
	Environment & Purpose
	Change (General, non-event)

With the preliminary categories in place, they were then able to serve as

organizing mechanisms for more specific themes and/or recurring examples as I

embarked upon identifying subcategories. The amount of data to review for common

themes at this point, having been pared down into smaller general "buckets," made

analysis much more manageable in identifying these more specific and meaningful

themes. Consistent with the initial coding process, for each general category, I grouped

common ideas together within that category. Through continued analysis of the broadly

grouped data, the finer themes began to emerge, coalescing into natural subcategories or

groups. These subcategories are identified in the second column of Table 1.

To demonstrate that the subcategories emerged naturally from iterative data

analysis, and to present an introduction to the type of data placed in those categories, I

created Table 2. In this table, general subcategories were placed in the far left column,

excerpts from the data sources were placed in the middle column, and subcategories were

placed in the left column to transparently illustrate that the themes were not forced. The

unabridged table, with all data points can be found in Appendix A.

Table 2

Coding Matrix with Data Excerpts

General Categories	Excerpts (Comprehensive data points in Appendix A. Initials representing interview participants.)	Subcoding Categories
Pre-Reorg-anization Recollections / Perceptions (Then)	MKJ: customer needs not being met SH: IT was a mess, "inept," "absolutely no one had any confidence or trust in"	Customer Service/ Confidence
	MKJ: decentralized budgets, functions, and units in central IT, existing resources hidden/siloed. SH: organizationally "too many little kingdoms" set up, people in wrong positions.	Organiz-ation/ Process
	SG: inadequate funding, staffing MKJ: inefficiencies MK: IT stating "not enough resources" MKJ: enterprise infrastructure not at desired levels	Resources (People and Infrastruc-ture)
	IT Strategic Plan: no strategic plan, no IT policy, insufficient funding/funding models, insufficient support	Leadership

(table continues)

General Categories	Excerpts (Comprehensive data points in Appendix A. Initials representing interview participants.)	Subcoding Categories
Post - Reorganization Perception/ Outcomes (Now)	SH: "I don't know that I have ever been in an institution that has had a positive turnaround as I have seen here." Burton: "USU has a very good IT department and provides excellent services"	Customer Service/ Confidence
	SH: "top leadership seems to be able to see the bigger picture now." SH: flat organization, good MKJ: focus on benefit to USU over individual unit benefit.	Organization
	MKJ: professionalism, technical expertise is improving MKJ: centralized budgets, additional existing resources discovered	Resources (People and Infra-structure)
Change/ Critical Events	SG: CIO change critical, CIO willingness to totally reevaluate "how their organization was run." SH: getting "some of the right people in top positions"	Leadership/ Manage-ment Style
	MKJ: Organization flattened – eliminate middle management, Consolidate administration MKJ: Consolidate budgets/business operations, Function based groups	Organi-zation/ Process
	MKJ: Met with major University unit (Extension) on IT needs – unit's independent IT group consolidated w/ MKJ: partnerships outside of USU: UEN, USHE CIOs "benefitted greatly"	Partner-ships
	SH: infrastructure changes (no wireless -> wireless, redundant paths, 10g backbone/more bandwidth) SH: service changes e-mail, web services SG: creating an appropriately staffed customer focused service desk	Products and Services

(table continues)

General Categories	Excerpts (Comprehensive data points in Appendix A. Initials representing interview participants.)	Subcoding Categories
Values, Counsel, and Approach.	Hess: Make it as easy (one-stop) as possible for students to get what they need, silos make this very very complicated. Hess: it starts with confidence and trust. If that is not there no support and no funding is the result, therefore failure.	Customer Service/ Confidence
	SH: secure environment SH: access independent of time and place SH: services work and work well, but are not mandated	Expectations of IT
	MKJ: "total cooperation among units," but recognizing where it is advantages for a balance of centralization/decentralization. SH: central IT focus and "deal with standard technologies" let units deal with specific/specialized technology.	Organization: Centralization/ Decentralization
	SH: University is "not a corporate environment and they can't lock it down like it would be in a corporation." Hess: Technologies are tools and drivers of change	Environment & Purpose
	SH: continual improvement Hess: assess and change Business Processes to take advantage of technological efficiencies, embrace automation. Hess: necessary change is continuous, but still step-by-step Hess: align jobs with people's skills with abilities, continually check and change	Change (General, non-event)
	MKJ: single team orientation (no silos) SH: "quiet persistence" look at a lot of issues SH: focus on the real problems and real issues instead of just jumping from fire to fire Hess: IT discussions must happen at the higher levels. CIO needs to report to the president and be a part of the strategic discussions of the university.	Organization/ Leadership/ Management Style

Through the process of coding and analysis it was interesting to discover that similar sub-categorical themes began to emerge in multiple general category classifications. The sub-categorical themes are listed in Table 3. For example, the emergent subcategory of customer service and confidence was clearly evident in the general categories of "recollections," "present perceptions," and "values, counsel and approach."

Table 3

Analysis of Subcoding Categories

Sub-coding Categories	General category linked, in parentheses, to overall perception or representative wording. (See Table 2 for specific data.)
Customer Service/Confidence	Pre-Reorganization (negative)
	Post-Reorganization (positive)
	Values, Counsel, and Approach (necessary and essential)
Organization/process/centralization/decentralization	Pre-Reorganization (vertical, siloed)
	Post-Reorganization (flat, consolidated)
	Values, Counsel, and Approach (more managed, more customer focused)
	Critical Change Events (action or trigger)
Resources (People and Infrastructure)	Pre-Reorganization (insufficient, aging, non-enterprise)
	Post-Reorganization (sufficient/available, new, enterprise design)
Environment and Purpose	Values, Counsel, and Approach (strategic and essential)
Expectations of IT	Values, Counsel, and Approach (fast and available)
Change (General)	Values, Counsel, and Approach (regular change is necessary to adapt)
Leadership	Critical Change Events (action or trigger)
	Values, Counsel and Approach (strategic, empowerment, vision, ability)
	Pre-reorganization (poor)

It is important to note that comments and perceptions were very different across the general categories for particular, similar subcategories. For example, data excerpts relating to "customer service/confidence" were negative in one general category (recollections), positive in another (present perceptions), and emphasized the necessity of and recommended approaches to achieve positive customer service and confidence in the third (values, counsel, and approach). Creating Table 3 was very useful because it helped me organize how each subcategory varied with respect to general category. Key concepts, patterns, and perceptions were identified in the reorganization that may not have appeared as readily to me without this approach.

Change Timeline Development

One of the general categories, "Critical Events," was purposefully created to identify key change actions that were identified in the data as having memorable or significant impact. With data excerpts already categorized and in place, it became a simple operation to place them in "temporal" order, by date or date range as illustrated in Table 4. This table was verified through an additional review of documentation sources and by follow-up with participants as part of phase three member-checks. This exercise enabled a higher degree of completeness and accuracy in the general timeline record as not all critical events had been identified in the initial interview data. In creating the timeline table (Table 4), I took specific, individual events, and grouped them into general periods or "organizational epochs," such as pre-reorganization, pre-reorganization-planning, primary reorganization, post-reorganization-adaptation, post-reorganization stabilization, and so forth.

Table 4

Critical Events Timeline

Period	Approximate Date or Range	Critical Event Description
Pre-reorganization (interim CIO, director model still in place)	August, 2004 through March, 2006	– New interim CIO, M.K.Jeppesen August, 2004. – 03/31/05 Partnership with Extension Technology – 04/05-03/06 Directors meetings (old directors, new interim CIO, and Extension partner IT leadership.) – 8/24/05 SunGard Consulting Report – 10/05 Steve Hess, UEN/UofU CIO strategic planning meeting – 03/06 Draft strategic plan
Pre-reorganization (new executive administrative team in place)	April, 2006 through July, 2006	– 04/06 VP/CIO assignment made final, M.K.Jeppesen – 04/06 IT Exec Advisory committee formed – 05/06 Completion of three year ERP system implementation (Banner) – 05/01/06 Associate VPs named, creation of new administrative team – 05-08/06 Total re-evaluation of employees, skills, organizational focus, values, etc. – 05-08/06 Creation of new organizational structure/approach, development of team and professional orientation – 05-08/06 financial/budget structure comprehensive audit, identification of all IT resources, budget consolidation – 05-08 initial project management/SLA process developed – 03-08/06 ITIL (best practices for IT) training

Period	Approximate Date or Range	Critical Event Description
Primary Reorganization (implementation of total staff restructuring)	August 1, 2006	– 08/01/06 Formal IT Reorganization implementation (flattened, consolidated, function oriented teams) – Director positions eliminated (team coordinators) – Initial budget consolidation – Initial teams formed based on function (system administration, physical infrastructure, networks, programming, security, service desk, student labs, faculty assistance, project management, business and finance, marketing, policy and procedure) – Job description changes – Additional office space, shifting on staff physical locations driven by function (like functions co-located)
Post-reorganization (adaptation, creation)	August, 2006 through 2007	– Staff turnover, principally prior administration and telecom staff – Significant core service development and replacement (enterprise e-mail, directory, storage, wireless, etc.) – refinement of functional teams – creation and expansion of service desk (outsourcing vs. in-house evaluation) – creation of initial project management / SLA process – salary and title adjustments (Partnerships with HR in developing new staffing/career models (titles, job description, progression, compensation) – initial institutional IT policy development

(table continues)

Period	Approximate Date or Range	Critical Event Description
Post-reorganization (stabilization, refinement)	2008	– Development of IT Staff Core Competencies – first institutional IT policies in place – continued service and infrastructure development, replacement, and expansion – focus on marketing and communication expands, creation of formal marketing positions – refinement of project management process, assignment of formal project managers – career progression development

To create a model of the reorganization change process I needed to know the basic order and progression of events. These ordered events then helped me identify data that was necessary to answer some of the "how" and "what" supporting research questions posed in the introduction, such as, "How did key change advocates determine what needed to change?" and "What did they do to drive or instigate change?"

Mapping Categories to Timeline

A timeline, of course, is not sufficient alone to answer the research questions, or to identify comprehensive processes. To deepen the search for that information, I found it necessary to map categories, and the perceptions illustrated by the data in those categories, to condensed events in timeline periods. This allowed me to identify and illustrate, through Table 5, how the organization is perceived in specific key areas (categories) sequentially over time, and to link them with critical change events. As an example, perceptions from the "recollections" category fit well in the pre-

reorganizational timeline periods and "present perceptions" necessarily fit in the post-

reorganization-stabilization timeline period.

Table 5

Categories and Characteristics Mapped to Timeline Periods

Period	Example General Characteristics/Categories/Perceptions
Pre-reorganization	− Dissatisfaction. − Customer service seen as poor or nonexistent, little to no trust. − Organizations are siloed, including budgets. − Staffing and infrastructure are insufficient. (resources)
Pre-reorganization (new executive administrative team in place)	− New executive leadership − Values/Approach development. (Advice and counsel sought from state, local resources, and partnerships) − Discovery of 'Expectations of IT' to meet 'Environment and Purpose' − Plans developed. − No change in perception from the outside
Reorganization (August 1, 2006)	− Resource reallocations. − Plan implementation. − Major change.
Post-reorganization (adaptation)	− Resources: Staffing changes, turnover, and Infrastructure replacement, development. − Service refinement − Approach refinement (Advice and counsel sought from state, local resources, and partnerships) − Partnerships with HR in developing new staffing/career models (titles, job description, progression, compensation)
Post-reorganization (stabilization)	− Positive perceptions, characterized by turnarounds in customer service, IT services, and continued input and advice to achieve continued success. − Approach refinement (Advice and counsel sought from state, local resources, and partnerships)

Change/Reorganization Process

Organized data in Tables 1-5, in conjunction with category detail from Appendix B, were then combined to develop and illustrate the unfolding and sequential change process shown below in Figure 2.
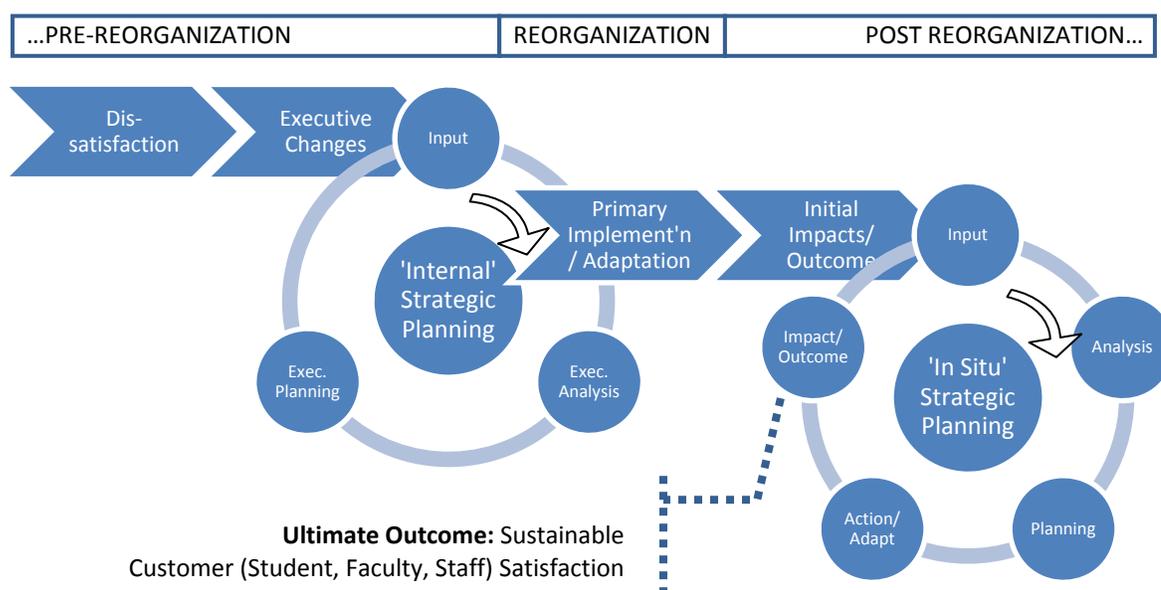
Figure 2. The USU IT reorganization unfolding change process.

The progression of the process is identified as follows: (1) Recognition of general dissatisfaction and lack of confidence in customer service, organization, resources, services and leadership; (2) Change in IT executive management and implementation of an executive governance structure encompassing input from all university functions; (3) A process of deep and comprehensive strategic analysis and planning by IT executive management, relying significantly on input from partners, governance bodies, and customers to produce an initial set of foundational reorganizational principles and plans;

(4) implementation of initial reorganizational plans and adaptation to significant changes in all levels of IT; (5) assessing impacts and outcomes; and (6) initiating a continuous cycle of input, analysis, and planning, leading to action (change event), and creating impacts and outcomes "in situ" (with the foundations of the reorganized structure in place).

The reorganizing change process is explored in detail in the remainder of this chapter, divided into these major sections: (1) Dissatisfaction; (2) Executive Change; (3) Internal Strategic Planning Process; (4) Primary Implementation, Impacts, and Adaptation; and (5) In Situ Strategic Planning Process. Sections one through three constitute pre-reorganization perceptions and planning, section four presents the primary implementation of the reorganization with initial impacts, and section five focuses on post-reorganization planning and refinement.

Dissatisfaction

Prior to reorganizational efforts, USU information technology function, support, and operations consisted of many independent organizations without any significant or unified coordination. The independent information technology units at the time can be placed into two principal categories: a central IT service consisting of three independent primary units (Classroom and Multimedia Services, Network and Computer Services, Telecommunications and Telephone Services), and an unidentified number of college, departmental, and unit-based IT operations.

The decentralized, unit-based operations represented a majority percentage of the overall IT support services at the University, a scenario "not uncommon at research

universities" (SunGard, 2005, p. 2). All central IT units were independently managed and operated with their own independent budgets. No coordinated strategic plan for IT services either as a service organization, or to address institutional IT needs was in place at that time. The 2005 SunGard assessment identified that the majority of units at USU created their own independent IT service groups. This occurred primarily "due to a perceived need to have knowledgeable, accountable, and responsive technical support staff to support their local, and sometimes specialized, needs; and because such services were not available from centralized IT in a responsive and/or cost effective manner" (SunGard, 2005, p.9). I summarized the following points from the 2005 SunGard consulting report data as inherent to the decentralized, uncoordinated IT environment at USU, coupled with examples:

1. Widespread distribution/replication of services was common across campus. For example, in 2006, the institution had over 150 independently operated e-mail domains.

2. Non-uniform IT services and support levels existed across the institution. For example, units that chose to commit funding to build independent IT units received a correspondingly higher level of support, while many who did not or could not went without basic computer support. Pockets of technology "haves" and "have-nots" among university departments and units became evident, even for basic IT support services.

3. Adherence to standards and best practices (where they existed) was inconsistent. For example, no significant IT policies existed for the institution to govern best

practices. No communication of standards or what benefits might be obtained from observing those standards occurred.

4. Lack of security and performance problems became inherent in relying on single-person IT staff. For example, it was common to have one person in a unit perform all IT functions, from system, database, and application hosting/administration, to programming, disaster recovery, and end-user/desktop support.

5. In many cases only portions of necessary IT services (as determined by industry best practices) were in place. For example, some systems did not have backup services or procedures to protect data in case of failure.

6. Consistently securing IT services across the institution regularly failed due to the inability to identify which services were legitimate and which were not. For example, of the 150 identified e-mail delivery servers at USU at the time, it was unknown which were serving legitimate unit e-mail needs and which were running an unknown e-mail service (perhaps hacked and misused). Such situations invariably represented a security compromise, or a potential security compromise through unmanaged services. The task of fully identifying IT costs or resource allocations across the institution was thereby impossible. Without such information, managing institutional IT costs, measuring change efficiencies, and identifying returns on IT investments was difficult.

7. Status and distribution control of sensitive information (FERPA protected information, for example) was unknown. Information was shared across diverse systems, managed by diverse technicians, using diverse methods and platforms, each according to his or her own preferences.

8. Competition and distrust between unit technical staff perpetuated service

   duplication, lack of communication, and an inability to set and meet institutional

   IT-related policies, standards, best practices, goals, and objectives.

While many weaknesses to a fully decentralized system were identified, it should be

noted that significant innate strengths of the USU decentralized environment were also

apparent. The SunGard report noted this and stressed that any change must be carefully

structured to address weakness, while not negatively impacting these "decentralized"

strengths: Keeping IT staff local to a unit provides greater understanding of that unit's

needs, and therefore, a greater probability of having those needs met, both in general and

in unique situations. Control over local IT funding, with dedicated staffing, provides

greater ability to ensure that funds are appropriately applied to meet unit goals, without

competition and prioritization concerns that arise when mixed with projects and priorities

of other units.

   SunGard consulting reported, in short, that "[the] centralized Information

Technology Services (ITS) division has not fully met all of the computing support needs

of the campus for many years" (2005, p.2). Scott Hinton, Dean of Engineering, similarly

observed significant dissatisfaction from the perspective of a customer or client of IT

prior to the reorganization. His dissatisfaction with IT services prior to the reorganization

is clear in this excerpt from his interview:

   When I first arrived here about six years ago, in my opinion, IT was a mess. We

   were way behind as far as all technologies were concerned. We had a single T1

   line that was coming up from Salt Lake. There was virtually no wireless.

   Everything was kind of scattered about. Every department was doing their own

thing. Many faculty were doing their own thing and a lot of it was the result of

what I view as a very inept IT Department that absolutely no one had any

confidence or trust in. And so there needed to be some change. When [Vice

President Jeppesen] was put in charge, in his kind of quiet persistence, he started

looking at a lot of the issues. I think he saw that organizationally there were too

many little kingdoms that were set up. There were people, in my opinion, that

were in positions because of who they knew and not what they knew. (Appendix

B)

Stacie Gomm, who now holds an executive role in IT, was not part of the IT operation

prior to the reorganization. In recalling that time as a customer of IT, she made this

observation: "These people [referring to levels of pre-reorganization IT management]

were so busy managing [that] they were not getting into what was happening in the

organization itself." And, as a result, "no communication" was happening between levels

in IT. "Worker bees… really hard workers [at the lowest organizational levels] were

defining everything, but nothing [was] filtering up and nothing [was] filtering down" she

said (Appendix B). The independent SunGard report indicated "A lack of clear and

articulated institutional vision of, and commitment to, the fundamental strategic value of

information technology" suggesting that it was an "apparently longstanding lack of IT

vision which resulted in substantial deficiencies in fairly basic IT support services"

(2005, p. 3).

Vice President Jeppesen indicated that prior to the reorganization, IT was

inefficient, not well respected, and that "IT was stating that they did not have the

resources in order to satisfy the needs of the customers within the University" (Appendix

B). He also noted that resources were later discovered to be just hidden and "siloed," or isolated in independent units, which did not transparently communicate or collaborate with administration, colleagues, or peer units. Stacie Gomm similarly identified this perception of inadequate funding leading to inadequate operations and loss of confidence as did Scott Hinton, who noted the following:

> Prior to the reorganization, it really was a fire station. They just lived from fire to fire and crisis to crisis. They would complain that there was no money and nothing happened. It was very, very frustrating for colleges and departments and even faculty members. (Appendix B)

President Albrecht noted in the old IT organization an apparent unwillingness or inability to change, adapt, and look at things in a different way. He said the previous IT organization held "a traditional, 'we'll always have this kind of organization structure, these positions, and these people report here'" attitude (Appendix B). That is, the old IT organization was seen as having an inflexible and static organizational structure that was unwilling to change. As an example, for nearly two decades, the organization consisted of multiple, competing, and independent units that were very "vertical" or administratively heavy in nature: managers reporting to supervisors, reporting to directors, reporting ultimately to one or more executives.

In summary, customer service and confidence in IT was low and processes and organizations were heavily decentralized. The central IT unit was without institutional governance, unified processes, or vision. Funding and other resources (both people and infrastructure) were perceived to be non-existent and insufficient, and there was an

almost total lack of vision by executive administration to focus IT services and resources toward the overall benefit to the University.

Executive Change

In the midst of this widespread dissatisfaction, the position of Vice President for IT/CIO for Utah State University became vacant. The previous CIO was preparing to leave Utah State University of her own accord to accept an executive IT position at another University in early 2004. The institution embarked on a national search for a replacement CIO under the direction of USU President (at the time) Kermit Hall. While the search for a replacement CIO was in progress, President Hall accepted a position at another university, which suspended the CIO search. Dr. Stan L. Albrecht was appointed President of USU a short time later. The national search for a replacement CIO never resumed. President Albrecht named M.K. Jeppesen as interim Vice President for IT/CIO in August 2004. Mr. Jeppesen would report directly to the President, as did his predecessor. With these changes occurring at the Presidential and VP for IT/CIO levels, it was an appropriate time to take a fresh look at the IT function at USU. Interim Vice President Jeppesen had not been involved in the IT function at Utah State University previously, and took it upon himself to become familiar with the organization and its purpose.

When M.K. Jeppesen was placed as interim CIO, the outgoing CIO had implied that the organization was in fine shape, and "that there would not need to be much [done] in the way of reassignment [or reorganization]" (Appendix B). Vice President Jeppesen, however, was hearing very different perceptions from his executive colleagues,

suggesting that IT was not well respected and customer needs were not being met

(Appendix B). In 2005, Mr. Jeppesen asked an outside consulting group to independently

evaluate the IT environment and provide recommendations "to ensure that the

University's IT Services organization is well positioned to effectively support [enterprise

systems]" (SunGard, 2005, p. 1). The survey, in interviewing a broad cross section of

campus users painted a very different picture than the outgoing CIO suggested. The

report documented extreme customer dissatisfaction and organizational problems in

information technology across the institution.

Recall that the previous Vice President for IT/CIO had indicated to Mr. Jeppesen

that the IT organization was in generally good shape. The discoveries and

recommendations from the SunGard report clearly indicated the opposite. This difference

in perception between the outgoing and incoming CIO indicated a significant flaw in the

previous executive IT organization. The belief that the organization was generally in

good shape, and that the incoming interim CIO would not have to do much, indicated an

oblivious perception on the part of the former CIO compared to actual customer

perceptions at the time. The willingness of the Interim Vice President for IT/CIO to

obtain, as accurately as possible, a complete assessment and understanding of how the IT

organization was perceived, good or bad, was an essential spark in identifying the need

for change. The SunGard report delivered reports of uncoordinated, competing,

decentralized IT units creating inefficiencies and non-uniform services across the

institution. The report blamed a lack of confidence in central IT services for much of the

problem. For example, many interviewees in the 2005 SunGard report, when asked,

"What would it take for a central [IT] organization to meet your expectations for the

service and support your unit requires" (p. 9) were reluctant, if not adamantly opposed, to

trusting any critical service to any form of centralized IT. At that time, all IT

organizations at USU (central or unit-based) were operating independently of each other

and working in competition, at times, with each other. The SunGard report indicated that

this occurred because non-central units believed that the only way to obtain reliable IT

service was to build it themselves. The report suggested that to begin changing this

atmosphere, a complete restructuring of central IT was necessary to eliminate the

perception of a lack of vision, lack of technical acumen, and lack of customer service.

     In the old organization, no formal governance of the IT function for the institution

as a whole was in place. Each of the many IT units at USU operated independently,

governed exclusively by their own administration. Governance at an institutional level

was deemed essential by the President and new CIO, as was input from credible outside

experts, including Dr. Hess and the SunGard report, to begin reshaping the IT function to

better meet overall institutional needs. To this end, President Albrecht, working with VP

Jeppesen, formed the IT Executive Advisory Board on April 11, 2006 consisting of

University Vice Presidents and selected IT industry leaders from the community, as well

as state leaders to act as the principal governing body. The Dean of Engineering, Scott

Hinton, was tasked as chair of the committee. The charge given to the executive advisory

committee was to "provide an objective view of how information technology [the total

function, not only relating to central IT organization] can best meet the needs of Utah

State University" and "to play an important role in developing a broad strategic planning

process that will always be looking into the future" (Utah State University, 2006b).

This charge is consistent with the statement VP Jeppesen made in his interview, that the IT organization must "be customer service oriented in meeting the needs of information technology within the total enterprise of Utah State University" (Appendix B). The goal that he and the Executive Advisory Board set from the beginning was to develop a coordinated and unified information technology function at USU (though not necessarily with direct or financial control across decentralized IT units).

In sharing the results of the SunGard study with this body of University executive stakeholders, it was accepted that many of the disadvantages identified in an uncoordinated, decentralized approach needed to be addressed. However, immediate or wholesale centralization of services was out of the question for two reasons: First, confidence in the central IT organization as it existed in 2005 was exceptionally low. Second, there was no desire to lose the identified strengths that many units were enjoying in the decentralized environment (SunGard, 2005). Primarily, that needs of some units were being met just fine by their local units.

Vice President Jeppesen, with the support of his administrative colleagues, set a goal to begin restructure and change in IT to reverse the negative reputation of central technology services and to focus these efforts on "overall benefit to the institution" (Appendix B). Creating confidence in central services would take time. Proof by action that a new organization could meet customer expectations was essential. Only then would unit IT organizations even consider supporting centralization, using central services, or central coordination of any technology or support. In recalling this time, VP Jeppesen "recognized that… IT was not well respected within the University. It was my responsibility to have IT function as a viable organization and meet [those] needs"

(Appendix B). He recognized the need to expand talent within the central organizations and began by working with a colleague at the Vice Presidential level of the University to partner central IT with a respected local IT unit (Extension Technology). In describing this event and its purpose, VP Jeppesen said:

> One of the major units on campus [was] Cooperative Extension. I met with Jack Payne (the Vice President for Extension) and talked to him about Information Technology needs within his unit. At that time he had a group that was formed to provide that type of support. We recognized that for the best good of the University it would be better to consolidate the activities of Cooperative Extension and [central] IT to see if we could make a difference in providing some of the enterprise, [or institutional], infrastructure. That was probably a bold step on the Vice President for Extension. From that point on we were able to orchestrate an effective team by incorporating the IT staff of Extension into the central IT organization. As a result of that, cooperation increased and we had the opportunity to take advantage of the talent that then existed within the Cooperative Extension IT office. By doing that, we placed individuals in key organizational positions within the center of IT. Ultimately, as a result of forming the Associate Vice President positions, one of those individuals was appointed an Associate Vice President for IT. Others [from the Extension unit] filled team coordinating roles. So it was through cooperation and recognition of consolidating to benefit the total university that really started the reorganization of IT at that time. (Appendix B)

A partnership between central IT units and a major department/college-based IT organization was formed to infuse both organizations with new skills, approaches, and ideas. This began to set an inclusive "we are in this together" atmosphere, focused on benefit to the institution. With the introduction of this new partnership and staff from Extension Technology (I was one of those staff) and based on continued discussions with Dr. Jack Payne, VP Jeppesen invited me to join the pre-reorganization directors' group whose activities are discussed later in this study.

Ultimately, VP Jeppesen decided that two Associate Vice Presidents should be appointed to form an executive trio to take a comprehensive look at the total organization from the standpoint of a necessary and complete restructure focused "for the betterment of Utah State University and not for any one organization [or sub-unit]" (Appendix B). He selected persons to fill the two executive positions from outside of the original central IT organizations: Stacie Gomm from the Provost's office and me from the Extension Technology group.

The central IT organization, under new executive direction and institutional governance, was tasked with developing and coordinating all of the policy, procedures, and enterprise IT activities for the entire institution. After the primary IT reorganization, institutional governance was expanded to include an IT User's Advisory Board consisting of faculty and staff representatives from each University department or unit. This additional advising body would further strengthen opportunities to receive input in meeting institutional IT needs. The IT User's Advisory Board is discussed in more detail as part of the in-situ strategic planning process stage.

Executive changes at the highest levels, including a new President, new Vice President/CIO and Associate Vice Presidents, and subsequent leadership changes deeper in the organization, was seen as critical to the reorganization process; As Dean Hinton indicated in his interview: "I think they started getting some of the right people in the *top positions* [emphasis added] that were allowing the organization to focus on the real problems and real issues instead of just jumping from fire to fire" (Appendix B).

Internal Strategic Planning Process

With top executive changes and a framework for institutional governance in place, Vice President Jeppesen led a deep strategic planning process to determine how best to restructure central IT to enable the unit to better serve the institution and its customers. In creating a strategic plan to set foundational principles in place and determining necessary organizational changes, administration relied heavily on input and counsel from expert sources for advice. These sources included the existing set of directors from the old IT organization, SunGard consultants, and members of the IT Executive Advisory Board.

It was determined prior to any significant planning effort, through past experience, input from Scott Hinton (as chair of the IT Executive Advisory Committee), and from advice taken from the SunGard consulting report, that any attempt to take control or ownership of decentralized IT functions at the outset would be met with severe and debilitating resistance. Paraphrasing Steve Hess and Scott Hinton, confidence must be earned, not mandated (Appendix B). All interview participants in this study confirmed that focusing approaches on service orientation, or meeting needs, was essential.

With a "service orientation" foundation in mind, VP Jeppesen began obtaining specific input towards creating USU's first institutional IT strategic plan. This document would extend the general foundational concept of customer service into specific detail. Input was obtained and analysis and planning done through a significant number of meetings with the original IT directors, the SunGard study, the Extension Technology organization partnership, the IT Executive Advisory Committee, and in consultation with Dr. Stephen Hess who was the CIO of the University of Utah, later to become the CIO for the Utah System of Higher Education. This planning process occurred in two phases or rounds as illustrated below in Figure 3 (an expanded excerpt from the complete model).
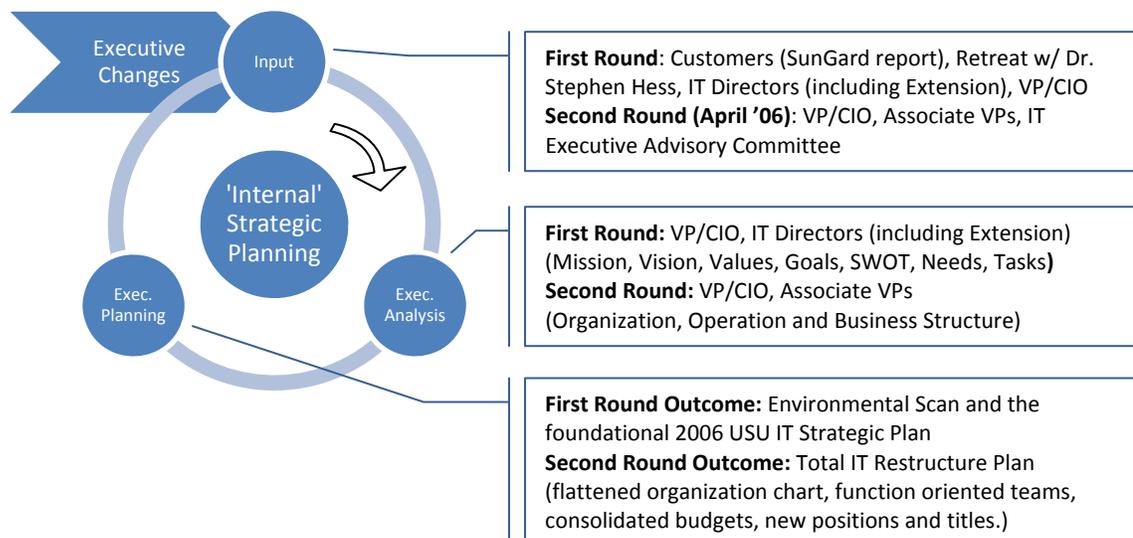

Figure 3. Internal strategic planning process.

The first round relied heavily on input from customers (users of IT) through the

SunGard study, consulting with Dr. Hess, directors from the original central IT

organization, and the director of the partnered Extension Technology unit to develop a

draft strategic plan. The second round of planning was done primarily by the Vice

President/CIO, Associate Vice Presidents, and the IT Executive Advisory Committee and

focused on creating plans to change the organization and operation structure itself to

finalize and meet expectations set in the strategic plan developed in the first round. The

two rounds were separated by the completion of the executive reassignments in April

2006 with the hiring of the two Associate Vice Presidents, and the removal of the existing

IT directors from the executive planning process.

Round One

A critical event during the first planning round, input stage (see Figure 3), was a

retreat scheduled by the Vice President. VP Jeppesen invited Dr. Hess, myself (as

Director of Extension Technology at the time), and the pre-reorganization central IT

directors to accompany him at the retreat. Dr. Hess introduced ITIL, the Information

Technology Information Library (collection of best practices for supporting IT service

delivery and service support), and laid out his approach towards strategic planning

including the concept of an "Environmental Scan." An environmental scan is an analysis

of a unit's internal strengths and weaknesses and an identification of external

opportunities and threats (this is also known as a SWOT analysis). He shared the

University of Utah's IT strategic plan with the group as an example to consider. Also at

this stage, Vice President Jeppesen relied on the SunGard consulting organization's

report for additional input that queried customers and IT staff alike to paint a picture of

the organization's present state and to make recommendations towards change and strategic planning. With these "inputs" in hand, the next steps in the first round of strategic planning, executive analysis and production of the strategic plan itself, began in earnest.

M. K. Jeppesen and the original IT directors group (composed of the pre-reorganization IT administration and myself as the director of the Extension Technology partner unit) commenced in analyzing the advice received from Dr. Hess and the data from the SunGard report to produce a draft strategic plan. This plan was modeled after the University of Utah's approach including identification and documentation of the organization's mission, vision, values, goals, and objectives, the environmental or SWOT scan (strengths, weaknesses, opportunities, and threats), and a needs analysis, documenting IT requirements of students, faculty, and staff (University of Utah, 2006). Table 6, summarizes the strengths, weaknesses, opportunities and threats that were identified and documented as part of the USU strategic plan in the first round (Utah State University, 2006a, p. 6-8). Note that all but one of the strengths were conditional and referred only to "pockets" of examples where functions of IT support were working well. Such examples included references to the stability of the network and the positive customer reputation of the Extension Technology unit. In many cases, those positive"pockets" had to be found outside of the central IT organization. Simply stated, few strengths were identified and even those were limited in nature, whereas many weaknesses were identified. This analysis provided a focus for planning improvements.

Table 6

Initial Planning First Round Identified Strengths, Weaknesses,
Opportunities, and Threats

Strengths (Internal)	– "Pockets" of good IT management at USU. – "Pockets" of good infrastructure, inclduing networks, phone, and computer labs. – "Pockets" of good customer support. – Ability to obtain discounted hardware and software.
Weaknesses (Internal)	– No strategic IT plan. – Significant lack of IT policies. – Lack of financial resources, outdated funding models. – "Digital Divide" technology and support "have and have nots." – Areas of significant financial and organiational challeges. – Areas of deficient customer support. – No unified help/service desk for all IT services – Insufficient project managemnet/service level agreements – Unnecessary duplication of IT services coupled with "lack of trust, teamwork, and cooperation among technology units"
Opportunities (External)	– Enhanced delivery of "digital assets": mobile devices, course management systems, wireless, e-mail, instant/unified messaging and other collaborative tools. – High performance and research computing – 'IT-ready' buildings, classrooms, and labs. – Improved perfromance, perception and value of IT to USU. – Adopt ITIL best practices in creating a central Service Desk to increase customer service. – Expand application and use of wireless services – Make use of online course/leraning management sytems (WebCT, Breeze) to revolutionize the way faculty teach and students learn.
Threats (External)	– Budget cuts and continued lack of finanaces – Non competitve pay scales/lack of resources. Difficult to recruit and retain. – Projected retirment of 40% of IT workforce by 2009 – Loss of faculty, research grants, and student enrollment/retention due to insufficient IT services. – Rapid evolution of technology as well as government mandates and associated costs. – The duplication of information technology resources on campus. – Security breaches resulting in financial loss and damage to USU's reputation. – Users' skills, creating expectations exceeding IT's ability to fund state-of-the art services. – Student and faculty needs exceeding the current financial and IT infrastructure. – Proliferation of mobile and wireless devices straining the IT budget.

The first round strategic plan also detailed a set of institutional core IT values that were critical in overcoming non-central unit fears of a "take-over" of local operations while still providing an expectation of central coordination. The following written values that emerged out of these planning meetings were intended to apply to any IT unit, centralized or not:

    – We value the information technology needs and requirements of students, faculty, and staff at USU by providing timely and quality customer service.

    – We value employees who have the following traits:

        Are open and honest in communications.

        Have integrity and keep commitments.

        Foster cooperation, trust, and teamwork.

        Provide leadership, initiative, and creativity.

        Exhibit productive efforts and entrepreneurial behavior.

        Exhibit a positive/"can do" attitude.

    – We value collaborative, coordinated efforts to find solutions to mutual needs and problems that will incorporate best practices and save time and/or money.

    – We value and embrace the principle of central coordination and local participation. (Utah State University, 2006a, pp. 2-3)

Actions, efforts, and projects of any IT employee or unit, irrespective of central or specific IT unit affiliation, would be measured by these values. The strategic plan also set the model for a flatter, team and function-oriented organization, which was realized the

following year. To illustrate this team/function oriented approach, Figure 4 is excerpted

with permission from the finalized 2006 USU IT Strategic Plan document and is

accompanied by the following explanatory text:

> To simplify the terminology and provide a clear picture, the figure below follows
>
> a transportation system analogy with 'highways,' 'vehicles,' 'cargo,' 'drivers,'
>
> etc. The center of the diagram, created by the overlap of all IT areas, represents
>
> existing and future IT services provided to the customer, or driver. Such services
>
> are the drivers of information technology. These services typically have
>
> individual components spread throughout IT. As an example, consider an online
>
> course management service, likeWebCT, a driver. That service has information
>
> technology components that fall into specific areas on the diagram: WebCT
>
> instructional design and associated multimedia as cargo, hosted onWebCT
>
> software, databases, and servers as vehicles, transported over various pieces of the
>
> network infrastructure highway. The Service Desk (commonly known as the Help
>
> Desk) spans all areas and represents a potential single-point-of-contact to deliver
>
> enhanced customer service with the ability to call on any and all IT functional
>
> areas in support of services and customers as required. The greater circle
>
> represents operational areas of the Office of the Vice-President for Information
>
> Technology. (p. 15)

Completion of this initial strategic plan, done inclusive of the original set of IT directors,

was difficult. While it set necessary and effective foundations to be used in the next

round of the strategic planning process, it forced existing administration to begin

recognizing the severe and debilitating weaknesses that had been present in IT

organization and management for some time. This initial round of planning gave VP

Jeppesen the opportunity to identify and observe the strengths and weaknesses not only

of the organization, but also of the directors participating in the planning process. VP

Jeppesen utilized the knowledge he gained of staff during the initial round of strategic

planning to complete the executive change in naming two Associate Vice Presidents: Me

and Dr. Stacie Gomm. By early spring 2006, the institutional IT Strategic Plan was
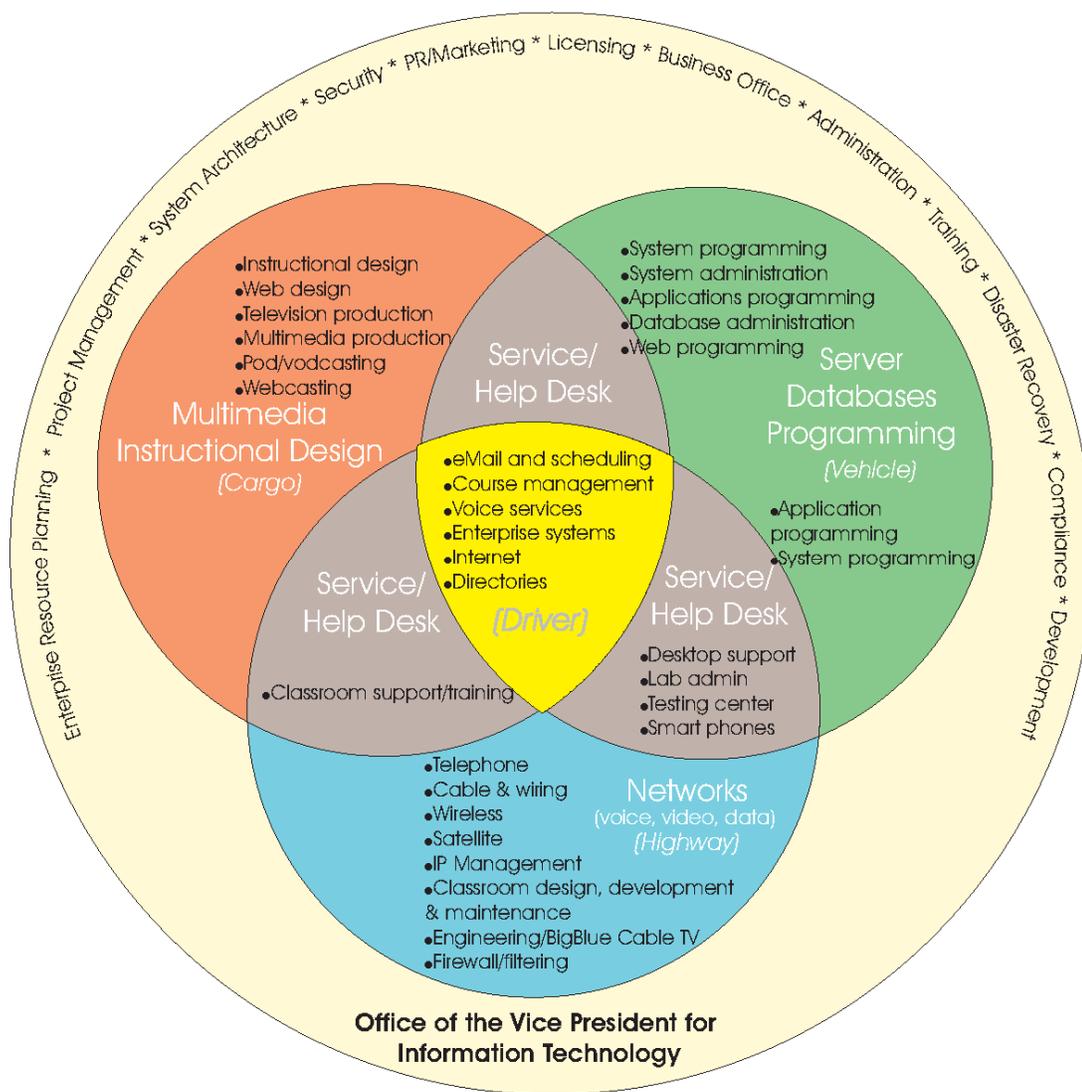
largely finalized.

Figure 4. USU IT 2006 strategic plan functional groupings.
(Excerpt from the 2006 USU IT Strategic Plan, used with permission)

Round Two

In the second round of executive planning, the previous directors were no longer as intimately involved as they were in the first round, but continued in their regular operational duties, having already contributed to the development of the foundational principles that would guide the remainder of the reorganization. The planning process in round two shifted from creation of a strategic plan and foundational principles, toward a total analysis and revision of the organization detail itself. This detail included revisions in positions, titles, teams, and budgets to enable the organization to achieve the mission, vision, values, and goals set forth in the strategic plan developed in round one. The IT Executive Advisory Committee worked with the VP/CIO and new Associate VPs to analyze and plan subsequent steps.

This second round of planning began in late April, 2006, with the new executive team in place and the IT Executive Advisory Committee formed with the charge given by President Albrecht. Proposals were discussed among the VP and Associate VPs and University Executive bodies on how best to implement the ideas generated during the previous year as detailed in the 2006 USU IT Strategic Plan. Dr. Gomm and I attended 3 weeks of ITIL training (an IT service delivery and support set of internationally accepted best practices) to extend our repertoire by investigating accepted standards and approaches to IT organization and management. Round two discussions occurred over a period of 3 months, and involved preparing plans to disassemble the existing IT team silos that functioned as independent, isolated, and often competing and antagonistic units. The independent IT units considered at the time were these: Telecommunications (Telecom), Classroom/Media Support (CMS), Network and Computing Services (NCS),

Faculty Assistance Center (FACT), and Extension Technology (ET). Each unit had their

own business office, budgets, system administrators, and programmers. They were

essentially individual, full-featured IT operations that were "siloed," or isolated, next to

each other as illustrated in Figure 5.

Analysis of the independent IT budgets in each unit showed areas of significant

surplus and areas of significant drought. Analysis of each unit's technical, business

operations, administrative, and support staff, showed similar patterns of "haves and have

Telecom
- Three administrative levels
- Budget
- Business Operations
- Technical Staff (System Adminstrators, Programmers, DBAs, Installers)
- Support Staff (Telecom Work Orders, Desktop, and end-user support)

CMS
- Two administrative levels
- Budget
- Business Operations
- Technical Staff (System Administrators, Programmers, Installers, Media Specialists)
- Support Staff (Classroom Systems, end-user support)

NCS
- Two administrative levels
- Budget
- Business Operations
- Technical Staff (System Administrators, Programmers, DBAs, Installers)
- Support Staff (Data service work orders, basic desktop support.)

FACT
- Two administrative levels
- Budget
- Business Operations
- Technical Staff (Instructional Designers, Media Specialists)
- Support Staff (Design Work Orders, Desktop, lab, and end-user support)

ET
- One administrative level
- Budget
- Technical Staff (System Administrators, Programmers, DBAs, Installers)
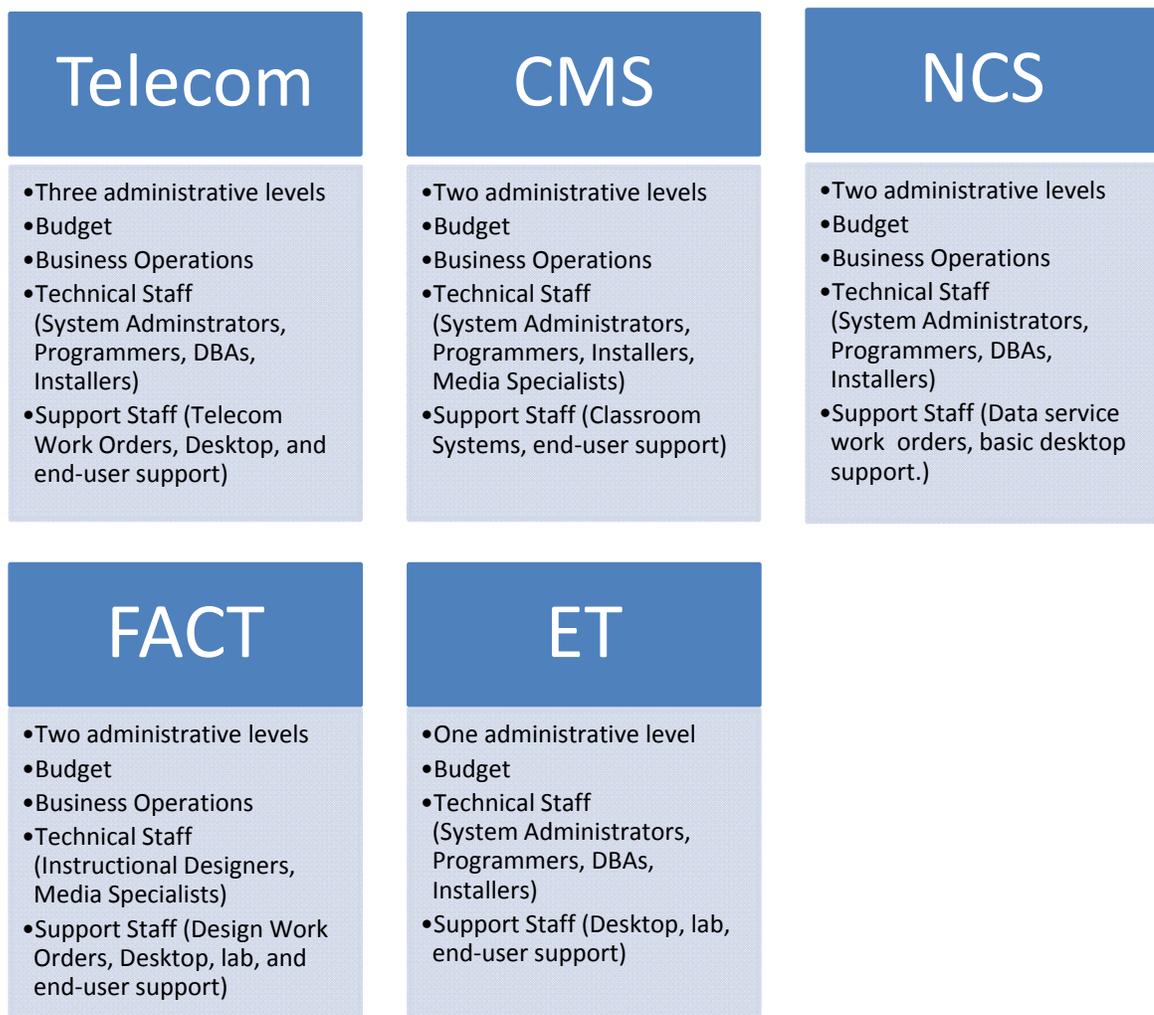- Support Staff (Desktop, lab, end-user support)

Figure 5. Pre-reorganization "silo" organization structure.

nots." Technical staff of similar skill and responsibility, but who resided in different units, were not working together to implement shared systems, share innovations, or apply best-practices. This lack of coordination resulted in duplication, inconsistency, and, at times, unhealthy competition that valued the success of an individual unit over the success of the University as a whole. Service problems were common as it was difficult for "siloed" units to provision individual functions deep enough for backup staff. As a result, if a staff member was out on leave, the systems they were responsible for were often left unsupported. If one of these critical staff members were to change jobs or leave the University, new hires were faced with learning systems from scratch, again leaving critical systems unsupported for significant periods of time.

To address these problems, the reorganization plans developed in the second round, relying on the model developed in the USU IT Strategic Plan, mapped function to function, stripping down "silos" to create an integrated IT unit with single function-based groups to support any and all services that are required. This single unit approach is illustrated by Figure 6. Note that budgets, business operations, administration, project management, planning and policy are centralized and designed to serve all functional units in a unified, coordinated manner. Also, note a single, centralized service desk was proposed as an entry and support point for all IT services as advised by the ITIL best practices introduced by Dr. Hess.

New function based teams were developed to support dedicated functions that did not exist to any significant extent in the previous organization, including project management and security. The new IT organization was responsible for all enterprise, or institutionwide, information systems, hence, a dedicated security team was planned to

take an institutional leadership role in that area. As Scott Hinton pointed out, "The main

argument for a centralized organization from my point of view is security" (Appendix B).

An independent security team that could advise all functional teams (and the institution

as a whole) in protecting University resources would provide greater assurance that

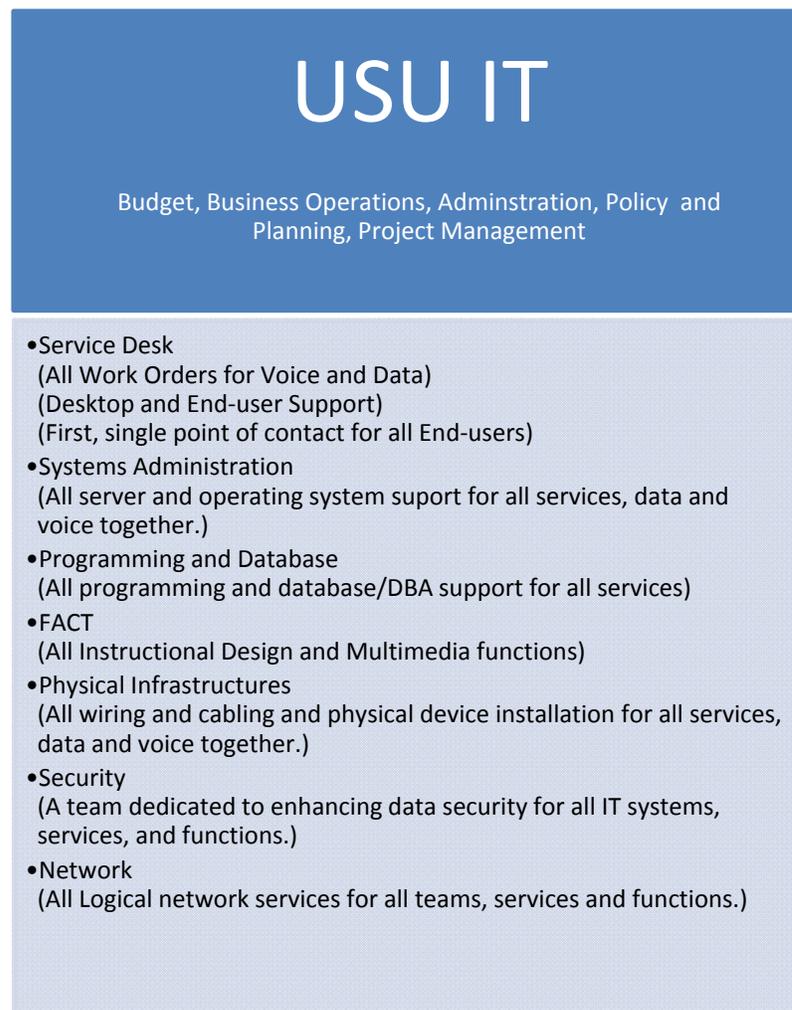systems were well architected and maintained against intrusion.

Figure 6. Reorganized, integrated, function-based organization structure (2006).

Project management, including documentation best practices, was also non-existent in the previous organization. Regarding documentation, there was no knowledge of what a system did, how it was maintained, or what other systems relied on its function. As such, it was not unusual in the previous organization for an outage in one system to unexpectedly cause an outage in another with no knowledge by any system administrator of the cause. Also, as staff transitioned in and out of roles, there was no resource available to check what the previous administrator did, so maintenance or operation tasks were often forgotten and significant time was spent in re-discovering appropriate procedures. New projects were typically launched on a handshake. Customer needs and expectations were not documented, and so projects moved forward haphazardly, regularly needing to be redone as customer expectations clarified over time. Tracking resources was impossible as few knew what projects were being worked on and for what purpose at any point in time. ITIL service level management was adopted to assist, though the project management process was not fully developed at this planning stage. Service Level Agreements were envisioned in which a system or software development life-cycle would be employed to ensure that IT knew what the customer wanted, how to achieve it, when it would be completed, and what was expected of each party. Tracking service level agreements would help the IT organization know who was working on what, and provide a vehicle for executive administration to prioritize resources and projects based on institutional needs.

The previous organization structure was heavily administrative with supervisory levels three and four layers deep. A flatter organization was developed to provide more staffing at the technical level and, by eliminating layers of middle management, to

improve direct communication with executive administration. Instead of directors over the new functional teams, IT team coordinators would be assigned over each functional unit. These people would be technical peers with teammates, not supervisors over them. They would be responsible for coordinating routine workload among team members. Administrative and supervisory functions, including personnel issues, financial operations, policy, etc. were to be handled exclusively by the three person executive administration team composed of the Vice President/CIO and the two Associate Vice Presidents. Team coordinator assignments would not be considered positions, but "temporary assignments" rotatable to other staff. These coordinating assignments would be held (and compensated) in addition to their regular technical responsibilities.

In the previous organization, promotions were rarely granted based on development of technical skill. An employee would typically only be able to progress in recognition and compensation through promotion into a supervisory or management role. In some cases supervisory assignments were created simply to offer a chance for a good employee to earn more. Rewards based largely on supervisory or administrative roles had negative effects. For example, good technical people became unproductive and dissatisfied in poorly executed management roles. The old model sent clear signals that technical staff and skills were not as valuable as the size of a team one managed or the title of one's position. To counteract these tendencies, the organization was flattened and redesigned. The pattern of career progression was changed from a vertical administrative growth opportunity (progressing from a technician to a manager to a supervisor, to a director, to a vice president/CIO) to a horizontal career progression in technical tracks (progressing in technical skill, mentoring of peers, and development of technical depth

and breadth over time). As a result, staff could now be rewarded for growing in their areas of expertise.

These two rounds of internal strategic planning produced a foundational strategic plan, revised administrative structure, a new team-based organization, and preliminary operating procedures for projects and project approval. At this point, outcomes were only hopes, and plans were simply ideas. With comprehensive plans at the ready, it was time to implement. The "pre-reorganization" phase was now complete, which meant that it was time to transition to the reorganization itself.

Primary Implementation, Impacts, and Adaptation

To achieve established goals (defined in the strategic plan) and begin gaining the confidence of University units, implementation of the reorganization plan created during the second round of internal strategic planning was set for August 1, 2006. On that date the "siloed" central IT units (Telecom, CMS, and NCS) and the partner unit-based IT operations (Extension Technology, and FACT) were consolidated under the three-person executive administrative team formed earlier that year. Recall the old organizational structure: each of the five IT units under the old organization had their own independent administrative staff, system administrators, help desk specialists, and programmers. Under the new organization, teams were formed based on "like" functions. For example, all system administrators from each of the units were brought together into one team, and all technical networking staff was brought together into another. The same was done for programming and database staff, service desk staff, business operations, and so forth as illustrated previously in Figure 5. Middle management was restructured by eliminating

unnecessary director and manager positions. Employees formerly in these positions were placed back into technical teams or voluntarily left the organization. Team Coordinators were then named to coordinate workload in functional teams. In short, very administrative (vertical), independent ("siloed") organizations were consolidated and flattened. Similar functions from diverse teams were unified in common-focus teams under a single administrative and budgeted organization. Focus was placed on technical staff and project assignments.

Team Operation and Adaptation

One of the biggest problems identified under the old organization was that self-sufficient single teams produced independent IT silos that would not communicate or work with each other, inevitably contributing to the problems identified in the decentralized USU environment. Technical function-oriented teams were intentionally reorganized in such a way that they could not operate self-sufficiently. This was done to force communication and prevent "silos" from re-forming. For example, the programming and database team was required to rely on the System Administration team for servers and hosting. They could not do it themselves. Similarly, the network team had to rely on the physical infrastructure team to install network jacks and place networking equipment in closets, and so forth.

Membership in these central technical teams was not restricted to those with a direct reporting line to the CIO. Decentralized, unit-based technical administrators were encouraged to participate in all central team meetings and activities. These technical teams were specifically designed to bring together IT functions across the institution and not be limited to specific units or organizational reporting lines. As projects required

representation from multiple teams, the new institutional IT management group

(composed of the Vice President/CIO and Associate Vice Presidents) formed projects

teams by selecting members from each necessary technical team. In addition, the IT

management group identified and assigned a project coordinator to meet project goals as

established by the customer. The project coordinator was thereby accountable to the

customer and the new institutional IT management group. Since technical teams were not

limited to only "central IT" staff, any unit IT staff who had an interest could join. This

helped reduce the competitive mentality between IT units. Participation from non-central

IT staff in projects created a sense of ownership and buy-in by those who participated in

the design and implementation of a given enterprise wide project. It also increased the

size of the technical labor pool without a change in funding lines or budgets.

In the first few months under the new team arrangements, staff encountered

challenges in adapting. Recall that middle management positions, including directors,

supervisors and managers were eliminated and that career progression shifted from

vertical administrative growth to horizontal technical growth. Those who had held middle

management positions for some time were expected now to contribute technically. Many

had lost their technical skills over time and were placed next to peers who they had

previously supervised. They were expected to select an area of technical interest to

redevelop and to become contributing working members of the team. Within the first six

months, roughly 10% of the total IT organization elected to leave the organization.

Primarily, this occurred at the director level and supervisor levels, especially in the

previous Telecommunications organization. As these positions were highly compensated

in the previous organization, many of them near or at six figure base salaries, it was not

unusual in some cases to hire two experienced technical staff as replacement and reallocate staffing based on need within IT. The few directors who chose to stay and redevelop a technical role experienced some salary reduction depending on their experience and ability to contribute in their new role. Turnover and reassignment of salary into technical roles significantly increased the capacity of IT as a whole to perform work. New hires and staff partnered from non-central IT groups brought with them new approaches and fresh viewpoints that energized the pace of innovation in the organization. Projects that in the old organization were declared impossible not only became possible, but probable.

Staff Specialization

Other areas of staff adaptation related to specialization. With multiple system administrators now in one team, for example, there was no need for all to be experts in the same systems or technologies. Where staff in the past needed to know a little about everything (as a single person was often the sole supporter of all functions in one or more systems) they now had to specialize and join together in service and project teams. Table 7 illustrates this shift using the System Administration role as an example.

Administration set an expectation that two people, at a minimum, should be able to support each technology component of a service. These people would be expected to specialize and develop depth in that particular technology or area. Requiring two people in a particular area provides coverage in case of leave, sickness, or turnover.

Table 7

Comparison of Old and New Staff Service Assignment Models

Old Organizational Model	New Organizational Model
Single Service Managed by Single General System Administrator	Multiple Services Managed by Team of Expert Administrators
For one or more systems, one person handled all parts of the system(s) exclusively and independently: • Manage Oracle Database: A single, fully independent instance installed on hardware specific for that database and that application. • Manage Windows System: A single server for a single operating system and single or multiple parts of the application. • Manage Linux System: A single server for a single operating system and single or multiple parts of the application. • Manage Service Directory: Must maintain yet another list of users, usernames, access controls, and passwords • Manage Storage Systems: Typically local storage based on each server. Difficult to increase on demand. • Manage Disaster Recovery/Backup: Operate his/her own backup system, no standards for data retention or recovery typically followed.	For multiple systems, dedicated, deeply skilled teams handled common areas of expertise for multiple applications or services: • Oracle Database Experts (at least two): Manage an enterprise Oracle database infrastructure for all systems that require it: (Pinnacle Billing ,Banner, etc.) • Windows Server System Experts (at least two): Host any and all applications that require windows operating systems, virtualized or independent. • Linux Server System Experts (at least two): Host any applications that require Linux operating systems, virtualized or hosted. • Directory Systems Experts (at least two): enable single sign on, eliminate shadow systems. • Storage Systems Experts (at least two): provide for and manage flexible storage and backup for all systems which require disk space. • Disaster Recovery/Backup Experts (at least two): Ensure that all enterprise databases are replicated end backed-up off site. Disaster recovery plans and standards followed. System or business continuity in case of component failures in place depending on system requirements. De-duplication of data.

Old Organizational Model	New Organizational Model
<u>Single</u> Service Managed by <u>Single</u> General System Administrator	<u>Multiple</u> Services Managed by <u>Team</u> of Expert Administrators
• Manage Back-End Application: manage application customization, updates and patching. • Manage Front-End Application: Be an expert on the user systems and interfaces, provide all end user support, account creation, training, etc.	• Back-End Application Experts (at least two, may be expert on more than one application): Banner, Pinnacle, Exchange, Active Directory, etc. manage application customization, updates and patching. • Single Service Desk Front End Support: end user support for <u>all</u> enterprise systems.

The new organizational model also provides efficiencies by not having to duplicate or replicate common systems (database, storage, directory, backup, and so forth). For example, as a set of individuals now had expertise in database systems, they were tasked with developing an enterprise database that could support multiple services or applications. So, instead of each service at USU requiring a database that needs independent infrastructural support for development, operation, and installation, each service could now share a "ready-to-use," secure, and deeply managed central database system.

This dramatic organizational and staffing shift required development of new job descriptions and positions, internal assessments and reassignments, and identification of new hires to fill areas where the organization did not have internal candidates. Staff who had previously maintained all parts of a system were asked to identify what parts they did best, enjoyed the most, and wanted to develop further. Where possible, desires were met.

Those with the most interest and skill in databases, for example, were asked to focus on that area for the benefit of multiple services. In that particular case, there was more staff interested in taking on a deep database role than were needed to fill the available database specialization roles, so the most qualified were selected. For the rest, alternate opportunities were provided by matching other skills and interests to unfilled needs. In some cases, no internal applicants were identified with needed skills (or a desire to obtain those skills) and the position was opened for a new hire. In other cases, some staff did not indicate an interest in specializing and voluntarily left the organization. The process of identifying, documenting, and filling new roles based on specialized, deep skills, took a significant amount of time and adaptation. Refinement of and adaptation to specialized roles was continuing even at the time of this case study two years after the initial implementation of the new organization.

Customer Service

One of the primary causes of service decentralization was that the central service function did not meet customer expectations. This was the reason, as identified in the SunGard report and by Scott Hinton and other participants, that many decentralized services proliferated at USU. Interview data from these sources suggested that the previous organization was unable to produce central services that met customer expectations, in part because silos in central IT services produced apparent budget shortfalls. The consolidation of vertical silos into flat, unified, function-based groups and a common, consolidated budget identified sufficient existing one-time funding to adequately create, reengineer, and/or replace services that did not meet customer

expectations. These development efforts were focused on enterprise IT services that met common needs across the institution.

One area of improvement that became apparent as the organization adapted to the new team-based approach was the unit recognized as the "doorway to IT," the Service Desk. This unit was critical to the success of the new organization, as it was the first point of contact for any end-user, whether student, faculty, or staff member. As such, under the new organization model, the Service Desk staff was required to be fully competent with the "front-end" technologies of all systems to which end users have access. They needed to be capable of advising customers and developing support systems that would create confidence in IT. Traditionally, the Service Desk had been staffed with one or two full time employees and a small number of students. Funding was low and turnover was high. That makeup was insufficient to meet the roles and expectations of a service desk.

During the 2006-2007 year, significant administrative effort was employed to restructure that unit. Options investigated included outsourcing service desk staff or building the system in house. Building the service in-house by hiring significant new and additional staff was selected. Outsourcing options were originally considered out of lack of confidence that existing Service Desk staff and administration could build the organization up in the desired timeframe. However, risks were deemed higher in outsourcing such a critical service due to the general unfamiliarity of outsourcing services with USU's systems. Service Desk administration ultimately proved that with additional staff they were able to meet expectations. Over the next year, the service desk went from two full-time staff to 12 to prepare for the needed changes.

Staffing increases necessary in the overall organization were made possible through the addition of staff from partnering organizations such as Extension Technology, turnover (principally of previous organization management staff and retirements), and identification of additional funding that had been hidden in the budget silos of the previous organization. As a result of restructuring the IT organization, no new funding was required to support these additional staff.

IT Infrastructure and System Development

All of the staffing changes heretofore mentioned were done to increase service and service capacity. With these new capabilities, IT embarked on identifying, creating, or replacing any and all systems identified as needing attention. Since the August 1, 2006 reorganization, the following systems have been created or completely redesigned and replaced, each change benefiting from significant input and contribution by both technical and non-technical customer bases:

1. An institutional directory service was created including identity management, secure password management, and single sign on services.

2. Unified enterprise-wide e-mail, calendaring, and groupware services were created, principally, an Exchange 2007 system, co-managed with departmental IT administrators.

3. The first institutional file sharing service was developed which provided an aggregate equivalent of 4GB per FTE to departments, also co-managed with departmental IT administrators.

4. Upgrades to wired networks were completed to increase bandwidth allowing for gigabit desktop connections and a 10-gigabit network backbone.

5. Comprehensive wireless data coverage was provided in all academic and student-use buildings, including on campus housing and common outdoor areas.

6. Disaster recovery, replication, and backup services for critical systems were created, replaced, or significantly enhanced.

7. The ERP (Banner) system infrastructure was upgraded to enhance efficiency, reliability, speed, and data protection.

8. Security services, both proactive and reactive were created to detect and repair computer security vulnerabilities and compromises.

9. Upgrades to the central data center, storage systems, and server virtualization services were implemented to enhance security, efficiency, reliability, and scalability. USU Facilities estimates energy savings of these upgrades at 40-60% compared to the previous data center systems (Utah State University, 2008).

10. An out of date and insufficient student e-mail service was replaced by outsourcing to Google. Outsourcing in this case saved the university approximately $800,000/year in ongoing expense to implement a similar service in-house.

These systems were centrally funded from existing resources discovered during the reorganization, or through funds provided as a result of partnerships. Thus, the majority

of these services were made available to the institution at no additional cost. Participation

in and use of these new central services were not mandated. To be effective, confidence

in central services had to come naturally. It was expected that if systems were built well

enough and stable enough, University units (colleges, departments, and so forth) would

migrate to them on their own. Strong marketing campaigns were initiated to advertise the

new services. In these marketing materials, units were encouraged to make use of these

new services, but were not required to do so. Many services were created in partnership

with other units and unit based IT staff to ensure a broader base of input and extend the

labor pool to create central services that met institutional technology needs. In order to

facilitate buy-in from University units, unit-based IT staff were given certain

management roles in the new systems, and participated in system design and

implementation. This helped to assuage job security fears of unit-based IT staff, and unit

administrative fears of loss of localized support and control.

In Situ Strategic Planning Process

With the reorganization largely complete and in place, the overall change process

model enters the "post-reorganization," "in situ," or "reorganization in place" phase. As

the organization adapted to the new structure of operations and staff settled into new roles

and teams, it was necessary to ensure that the organization and culture continue to

improve and adapt to the University's needs and to evolutions (and possibly revolutions)

in the technical world that the University must operate.

Recall the "Internal Strategic Planning Process," prior to the implementation of

the re-organization. As it progressed through its two cycles, it relied on input sources to

ultimately create the foundations and plan for the reorganization itself. The "In Situ

Strategic Planning Process" also hinges on input, but extends the opportunity to a much

larger community. As input is solicited from expanded groups, it is analyzed by the Vice

President/CIO and the two Associate Vice Presidents to develop or adjust plans, then

implement further changes. Outcomes of these changes inevitably provide opportunity

for further cycles of input and refinement. This cycle, illustrated in Figure 7, is continual

and focused on achieving sustainable customer (student, faculty, and staff) satisfaction.

The list of expanded input groups is detailed in Table 8.

Table 8

External Advisory/Participatory Input Groups

Group	Input Type/Description	Frequency
University Network Managers	USU IT Staff, Technical Input	Monthly
IT Executive Advisory Committee Vice Presidents Council Executive Committee	USU Administrative Input	Twice a year As needed (variable) As needed (variable)
IT Users Advisory Committee	USU Faculty and Staff, Non-Technical End-User Input	Every other month (during fall and spring)
ASUSU Student Council/Senate	USU Student, Non Technical End-User Input	As needed (variable)
USHE CIO USHE NISST, etc. UEN Utah Saint	Peer Executive IT Input Peer Technical IT Input Peer Security Input	Quarterly (typical) Quarterly (typical) Weekly (phone) Yearly (in-person)
Gartner (paid consultants)	Globally Expert IT (Technical and Administrative) Input	Variable
Project Management (ad-hoc)	USU Expert Project Management Input	Variable
Budget/Funding Model (ad-hoc)	USU Expert Funding Model Input	Variable

Active Input Sources: End-User Customers (IT Users Advisory and Project/Service Evaluations); Technical Customers (Network Managers); USHE CIO and UEN Groups; USU VP/CIO; Associate VPs; IT Executive Advisory Committee; USU VP and Executive Committees; Team TCs; ASUSU

Ultimate Outcome: Sustainable Customer (Student, Faculty, Staff) Satisfaction

New Services; Revised, Expanded, and/or New Teams (Programming & Design, Multimedia, Classrooms); Enhancements in Communications and Marketing; Modifications to Project Management; IT Policies and Procedures Growth; Staffing Core Competencies

Updated 'Living' Strategic Plan (Annual); Development of revised funding and budget models; Action planning

'In Situ' Strategic Planning

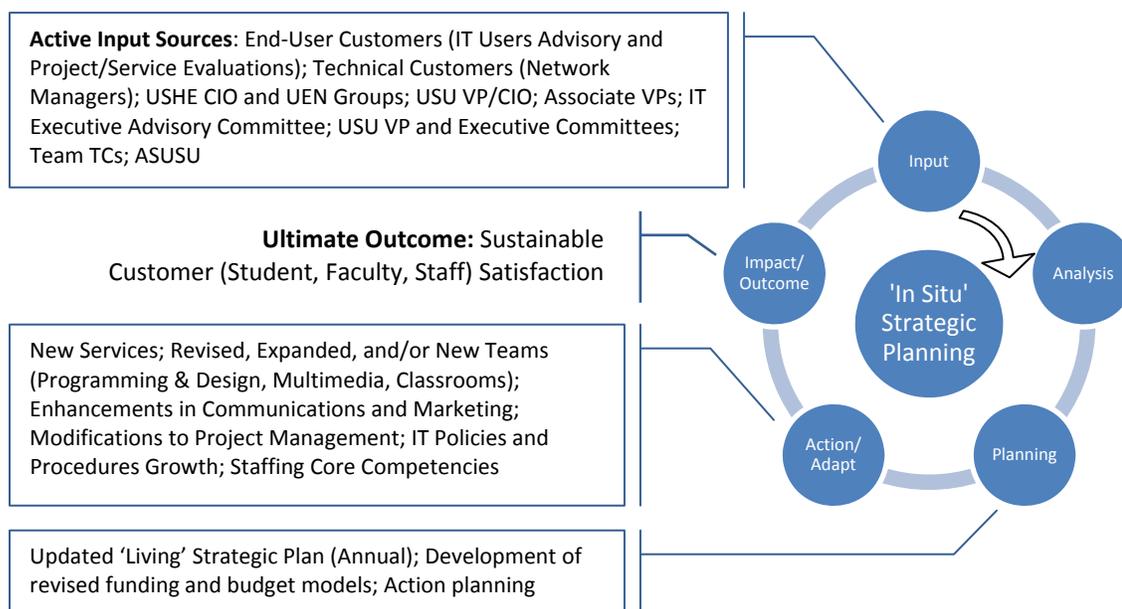Input

Analysis

Planning

Action/ Adapt

Impact/ Outcome

Figure 7. "In situ" continuous strategic planning process.

A desire to obtain input more directly from faculty and non-technical staff led to the formation of the IT Users Advisory Committee. This was done understanding that the organization could not afford to slip back into a false sense of comfort, or be lulled into a perception that with the reorganization in place "everything is ok." To form the committee, letters were sent to department and unit heads requesting each to appoint a person to represent their department or unit from an end-user level in providing input to IT. This group meets periodically to review IT projects, policies, and/or proposals, to recommend action, and to communicate IT initiatives back to their respective units. Based on user committee input, changes in projects, approaches, processes, or organizations are considered.

To obtain input at a technical level, the University Network Administrators group was harnessed as a sounding board on technical subjects relating to network and system

architecture, services, changes, policies, and/or technical proposals. To obtain input from

students, existing ASUSU committees were approached to obtain user input on systems

or proposals that might affect the student body. As an example, the proposal to outsource

student e-mail to Google was reviewed and supported by resolution through the ASUSU

Student Senate.

In expanding opportunity to obtain input, developing relationships external to

Utah State University were also deemed important. External input helped to provide

balance, checks, and new ideas from outside perspectives. One of the most critical

external advising partnerships identified in this area comes from participation in Utah

System of Higher Education (USHE) forums, including the body of USHE peer CIOs.

This group, in conjunction with Utah Education Network (UEN) has led to joint projects

and legislative proposals resulting in direct funding to upgrade and replace critically

aging network and systems infrastructure and fund enterprise software systems at USU.

UEN and the USHE CIO bodies have numerous subgroups that allow technical peers to

join together in knowledge exchange and joint IT efforts, providing collaborative

opportunities and inputs at all levels of IT, not just through Administrative channels.

External consulting groups are also engaged to provide outside evaluations and

access to IT research and best practices. IT has utilized outside consulting services to date

from SunGard, Burton Group, and most recently Gartner. Finally, ad-hoc input groups

are put together from time to time to address issues of specific concern in the

organization, at least two of which were in place at the time of this study to address the

areas of project management and funding models. These ad-hoc groups utilize experts in

their respective areas from both academic and operational University units to advise IT administration in ways to improve an approach or service.

When input is received from one or more of these areas, they are carefully examined, both by IT administration and the group of functional team coordinators to determine what changes will ultimately improve and sustain customer service from specific areas. As examples, the following changes were introduced based on input from these groups:

1. A new "one-step" computer registration system was created to allow anyone to register a new device on the network immediately. This previously required complex forms and processes coupled with a 24-hour delay to use the device on the network.

2. The Programming team was separated into two functions to enable more specific focus on areas of growing need at USU: The Enterprise Data Operations team was created to focus on development and support of database and Banner ERP systems, and a Programming and Design team was created to focus on front-end website, interface, portals, and web application programming.

3. Web programming staffing in the new Programming and Design team was doubled to meet demand for new website programming requests.

4. USU IT's first full time communications staff, including a technical writer, were hired to improve communication with end-users. Complaints were common early on, that systems were changed or processes were modified without sufficient communication to affected groups.

5. In 2007, USU had no information technology policies. By late 2008, USU had institutionally reviewed and approved policies covering appropriate use, computer management, wireless network deployment, bulk mail (spam), and a policy making banner identification numbers public. Implementation of these policies without community input would not have been successful.

Adopting this continual cycle of input, analysis, planning, and change, also continues to drive refinement in staff job descriptions and expectations. One example was the creation of a set of IT core competencies developed to remind employees of the expectations set beyond technical skill and performance. These competencies, listed in Table 9, were developed based on the principles set in the IT strategic plan, with input from IT employees, and an ad-hoc advisory team including HR professionals. These core competencies became a formal, foundational attachment to the job descriptions of all IT employees in the first year after the August 2006 reorganization.

These many change examples show significant benefit of the in-situ strategic planning process. In-situ planning enables a continuous loop of feedback and change in all areas of IT (clients, employees, services, processes, and systems) to constantly focus efforts on sustainably meeting University needs. In a sense, it ensures that the reorganization and adaptation processes never truly end. Analysis suggests that this continuous change is necessary to keep up with shifting technologies, needs, and expectations.

Table 9

IT Staff Core Competencies

Adaptability - Adapts to changes in technology and work environment; Manages competing demands; Changes approach or method to best fit the situation; Able to deal with frequent change, delays, or unexpected events; Willing to be flexible as far as work responsibilities and environment; Is seen as balanced despite the conflicting demands of the situation.
Dependability - Follows instructions, responds to management direction; Takes responsibility for own actions; Keeps commitments; Commits to long hours of work when necessary to reach goals; Completes tasks on time or notifies appropriate person with an alternate plan; Takes responsibility for work done; Will stand up and be counted; doesn't shirk from responsibility; Can be counted on when times are tough; Willing to be the only champion for an idea or position; Is comfortable working alone on a tough assignment.
Ethics - Treats people with respect; Keeps commitments; Inspires the trust of others; Works with integrity and ethically; Upholds organizational values; Is widely trusted; Is seen as a direct, truthful individual; Can present the unvarnished truth in an appropriate and helpful manner; Keeps confidences; Admits mistakes; Doesn't misrepresent him/herself for personal gain; Has integrity.
Motivation - Sets and achieves challenging goals; Demonstrates persistence and overcomes obstacles; Measures self against standard of excellence; Takes calculated risks to accomplish goals.
Professionalism - Approaches others in a tactful manner; Reacts well under pressure; Treats others with respect and consideration regardless of their status or position; Accepts responsibility for own actions; Follows through on commitments. Is cool under pressure; Does not become defensive or irritated when times are tough; Is considered mature; Can be counted on to hold things together during tough times; Can handle stress; Is not knocked off balance by the unexpected; Doesn't show frustration when resisted or blocked; Is a settling influence in a crisis; Uses diplomacy and tact; Practices attentive and active listening; Has the patience to hear people out; Can accurately restate the opinions of others even when he/she disagrees.
Teamwork - Balances team and individual responsibilities; Exhibits objectivity and openness to others' views; Gives and welcomes feedback; Contributes to building a positive team spirit; Puts success of team above own interests; Able to build morale and group commitments to goals and objectives; Supports everyone's efforts to succeed. Is seen as a team player and is cooperative; Can be candid with peers; Can find common ground and represent his/her own interests and yet be fair to other groups.

Technical Skills - Assesses own strengths and weaknesses; Pursues training and development opportunities; Strives to continuously build knowledge and skills; Shares expertise with others.
Creative Problem Solving – Uses rigorous logic and methods to solve difficult problems with effective solutions; Probes all fruitful sources for answers; Able to see hidden problems; Is excellent at honest analysis; Looks beyond the obvious and doesn't stop at the first answers. Comes up with a lot of new and unique ideas; Easily makes connections among previously unrelated notions; Tends to be seen as original and value-added in brainstorming settings. Is open minded; Can marshal resources (people, funding, material, support) to get things done; Uses resources effectively and efficiently.
Time Management – Uses his/her time effectively and efficiently; Values time; Concentrates his/her efforts on the more important priorities; Gets more done in less time than others; Can attend to a broader range of activities; Makes decisions in a timely manner, sometimes with incomplete information and under tight deadlines and pressure; Able to make a quick decision; Can orchestrate multiple activities at once to accomplish a goal.
Dealing with Paradox – Can act in ways that seem contradictory; Is very flexible and adaptable when facing tough calls; Can combine seeming opposites like being compassionately tough, stand up for self without trampling others, set strong but flexible standards; Can act differently and appropriately depending upon the situation; Is seen as balanced despite the conflicting demands of the situation.

Analysis suggests that beginning with executive changes, through cycles of strategic planning and implementation, user dissatisfaction and general lack of confidence in central IT services gradually transformed. Significant organizational changes, coupled with strong input and action, created services that better met needs. And finally, maintaining a constant cycle of input leading to continual change and refinement ensures that the organization will continue to adapt.

CHAPTER V

CONCLUSIONS

Deep analysis of the data (adhering to a recognized methodology) allowed me to systematically identify, illustrate, and substantiate the complex unfolding change processes, coupled with outcome examples, of the USU Information Technology reorganization. This was a significant goal of the study, in and of itself. In drawing conclusions, it was not my desire or intent to restate the detail or discoveries presented during analysis, but rather to rely upon them to form answers to the initial research questions developed to facilitate the overall purpose of this study, which is to document key areas of the unfolding change process and determine associated institutional value. These four facilitating questions are:

1. How did the key change advocates determine what needed to change?

2. How did key change advocates drive or instigate change?

3. How did the present organization achieve its strategic and unifying goals when previous efforts had failed?

4. How has the IT reorganizational strategy impacted the USU organization?

The conclusions, in answering these broad opening questions, then become the overall picture, a "30,000 foot view" supported by the myriad detail identified from deep analysis.

How Did the Key Change Advocates

Determine What Needed to Change?

A significant theme emerged from this study in answer to that question: Input leading to cycles of bold change focused on meeting institutional needs. The reorganization was based on the idea that for a service organization to succeed, it must first understand who its clients are, what its clients need and expect, and then do whatever is necessary to meet those needs sustainably. Principal to the spark of any reorganization discussion was the realization that the IT organization was not meeting institutional needs or expectations. The central IT function must do better. This realization occurred by simply speaking with customers, formally through an independent consulting study, and informally as the Vice President/CIO visited with peers and colleagues. While input was sought from many avenues, ultimately, the responsibility to change the organization to identify and meet needs was placed directly upon the Vice President/CIO, and also upon the two Associate Vice Presidents that VP Jeppesen appointed to the effort. The IT executive team constantly sought expert opinion, from wherever it was available, applying that information in the continuous strategic planning process to implement change. To determine what needed to change, key decision makers needed to: (1) understand areas of dissatisfaction; (2) seek out and organize deep sources of expertise and input; (3) analyze input and identify foundational principles and best practices; (4) plan and implement organizational changes; (5) expand input sources to determine how changes are impacting users and the institution; and (6) continue the cycle: analyze, plan, implement, identify outcome, and obtain input. This is, essentially,

the process model that was identified in detail by analysis (see Figure 2) and identifies

the process that IT administration followed in determining what changes to make.

<center>How Did Key Change Advocates

Drive or Instigate Change?</center>

The USU IT reorganization began with a clear top-down, comprehensive

approach to IT organizational and infrastructural change relying on broad input inside

and outside of the University to identify institutional areas of information technology

need and improvement. Timing was of significant impact in enabling top-down shifts,

with unrelated and voluntary changes occurring in both the institution's President and

Vice President for IT/CIO. These events, followed by the selection of an experienced

interim Vice President who was willing and able to discover accurate customer

perceptions and to develop a comprehensive strategy to identify and correct critical flaws,

began a change process that would likely not have occurred otherwise. A simple vision

was set by Vice President Jeppesen to drive change: Meet needs by focusing on benefit to

the institution as a whole over individual or unit benefit. There was a willingness at the

highest administrative levels to support extreme organizational changes that worked

toward that goal. When decisions were made during rounds of strategic planning, ideas

were ultimately compared to that vision. Consider the identification and consolidation of

isolated budgets in central IT units as an example: It was found that when budgets were

connected to individual IT units with little governance or oversight, those funds were not

managed or applied for the benefit of USU. Rather, "siloed" budgets were managed and

applied for the growth and benefit of that specific unit, to the exclusion of other needs.

Thus, change was driven to re-align the approach to match the desired outcome: organize budgets (and therefore resources) in such a way that they focus on benefit to USU as a whole.

While change came from the top down, it is a mistake to believe that changes were dictatorial. Input was critical from the very beginning of the strategic planning process. Stephen Hess introduced strategic planning processes and the ITIL best-practices library. Students, faculty, and staff (customers) contributed in defining needs that deserved attention. These customers truly became the lighthouse to which all change was steered. Continuous strategic planning cycles of input, assessment, planning, action, and outcome was the method employed to drive continual change.

<center>How Did the Present Organization Achieve Its Strategic and

Unifying Goals When Previous Efforts Had Failed?</center>

This question merits cautious answer. The intent, both in asking and answering, is not, in any way, to speak poorly of individuals in the previous Information Technology organization. In fact, the vast majority of persons who were part of the organization then, were part of the new organization at the time this study was completed (approximately 80%). Organizational efforts are inherently complex, involving timing coupled with changing environments, shifting inside and outside influences, and yes, changes in roles and those who fill them. Identifying fault on any single organizational element would be inaccurate. Indentifying differences in multiple elements, however, can provide insightful information without claiming impossibly conclusive and causal answers.

In this case, success seemed to begin with a willingness to discover perceptions and needs of the customer base as accurately as possible, set with a conviction and institutional environment prepared to make significant and comprehensive changes to meet needs and change negative perceptions. The outgoing CIO indicated to the incoming interim CIO that things were in generally good shape. However that perception came about, the perception was a clear "reality miss" as indicated by follow up reports and interview data from students, faculty, and staff. This "we are ok" perception masked the need to change. In addition to linking perception to reality, cementing a focus on unit operation for the overall benefit to USU over individual or unit benefit was critical to the success of the reorganization. Without such a focus, the answer to customers when asked to meet needs had consistently been, "we don't have enough time, people, or money to do it" as indicated by the previous organization itself through the SunGard report. Invariably, this turned into a resource tug of war between centralized and decentralized IT units and "chicken and egg" arguments in explaining the inadequate state of resources supporting central services.

To break this cycle, two critical "boosts" occurred that had not happened in previous IT organizations: A partnership was developed with a major University unit's IT services and significant financial resources were discovered in certain isolated central IT budgets and consolidated. This combination of a fresh infusion of staff and finances enabled the reorganization to significantly redesign or create IT systems good enough to draw customers voluntarily to central systems.

The previous organization exhibited little cooperation and confidence in others. They were rarely willing to ask or allow advice or input from competing units or

institutions when faced with a challenge, and in many cases would consciously block assistance from the outside. As an example, USU's network provider, UEN, would regularly offer to assist USU in network and security operations at no cost. Unfortunately, the previous USU IT organization never took advantage of these offers and placed network blocks on the system to make their rejection clear. To not utilize or actively block outside expertise because it originates elsewhere has been identified as a negative sociological phenomenon and descriptively labeled the "Not Invented Here (NIH) Syndrome" (Katz & Allen, 1982). This phenomenon was common in the previous organization. The successes achieved through the reorganization could not have been achieved relying only upon internal resources or ideas. Seeking out and utilizing input and resources from respected sources outside of the existing IT organization, identifying new administration with a fresh perspective and a willingness to collaborate and partner, and coupling this with identification of one-time funds hidden by the previous organization structure, seemed indicative of the gasoline that fueled the successful change engine.

How Has the IT Reorganizational Strategy Impacted the USU Organization?

The restructuring and unifying efforts at Utah State University include significant benefits in the areas of customer service and confidence, organization, financial resources, planning and policy, security, and increased/improved services and service functions. To remind the reader of my thought process in arriving at these impacts, I looked at the elements which stood out from each coded category in identifying the

following areas. As such, each item fits within a coded category, but may not be a description of the category itself.

Customer Service/Confidence

Comparative statements from before and after the reorganization are striking. Scott Hinton, as an outside observer, recalled his perceptions prior to the reorganization: "IT was a mess, inept, [an organization in which] absolutely no one had any confidence or trust." Compare that statement to comments Mr. Hinton made about the IT unit after the reorganization. He said, "Users see continual improvement [from IT]. The help desk seems to be working [and is] more people oriented. IT provides capability, capacity, and service, and allows units to choose." In summarizing changes, Mr. Hinton indicated "I don't know that I have ever been in an institution that has had a positive turnaround as I have seen here. It has been a great, great success story as far as I am concerned" (Appendix B).

The independent consulting reports show significant improvement in service as well. Prior to the reorganization the SunGard consulting group reported that "centralized Information Technology Services (ITS) division has not fully met all of the computing support needs of the campus for many years" (2005, p.2). In comparison, the Burton consulting report in late 2007 after the reorganization, reported that "USU has a very good IT department and provides excellent services" (p. 27). From an internal perspective, Vice President Jeppesen has noted a clear shift in focus to emphasize benefit to USU over individual benefit and Stacie Gomm mentioned a significant increase in positive comments from students, faculty, and staff directed towards IT.

Pre-reorganization perceptions indicated that insufficient interest, time, people, or money, coupled with a competitive atmosphere and lack of customer service, was prevalent in central IT groups. Post-reorganization, significant increases in staffing levels, skills, and funding availability for projects has turned the perception around. Cooperation between units to meet common goals is increasing dramatically as evidenced by the completion of several collaborative institutionwide projects. The reorganization has replaced an old environment with a new one that demands and necessitates coordinated participation to meet common institutional goals.

Organizational Structure

Scott Hinton indicated an ability now to "focus on the real problems and real issues instead of just jumping from fire to fire" and that the "top [IT] leadership seems to be able to see the bigger picture now." Vice President Jeppesen noted that "the professionalism and technical expertise [in IT] is improving and we are gaining a stronger reputation within the university to meet university needs." Stacie Gomm suggested that by "flattening the organization, all of those little things that could stay hidden within the hierarchy of an organization didn't stay hidden when you level it. We found out what we did well. We found out what we did poorly." She also noted that the new organization "is very flexible and if we need to change some things we can change some things without having the organization fall apart." Similarly, the president of USU was very complimentary of the organizational changes:

> [VP Jeppesen] has been very, very pro-active in coming in and talking about the
> kinds of changes that he, and you, and your senior colleagues feel are essential to

keep Utah State University current and on the cutting edge. There has been an

evolution of structure that… has been more driven by [keeping USU current and

on the cutting edge] as opposed to a kind of traditional, we'll always have this

kind of organization, structure, these positions, and these people report here… We

have changed in response to the changing technology and changes in the world

around us. Changes have been very positive with the structure that we have in

place now. (Appendix B)

Joining like function IT staff together and identifying primary and secondary staff for

major projects and functions has resulted in a sense of belonging, support, and

collaborative spirit among staff. This approach has enabled staff to specialize in specific

areas of interest, as institutional needs require. One staff member interviewed as part of

the SunGard study described his role in the previous organizational structure this way: "I

was a jack-of-all-trades and an expert in none. I could find little time to expand my depth

of knowledge and [my unit] had no support when I took time off. I just hoped nothing

would go wrong" (2005, p. 7). With specialized staff now paired in teams of technical

depth, individuals can take time off without worry and return the favor when a paired

colleague takes his or her time away from the office.

Financial Resources

By unifying independent central IT silos, and combining with the Extension based

IT operation, sufficient funds were located in existing operational budgets to significantly

increase both the level and quantity of services offered to the University community.

These funds were previously hidden by individual IT units. A greater understanding of

services and associated costs for general IT services became possible, enabling

preliminary discussions for changes in IT funding models to enhance sustainability,

service, and efficiency. The need for individual units to create duplicate systems was

significantly decreased or eliminated by focusing central IT efforts on services and

systems that meet customer needs across the institution. As an example, to date

(September 2008) over 110 independently managed e-mail systems, and dozens of

independent wireless networks have been decommissioned. This has resulted either in

direct financial savings to the unit or a reprioritization of unit IT staff and resources to

focus on other unit-specific, specialized IT needs. Central IT services that the institution

relies on now have teams supporting them instead of individuals. There is innovation,

depth of skill, and backup in talent. Staff of similar interest and skill are now able to work

together in supporting, creating, and modifying institution enterprise services instead of

competing by creating duplication and "service silos." Financial reassignment and

efficiency in the reorganization have enabled significant staffing, service, and

infrastructure increases without requiring additional funding sources from USU.

Planning and Policy

The institution, as part of the restructuring operations, created its first institutional

strategic plan and set of IT policies that established a clear direction and expectation of

services aligned with business objectives. New projects followed a set process to

determine need and funding, match customer expectations to technical and institutional

best practices, and inclusively identify institutional opportunity and impact. USU's first

institution-wide policies, procedures, and standards for acceptable use, computer

management, wireless deployment, bulk mail, identification number, and uniform wiring

for voice and data were implemented.

Security

Prior to the IT organization, up to half of one staff member's time was focused on

institutional information and computer security. The reorganization, in recognizing the

need for better institutional security practices, created a dedicated security team with four

full time employees. Staff can now proactively scan for vulnerabilities in every device

attached to the university network and proactively create service calls to patch holes

before systems are compromised. The university security systems now scan over ten-

million e-mails per day, blocking over 94% of incoming suspect e-mails such as

phishing, spam, or virus attacks. Visualization systems have been developed by security

staff to instantly identify a single compromise among over 65,000 IP addresses

collectively communicating up to ten gigabits per second of data.

Services and Service Function

IT services and service functions increased dramatically to match and meet

customer, business, and institutionally identified needs. More services were created that

met common institutional needs, resulting in less inclination for units to invest the time

and cost to implement independent systems. Examples include institutional directory, e-

mail, data center, and web services. Creating centralized systems such as these enabled

single sign on applications and secure password systems (reducing end-user need to

remember different usernames and passwords, or keep contact information up to date in

multiple systems). They also enabled end-users to more effectively collaborate and communicate with the majority of faculty and staff on one system.

Lessons Learned

As this research focuses on a single case, I am bound in drawing conclusions only to the case at hand. Similarly, lessons learned must also largely remain confined to the case, but may also form a foundation leading to more general implications as part of future research. Organizationally, general "lessons learned" include setting organizational focus on (1) benefit to the institution as a whole; (2) being confident (bold) enough to continually and accurately identify and admit areas of improvement; (3) matching internal perceptions of the USU IT unit to external customer and institutional perceptions – good or bad; (4) being willing to look deeply at all levels, functions, definitions, and processes of an organization (not just one) in formulating areas of change (no "sacred cows"); (5) relying on input from multiple sources, internal and external, in a continual cycle of strategic planning, analyzing, adjusting, and implementing change focused on a strategic set of value based goals; (6) organize staff based on function, a flat organization with career progression defined not by vertical or administrative growth, but by growth in their area of expertise and in the identified core characteristics listed in Table 8; (7) build a culture of continuous change and adaptation into the organization, focused on customer (faculty, staff, students, institutional) support; and finally, (8) do not force consolidation or centralization, rather, build organizations, services, and systems that are good enough for clients to desire to migrate on their own.

Through this study I have synthesized key unfolding change processes and events in IT and identified organizational value as seen through the eyes of key change advocates. I was able to document, in detail, the significant shift in approaches to IT management at USU that lead to a more unified, efficient, and responsive organization focused on customer support and overall benefit to the University. By adhering to the case study tradition and the rigorous methods it advocates, these results may provide direction and grounding for future IT change studies, while simultaneously providing an accurate view of the USU IT reorganization. As Isabella (1990) stated, such information "will most likely guide… understanding of and adjustment to events in the future" (p. 35). Future research opportunities may include a follow up to this case study to see if the cycle of continuous change was maintained and what impacts over time were seen at USU. This study might also be accompanied by further case studies at other higher education institutions in future research to determine if generalization might be appropriate in forming more universal change principles and models.

CHAPTER VI

BIAS AND REFLECTION

Self-discovery in qualitative research is essential to learning (Brown, 1996).

Moreover, Berg and Smith (1985) opined that "involvement and self-scrutiny enhance

both researcher and research" (p. 191). Berg and Smith (1988) continued their reasoning

by quoting Valerie Simmons: "…researchers should seek understanding of their own

biases, blind spots, and cognitive limitations with as high a priority as theoretical

knowledge.." because without such self reflection there is an "…impossibility of

understanding the social world" (p. 303). Therefore, the goal of this self reflection is to

enhance the readers' understanding of my background, involvement, and perceptions of

the critical IT reorganizational effort at USU. In doing so, I hope that disclosing this

information will serve two purposes: To assist the reader in tempering results and

conclusions I may arrive at as the researcher, and to act as a conscious method of self-

discovery to remind myself that I do have personal biases and must therefore work hard

to continuously elucidate and reflect upon ways to temper potential contamination of the

data.

Researcher Background

I have been formally involved in some aspect of information technology at USU

since January 1995. In that time, I have had significant opportunities in various technical,

service, and administrative IT roles. Technical roles include system administration,

network design, and IT implementation functions. Service roles include teaching,

customer, and technical support, and service as both chair and member of various technical and non technical committees. Administrative roles include strategy, supervision, and coordination of technical and non-technical IT personnel. My administrative roles have increased in scope over time, progressing from small team coordination, through department and college-level IT management, to my present institutional role as an IT Associate Vice President reporting to the CIO and Vice President for Information Technology.

<div align="center">Reorganizational Involvement</div>

From 1994-2005, I operated, intentionally or not, quite outside of any institutionally coordinated or centralized IT effort. During those periods, my focus was, almost exclusively, on meeting the IT needs at the department and college level. Any interactions, with central IT at the time, were infrequent. When they did occur, though not always, such meetings were generally competitive/combative in nature. I personally witnessed such competitiveness even at the Vice Presidential levels.

My formal involvement in the reorganization came as somewhat of a surprise. In 2004-2005 the CIO/VP of central IT services position was in flux. Barbara White, the previous CIO, accepted a position at a different university. To help fill this position, I was asked to join as a formal member of the CIO search committee under President Kermit Hall. Near the middle of the search process, President Hall also left USU to pursue an opportunity in New York and the committee was disbanded. When the role of President was filled with the appointment of Stan Albrecht, Dr. Albrecht asked M.K. Jeppesen to serve as interim CIO and VP for IT.

In March, 2005, I received a call from my supervisor, Dr. Jack Payne, Vice President for Extension and Continuing Education. He and VP Jeppesen had been talking about the advantages of joining technical forces and I was asked, during that call, to formally join myself and my staff to the central IT office. As a consequence, I had to continue my focus on the IT support of the college, but was now asked to also participate in IT management at the university level. At some point during the following year, M.K. Jeppesen was asked by the president to accept the CIO role and the interim title designation was removed.

From March 2005 through April 2006, I participated in central IT discussions on equal footing as one of five IT directors (the other four having had long-standing careers in central IT at USU.) Coming in "new" from the outside, instead of hindering my participation, emboldened me to speak openly. During that year VP Jeppesen led many discussions, retreats and councils on how to organize the IT functions at USU to best meet needs and serve customers, including development of a strategic plan. Outside consulting groups were engaged and respected IT authorities in the state were invited to present ideas, all of which I was present for, or participated in, in some way.

In April 2006, VP Jeppesen made the first structural IT reorganization by adding two new Associate Vice President positions. He asked me to serve as one of the new Associate Vice Presidents, while the other position was filled from outside of the IT organization in place at the time by Stacie Gomm. From that time forward, the three of us worked to define the final organizational structure in close consultation with many key leaders inside and outside of USU, putting the new organization into action on August 1,

2006. I have been intimately involved in every area of planning and the majority of

decisions made in the organization.

Researcher Perceptions

It is important to note that I was not involved in any of the initial discussions

during the CIO transition between Barbara White and M. K. Jeppesen and so I have no

knowledge (prior to this study) of that period. I can, however, still recall my perception of

central IT services before and during that time as a departmental/college IT manager: I

felt that innovation was stifled. When approached with a need or what my team saw as a

technical solution to a need, the typical response from central IT was that they did not

have the people, the time, or the money to assist. Even if a departmental unit had the

capability to address a need, it could not go forward (if the unit needed central IT

resources) because central IT believed that it was not their role to help. Since central IT

controls university IT resources, any need that required "central" IT resources could not

be directly addressed. After continual signals from central IT that it would not assist in

such innovations, it became general practice to simply isolate our departmental IT unit,

and create our own solutions, independent of central IT services. Of course, many of

these isolated solutions were not ideal because they could not be shared outside of the

unit. Essentially central IT provided the network and access to Enterprise Resource

Applications (ERP, Banner, for example) and little else.

As I was asked to join and participate in central IT discussions as described

previously, my earlier perceptions held and I continued to rather vocally challenge the

"not enough time, people, or money; we can't help" mindset. My perception was that the

previous organization did not pay enough attention to customer needs (for whatever

reason) and that an apparent disconnect between the business and technology thus

became the norm. This, in combination with a leadership change, provided an

opportunity to make a difference. Goals of the new IT organization to create an IT

governance structure, meet customer needs, provide an inclusive IT environment, and

coordinate and consolidate common/core technologies, I believe have been responsible

for much of the positive change. I would note however, that these are only incomplete

perceptions on my part. To test my perceptions, this study was a first attempt to gain an

"emic" perspective from key individuals using a systematic approach to collect and

analyze data. I recognize that even with my experience at USU, I have not been involved

in many of the early high-level decisions leading to the present reorganization and

structure. Moreover, I have not made any effort before this study to formally document

my own experience and thoughts or those of the key decision makers.

<div align="center">Bias Recognition and Mitigation</div>

As I complete almost 14 years of IT service at USU in a broad range of duties,

from the very conception of this study, it was clear to me how the range of experience I

have enjoyed at USU could serve to both help and hinder this study. I understood that my

broad and deep experience may, if not checked, cause me to unconsciously superimpose

my own opinions and beliefs into the research process. From conception through

proposal through completion, the study was built to check bias by utilizing multiple

independent sources and qualitative techniques such as participant reviews, member

checks (as described in the methodology) and self-awareness exercises (leading to this

chapter). With these controls in place I firmly believe that my experience proved to be a positive and contributing source of insight. I also understand that bias can enter this study from multiple angles, not just from the researcher.

As Vice President Jeppesen, Stacie Gomm, and I are administrators in the present organization, a tendency to highlight successes of the organization we direct comes naturally. Such a tendency on our part can clearly introduce bias. This is why it was so important to include key change advocates and evaluations from outside of the IT organization. Scott Hinton, I believe, was a perfect (though not solitary) example in this study of an "external" participant specifically controlling this potential bias. Mr. Hinton was a significant critic of the central IT organization, was not involved in the day-to-day detail of the reorganization process, and has no history of holding back his perceptions of the IT service organization. Consulting reports included interviews from broad sections of the institution, intentionally focusing on areas outside of IT to determine accurate customer perceptions before and after the change. This provided a wide view "from the outside in." It was interesting and rewarding to discover that independent consulting report data matched independently obtained interview data. Also, different viewpoints from participants inside and outside of IT, including one participant from outside of USU, provided different perspectives. Yet, the perceptions across these diverse participants were remarkably common. I point to these specific examples as indicators that bias (in its many forms) was sufficiently mitigated.

This dissertation delivers a detailed picture of an unprecedented change in Information Technology at USU. But for me, personally, it goes beyond that. As I was intimately involved in much of the reorganization itself, this study will serve as a

reminder of fine associations with exceptional people and many years of satisfying work

and growth.

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APPENDICES

APPENDIX A

CODING MATRIX WITH COMPREHENSIVE DATA POINTS

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
Pre-Reorg-anization Recollections / Perceptions (Then)	MKJ p2: IT not well respected. MKJ p2: customer needs not being met SH p1: IT was a mess, "inept," "absolutely no one had any confidence or trust in" SG p5,6: not knowing who to go to, not getting needed information, getting incomplete or inconsistent information SG p6: no documentation SGp6: no or inadequate communication with customer SG p2: lack of trust and faith, both conscious and unconscious Sungard p2: "centralized Information Technology Services (ITS) division has not fully met all of the computing support needs of the campus for many years." IT Strategic Plan p.6: examples or "pockets" of good IT service at institution (limited)	Customer Service/ Confidence
	MKJ p2: previous CIO indicated not much change would be needed. MKJ p3,5: decentralized budgets, functions, and units in central IT, existing resources hidden/siloed. SG p6: "No thought." no project management from an overall perspective, no team work, things just got done by whoever, whenever. SH p1: organizationally "too many little kingdoms" set up, people in wrong positions. Sungard p3: Many units across the campus have over the years established their own IT technical support infrastructures, in some cases to fill the void of basic IT services available from central ITS, and in other cases there are unique circumstances which are best supported by a "de-centralized" service model. SAp2: "Kay has been very, very pro-active in coming in and talking about the kinds of changes that he and you and your senior colleagues feel are essential to keep Utah State University current and on the cutting edge and so there has been an evolution of a structure that I think has	Organiz-ation/ Process

(table continues)

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	been more driven by that as opposed to a kind of traditional, we'll always have this kind of organization, structure, these positions, and these people report here." IT Strategic Plan p.6: no strategic plan, no IT policy, insufficient funding/funding models, insufficient support for infrastructure including classrooms, insufficient "service level agreements," unnecessary duplication of services	
	SGp6: inadequate funding, staffing MKJ p5: inefficiencies MKJp2: IT stating "not enough resources" SH p2: IT units complained that they had no money, so nothing happened MKJ p4: enterprise infrastructure not at desired levels Sungard p3: "There is a (potentially serious) shortage of technically skilled staff in the core systems support area which has left primary, business critical systems at risk" IT Strategic Plan p.6: no strategic plan, no IT policy, insufficient funding/funding models, insufficient support for infrastructure including classrooms, insufficient "service level agreements," unnecessary duplication of services	Resources (People and Infrastructure)
	Sungard p3 "A lack of clear and articulated institutional vision of, and commitment to, the fundamental strategic value of information technology" is a perspective that has been shared by several key administrators. This apparently longstanding lack of IT vision has resulted in substantial deficiencies in fairly basic IT support services. IT Strategic Plan p.6: no strategic plan, no IT policy, insufficient funding/funding models, insufficient support for infrastructure including classrooms, insufficient "service level agreements," unnecessary duplication of services	Leadership

(table continues)

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
Post - Reorganization Perception/ Outcomes (Now)	MKJ p2: stronger reputation with university to meet university needs MKJ p3: customer service oriented MKJ p5: more efficient SH p1: focus on customer support SH p2: users see continual piece of improvement so there is some comfort SH p4: help desk seems to be working, more people oriented SH p6: provides capability, capacity, and service and allows units to choose SH p7: "I don't know that I have ever been in an institution that has had a positive turnaround as I have seen here." SH p7: "It has been a great, great success story as far as I am concerned." SGp2: reorganization showed how much was not being done that needed to be Burton p.27: "USU has a very good IT department and provides excellent services" Burton p.47: "Burton Group does not believe the existing organizational structure to be broken. On the contrary, it appears to be functional and working quite well."	Customer Service/ Confidence
	SH p1: "focus [is] on the real problems and real issues instead of just jumping from fire to fire." SH p2: "top leadership seems to be able to see the bigger picture now." SH p1: flat organization, good MKJ p3: focus on benefit to USU over individual unit benefit. SHp5: still weak in project management, "but a thousand times better." Burton p.26: The Information Technology (IT) organization is built using Functional teams… The team structure is not designed to be independent of each other rather it is expected that each team has to work with the other teams to get the job done." Sap2: "we have changed in response to the changing technology, changes in the world around us, and changes have been very positive with the structure that we have in place now." SAp2: "IT is critically important to the academic side of	Organi- zation

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	the institution, but is also important to business and finance and the physical facilities and to our research operation and so for that reason, if for no other, I think it is important that the IT VP is a direct report to the president." SAp2: "Kay has been very, very pro-active in coming in and talking about the kinds of changes that he and you and your senior colleagues feel are essential to keep Utah State University current and on the cutting edge and so there has been an evolution of a structure that I think has been more driven by that as opposed to a kind of traditional, we'll always have this kind of organization, structure, these positions, and these people report here."	
	MKJ p1: professionalism, technical expertise is improving MKJ p3: centralized budgets, additional existing resources discovered MKJ p4: organizational stability (can survive changes in personnel and leadership.) SG p8,9: "It is very flexible. And, if we need to change some things we can change some things without having the organization fall apart" SGp2: reorganization showed how much was not being done that needed to be Burton p.5: "Burton Group found USU [IT networks] to be adhering to industry best practices." Burton p.27: "USU IT is in process of trying to centralize certain services. Last year the University had about 151 independent email servers. Now after offering free email accounts there are about 70 email servers around the campus."	Resources (People and Infra-structure)
Change/ Critical Events	MKJ p5: top down change, new president, empowered new VP/CIO full trust and support. MKJ p2: New CIO (change at top) – appointed. SGp2: CIO change critical, CIO willingness to totally reevaluate "how their organization was run." SH p1: getting "some of the right people in top positions" SGp2: creation of new central administrative team SH p1: CIO and management team make some major decisions	Leadership/ Manage-ment Style

(table continues)

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	SGp2: identification of those embracing change and those not	
	MKJ p3: "empower employees to be equal to the professional status they had"	
	MKJ p1: Governance structure implemented – Executive and End-Users groups	
	MKJ p3: staff salary adjustments, competitiveness inside and outside USU.	
	Sungard p.12: Review and categorize existing interview comments and recommendations into a cohesive set of initial vision statements and planning assumptions as a precursor and "jump start" to an IT Strategic Planning effort.	
	Sungard p.12: formulate and initiate a tactical transition plan and set of actions that will enable a feasible transition from the current organizational and services state to one that will meet near term (2 year) objectives.	
	Sungard p12: Draft a "transitional" organizational structure for IT that will address the tactical objectives from above and will provide appropriate management to make change happen.	
	Sungard p13: "Coordinate with Human Resources 'Change Management Team' to address necessary changes in roles, skills and responsibilities as the IT organization transitions.	
	Sungard p.13: "Once the new IT organization begins to adapt to changes and meet initial plan expectations (that is "getting its own house in order"), begin to identify opportunities where central ITS can take on new responsibilities from other USU units on campus as appropriate (look for "win-win" scenarios that will be successful)."	
	Sungard p.13: "thorough review of all IT-related budgets and expenditures" reallocate based on need	
	Sungard p.13: "As a successful transition begins to show promise, and the momentum for change continues to develop, identify a more permanent organizational structure that will meet the needs of this new and dynamic 'Information Technology Services' organization."	
	Sungard p.11: ":widespread sentiment that in order to reverse this long-standing pattern of insufficient	

(table continues)

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	IT services, there will need to be a clear and strong vision and a well considered strategic plan for where IT Services needs to go."	
	MKJ p1: Organization flattened – eliminate middle management, Consolidate administration SH p1: "I was presented the more flat organization which I thought was very good." SGp2: flattening the organization MKJp1: Consolidate budgets/business operations, Function based groups SGp4,5: create functional teams that support multiple services SGp5,7: eliminate silos (people, function, budget) SGp8: staff turnover, discomfort with change or lack of fit SGp2: creating a project management (SLA) process SG p3: "[By] flattening the organization, all of those little things that could stay hidden within the hierarchy of an organization didn't stay hidden when you level it "We found out what we did well. We found out what we did poorly." Sungard p11: "An organizational structure is a form that should follow function." SAp2: "There is a very different structure right now than there was just a few months ago. Certainly from a couple of years ago."	Organization/ Process
	MKJ p2: Met with major University unit (Extension) on IT needs – unit's independent IT group consolidated w/ central IT for infusion of different talent and mindset. SGp3,4: unifying, joining entities: for example, the faculty assistance groups, one FACT center, bringing two groups together to form one, Extension MKJ p7: partnerships outside of USU: UEN, USHE CIOs "benefitted greatly"	Partner-ships
	SH p2: infrastructure changes (no wireless -> wireless, redundant paths, 10g backbone/more bandwidth) SH: service changes e-mail, web services SGp3,7: creating an appropriately staffed customer focused service desk SH p7: single phone number users can call MKJ p4-5: significant, comprehensive infrastructure	Products and Services

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	upgrades to meet expectation SGp5: create missing or inadequate infrastructure pieces (backup for example) Sungard p12: Look for opportunities to make a significant "leap" in IT Services offerings, especially in those areas that support teaching and research.	
Values, Counsel, and Approach.	MKJ p1: Customer Service Oriented MKJ p1: outreach, inclusion, ownership SH p1: focus on customer support issues SH p4: fix problems quickly, avoid mandating, becoming the bully, being a big-brother organization. This undermines confidence. Focus on options and advantages, be patient. SH p4: Needs to be a support organization, and remember that. H p9: Make it as easy (one-stop) as possible for students to get what they need, silos make this very very complicated. H p12: it starts with confidence and trust. If that is not there no support and no funding is the result, therefore failure. SG p1: serving our customers, service organization	Customer Service/ Confidence
	SH p2: strong network, databases, effective communication tools SH p2: "Every faculty member needs to be able to connect almost anywhere they want at almost any speed they want. " SH p2: wireless infrastructure, freedom to roam SH: p2: e-mail service - confidence and trust in SH p2: secure environment SH p2: bandwidth SH p2: access independent of time and place SH p2: regular backups, redundancy, disaster recovery SH p2: managed, controlled computer labs with updated software SH p3: integrated tools, IT, computing is "part of human communication and thinking" technology is necessary for "faculty members and students to extend their minds and tools and capabilities"	Expectat- ions of IT

(table continues)

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	SH p5: services work and work well, but are not mandated SH p7: services just work all the time SH p2: vast information, available anywhere any time Sungard p3: "In order for a more effective and customer centric IT Services organization is to be recognized and accepted, ITS must show clear, substantial and ongoing evidence that it can provide primary core computer services to a broader campus audience. This "new ITS" must show high levels of reliability, security, efficiency, a commitment to IT "best practices" and a strong customer service focus before other units will "risk" migrating their data and/or systems to a centralized computer environment." SAp1: "[IT] has to be more strategic [as compared to simply operating as a commodity infrastructure] because if we are constantly in the mode of simply reacting we are not going to keep up with the evolution of the technology, we are not going to stay ahead in terms of anything we do."	
	MKJ p1: enterprise, whole institution approach MKJ p2: cooperation and recognition of consolidating to benefit total university MKJ p6: "total cooperation among units," but recognizing where it is advantages for a balance of centralization/decentralization. SH p5: central IT focus and "deal with standard technologies" let units deal with specific/specialized technology. SH p5: moving to centralized IT services is a "natural process where no one was forced but the quality of the product itself sold it." SH p6: "The main argument for a centralized organization from my point of view is security." But, maintain flexibility for outside units to do things safely. H p4-5: create partnerships and work together in areas of joint benefit (institutions, and units in institutions) H p9: Where systems need security, efficiency, monitoring 24/7, and are commoditized, centralization works well. Don't duplicate. (e-mail, wireless, directories, ERP). H p9: higher level applications work well decentralized	Organi-zation: Centrali-zation/ Decentrali-zation

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	H p11: policy needs to solidify efficiency gains made in appropriate centralization and decentralization, so that change is not done on a whim and control issues do not overpower efficiency. SGp11: centralization is more economical SGp11: centralized services focus on serving the mass. There is no reason to centralize services which do not. Sungard p11 "should include careful consideration to the mix of centralized and decentralized resources that are appropriate to the broadly varying requirements of a research university." Sungard p.3:"in [certain] cases there are unique circumstances which are best supported by a 'de-centralized' service." IT Strategic Plan p.8: reorganization must expand focus from infrastructure and technology to "viewing information technology from the end-user's perspective."	
	SH p5: University is "not a corporate environment and they can't lock it down like it would be in a corporation." SH p5: university "is like a Chamber of Commerce" instead of a corporation H p2: Technologies are tools and drivers of change H p2: Technologies are disruptive – change way business is done, so business must change. H p2: IT is about communication and information liberation H p2: IT "should increase and improve the quality of Higher Education in its primary missions of teaching, research, and public service in a significant way." H p2: "central coordination and local control" H p3: security H p3: IT as an enabler: "what things can you work [with others] on that would give you the connectivity that you need and that would allow you to do your job that you couldn't do on your own?" and on a broad scope, not just inside an institution. H p5: be aware of SWOT: strength weaknesses (internal) opportunities and threats (external) H p5: technology is a driver and cannot be ignored SAp1: "We are totally dependent upon Information Technology side of the operation. Whether we are	Environment & Purpose

(table continues)

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	looking at research, whether we are looking at teaching, whether we are looking at university governance. It has become an essential part of the backbone of any institution of this size and magnitude."	
	MKJ p6: change as a "continual process" IT is ever changing, organization keep up with function not stuck in "a given organizational model." SH p2: continual improvement H p7: assess and change Business Processes to take advantage of technological efficiencies, embrace automation. H p10: necessary change is continuous, but still step-by-step H p16: align jobs with people's skills with abilities, continually check and change through employee evaluations SG p8,9: change happens without organization falling apart SGp9: IT changes all the time, technology, University changes, administration, etc. SGp9: change takes good leaders, and an intuitive feel. SA2: "we have changed in response to the changing technology, changes in the world around us, and changes have been very positive with the structure that we have in place now."	Change (General, non-event)
	MKJ p1: single team orientation (no silos) MKJ p4: rather than one or two driving show, use whole team effort MKJ p5: one team one goal MKJ p6,7: validation is important. This was done through Educause, inside management team, outside consulting (end-user and internal perceptions), and governance committees. SH p1: "quiet persistence" look at a lot of issues SH p1: focus on the real problems and real issues instead of just jumping from fire to fire SH p3: responsibility is on VP CIO and Team, they need to make the decisions and take responsibility for them. SH p3: exec advisory board looks only at big-picture, politically sensitive, major announcement, or major	Organi-zation/ Leadership/ Manage-ment Style

(table continues)

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	change issues.	
	SH p4,7: For IT organization: Be invisible. IT is infrastructure now. Maintain "quiet dignity."	
	H p6: IT discussions must happen at the higher levels. CIO needs to report to the president and be a part of the strategic discussions of the university.	
	SH p4: Fix problems quickly, avoid mandating, becoming the bully, being a big-brother organization. This undermines confidence. Focus on options and advantages, be patient.	
	SH p3: "Kay's shop [central IT] is like a business and he has got to run the business."	
	H p3: deal with the issue not the personality	
	H p4: governance by stakeholders, get involvement and input,	
	H p4: accountability: get values, plans, policies, procedures public, hold institution to them.	
	H p4: IT for the institution is to "run like a clock" and ensure that decentralized systems are coordinated (institutional policy, standards)	
	H p8: In creating plans and policies, need consensus for academic processes (bottom-up), not so much consensus required for administrative services (can be top-down).	
	H p12: shifting from organization based on function to more organization based on the client or customer.	
	H p15: empower somebody with stature to deal with specific client/customer focused issues or "portfolios." A pair, product/service manager outside of IT with a single point of contact in IT for their portfolio.	
	H p15: must be organized	
	H p15: include people outside of IT	
	H p15: change strategic plan as things come up, strategic plan is continuous – a living document.	
	H p16: align jobs with people's skills with abilities, continually check and change through employee evaluations	
	H p16: "success is in alignment of what you provide in IT through the actual business processes or academic processes"	
	H p18: success can be attributed to good processes	
	H p17: get input through surveys. Use councils committees for advice.	

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	SG p3: "[By] flattening the organization, all of those little things that could stay hidden within the hierarchy of an organization didn't stay hidden when you level it "We found out what we did well. We found out what we did poorly."	
	SG p4: extend functions to multiple services. (banner, database)	
	SGp11: unified means that we are looking out for the good of the whole.	
	SGp12: input thorough committees, surveys, but nothing more important that a good relationship with our users.	
	Sungard p11: "An organizational structure is a form that should follow function."	
	Sungard p.11: "widespread sentiment that in order to reverse this long-standing pattern of insufficient IT services, there will need to be a clear and strong vision and a well considered strategic plan for where IT Services needs to go."	
	Sungard p.14-15: Role of CIO includes visionary, leader, empowerment, collaboration, coordination, communication, planning	
	Burton p.17: "Burton Group believes that the university should move to a more centralized IT services and funding scenario. The University must recognize and appreciate the fact that the network is a vital resource and that it contributes to providing academic excellence and helps attract research dollars to various University departments.	
	Burton p.17: USU should move towards a Shared Services Model. The goal would be to provide centrally managed services to all departments across the University. These managed services should include as a minimum: Internet Access, Domain Name System (DNS) Directory, Enterprise Identity, Voice, E-mail, Storage Disaster Recovery.	
	SAp2: Role of CIO "I am not an IT person, and so I simply must depend on someone in that role or that person's direct reports being IT people so that they understand the changes that are occurring; they keep us ahead of things as they help us be strategic and they help us deal with security and access issues; and, that changes on a daily basis and I can't do that. That person has to be doing that and has to be doing it well."	
	Burton p.8: adopt ITIL best practices	

General Coding Categories	Excerpts from written sources and interviews. Interview page numbers are from original unpublished transcripts and are identified by participant initials. (H=Hess, SH=Scott Hinton)	Subcoding Categories
	Burton P.49: develop a sustainable funding model, present model does not appear sustainable. Burton p.50: strengthen and develop a shared services model, centralize services that support core cross-institutional needs.	

APPENDIX B

INTERVIEW DATA

Interview Framework (as set prior to interviews)

Phase II Focused Exploration

Current Position

Overview of Study Goals

Organizational Values and Beliefs with regard to IT management

Identification of perceived Critical Events in IT Reorganization

Principal Research Questions (See Problem Statement)

General perceptions of IT before present reorganization

Individual role in critical events (What, How, Why, When)

Goal and perceived outcome/value of critical events

General perceptions of IT presently (What, Why)

Phase III Member Checks and Closure

Review preliminary study results

"Does this synthesis reflect your feelings on the reorganizational efforts?"

Obtain input to correct, amend, or extend.

Interview Sources

Vice President and CIO M.K. Jeppesen, Utah State University

Associate Vice President Stacie Gomm, Utah State University

Vice President and CIO Stephen Hess, Utah System of Higher Education, University of Utah

Dean Scott Hinton, Utah State University

President Stan Albrecht, Utah State University (Limited set of questions, likely only one interview session will be possible.)

Formal Interview Dates

3/31/2008   Vice President M.K.Jeppesen, (Phase II)

6/3/2008   Scott Hinton (phase II)

6/8/2008   Dr. Stephen Hess (Phase II)

7/22/2008   Dr. Stacie Gomm (Phase II)

8/05/2008   President Stan Albrecht (Phase II)

Participant Interview Transcripts

For each of the participants, the raw transcripts are included in this Appendix. These transcripts remain largely unedited, and as such, they may contain transcribing, spelling, grammar, flow, logic, presentation, and/or other errors. President Albrecht mentioned to me as I sought permission to publish his transcript that "the 'spoken word' is not as refined and clearly presented as the written word." While permission has been granted to include these transcripts in this dissertation, the raw data may not be reprinted, republished, applied to, or used in future studies without the express consent of participants.

Participant One

(Vice President M.K. Jeppesen)

M. K. Jeppesen is currently Vice President for Information Technology and Chief Information Officer for Utah State University (USU). He has extensive experience in systems design, Research and Development Administration including public accounting and management consulting experience with a national accounting firm. He is an Adjunct Professor in the School of Accountancy at USU, and has served as Associate Vice President for Research, Acting Director of the USU Innovation Campus, Director of Contracts and Grants, Acting Director of Technology Commercialization for USU; as well as a member of the Board of Trustees, Vice President for Finance, Security Officer and Director of the Research Support Services office for the Space Dynamics Laboratory.

He was responsible for the implementation of an administrative services system for Utah State University identified as "Banner." He coordinated this effort with project teams and consultants to insure that this major change in software and practices are implemented on time, on budget, and met the information needs of the campus. He has also provided leadership for the reorganization of Information Technology at USU.

He has supervised the development of the financial accounting system at Utah State University Research Foundation (USURF) and has provided leadership in the creation of an electronic office system for USU and USURF. He has been instrumental in developing corporate policy for USURF. He was the lead negotiator with major government awards and the finalization of the facilities and administration rates for USU

and USURF. The nature of his assignments has led him to various parts of the country and world, where he has developed many valued professional friendships.

Mr. Jeppesen has participated with and held office in many regional and national professional organizations such as the Association of College and University Technology Association, National Council of University Research Administrators, Society of Research Administrators, and the National Contract Management Association. He has been listed in the Marquis Who's Who in the West and Who's Who in the Finance Industry.

He has a Bachelor of Science Degree in Business Administration and a Masters Degree in Business Administration from Utah State University. The National Contract Management Association honored him, by becoming a fellow member "an honor bestowed on those few who have made significant and outstanding contributions to the field of contract management." He is also a Certified Professional Contract Manager within the National Contract Management Association and recognized as a Certified Research Administrator within the Society of Research Administrators.

My first introduction to M. K. Jeppesen was during his tenure as interim Vice President/CIO in 2005. At the time he was working with my supervisor, Vice President Jack Payne (no longer at Utah State University) to partner with the Extension Technology group which I directed at the time to participate in central IT governance. Later, in April 2006, I was asked to formally join the central IT organization as an Associate Vice President. To the present time I have worked side by side with Vice President Jeppesen in the reorganizational efforts. Please see the section on researcher background/bias in this study for more detailed information.

During the research planning stages and phase one, I worked very closely with Vice President Jeppesen and the doctoral committee chair to identify and refine this study. During phase one, he provided unrestricted access to two interview based independent consulting reports described later in this section which provide an excellent view into opinions and status at two slices of time before and during reorganizational efforts. The phase two interview with VP Jeppesen was done earlier than others on March 31, 2008 due to availability and the close communications with him and my committee chair during the dissertation proposal process. He has signed the informed consent form and agreed to remain publicly associated with the interview data. He agreed to have the interview recorded and transcribed.

Q –
Identify yourself, your current job, and your role at Utah State University in the IT reorganization.

VP Jeppesen –
My name is M. K. Jeppesen, my position is Vice President of Information Technology, Chief Information Officer. My role as far as reorganization is concerned was to effectively and adequately manage Information Technology. In doing that it became apparent that some changes needed to be made and as a result we started down that road of making changes. Initially we took one step at a time but it turned out to be a greater task than we had anticipated.

Q –
What are your organizational values and beliefs in regard to IT management in general?
Do you believe that an IT organization ideally constituted how should it function?

VP Jeppesen –
An IT organization should be customer service oriented in meeting the needs of information technology within the total enterprise of Utah State University. This includes a look at the effectiveness of the organization of which we did and felt that the university would be better served in using a team approach within the organization. So as a result we eliminated all of the middle management and looked to consolidating the administration into the vice president and forming two new positions, an associate vice president for information and an associate vice president for technology. And then consolidating all of the business activities into one office under a business manager.

The rest of the organization would be organized by function and would be led by a team coordinator who would then be a member of the team but have a coordinating role to help organize and assign work within that team. The objective of the organization is to outreach to the university community and have them a part of the ownership of IT. In doing so we formed an IT Executive Committee and an IT User's Committee and an IT Technical User's Committee and with that we hope that we are getting the input we need. Overall IT should be looking out for the total information technology needs and resources of the university. We should be coordinating all of the policy procedures and enterprise activities for the university. It may be well advised to have some IT supporting functions to major units within the campus which now and currently exists and our role is to coordinate those activities and welcome them into committees and coordinating activities and staff meetings of information technology. This is a fairly significant change of organization and has and will take time to accomplish it. After 18 months of having the organization functioning under this type of the organization we are finding that it does fit well for information technology. The professionalism and technical expertise is improving and we are gaining a stronger reputation within the university to meet university needs. This is just briefly an overview. We can get into a lot of detail but this overview is the basic change in the organization of IT.

Eric – We will have the opportunity in this discussion to get into more detail.

Q-
As we talk about the initiatives of this process something typically comes up that instigates a need for change. In your role as one of the key change advocates assigned to this reorganization or a key driver of this reorganization, how did you go about determining what needed to change?

VP Jeppesen –
When I was first assigned to this position it was on an interim basis and the previous VP indicated that there would not need to be much in the way of reassignment until a permanent Vice President was appointed. So initially it was kind of a caretaker assignment. I was then asked to be the Vice President taking the interim title away and recognizing that it was my responsibility to have IT function as a viable organization and meeting the needs of the university. In so doing it was clear that IT was not well respected within the university. One of the major units on campus the Cooperative Extension Unit I met with Jack Payne the Vice President for Extension and talked to him about Information Technology needs within his unit. At that time he had a group was formed to provide that type of support. We recognized that for the best good of the university it would be better to consolidate the activities of the Cooperative Extension and the IT to see if we could make a difference in providing some of the enterprise infrastructure. That was probably a bold step on the Vice President for Extension. From that point on we were able to orchestrate and effective team by incorporating the IT staff of Extension into the central IT organization. As a result of that corporation increased and we had the opportunity to take advantage of the talent that then existed within the Cooperative Extension IT office. Then by doing that we placed individuals in key organizational positions within the center of IT. Ultimately,

as a result of forming the Associate Vice President positions one of those individuals was appointed an associate vice president for IT. Others filled team coordinating roles. So it was through cooperation and recognition of consolidating to benefit the total university that really started the reorganization of IT at that time.

Q-
So there was some dissatisfaction? Perhaps a reputation issues that you eluded to that drove the need to make these changes? Was it a lack of resources, a lack of people……..what drove the need to make the change?

VP Jeppesen –
The need was that of satisfying the customer and at that time IT was stating that they did not have the resources in order to satisfy the needs of customers within the university. And it was important that we support major units and Extension was one of those so we tried this on a trial basis and it worked out very well.

Q-
One of the approaches that you mentioned was a joining of forces, the Extension unit and the central IT unit. What was hoped to be achieved by joining forces as opposed to letting the two units operate separately?

VP Jeppesen
I think it was obvious that by consolidating you would then be able to take care of some of the enterprise needs that was facing the university at that time of information technology. And as a result we were able to transfer staff into the organization of IT which was a bold step for the Extension people having confidence and trust that they would receive as good or better service than before. All of this was really done for the betterment of Utah State University. Not for any one organization. With that type of orientation or motivation we were able to make some of the changes. After that was instigated about a year later was when we really made the change in the Information Technology. We found that what you might say was a Beta test was working well and that we were able to satisfy some of the university needs and start gain some confidence in that IT could fill the role of improving services. There was concern about budgets and so after the decision was made to move forward on the reorganization through the consolidation of budgets we were able to gain a tremendous financial advantage and because of that we were able to accomplish many things that were not even looked at in the decentralized unit or the organizational unit within IT. It was, I guess you could say, build as you go. And we just saw opportunities and ways of filling those needs and gaining confidence and so it was a growing process.

Q-
When you say build as you go…..can you identify any critical…….. it seems you have identified several critical instances that occurred during the reorganization. Some of the changes beginning with an experimentation with Extension. You mentioned how the organization and the IT staff with the reorganization itself and you mentioned a

consolidation of budgets. As we are talking about some of the changes that have occurred in those areas are there other critical or key instances that you would point out as being important to the overall process of change?

VP Jeppesen –
I think it would be the orientation of IT recognizing that it should be customer service oriented. It should be a can do type organization and it should provide answers to users of IT and look at possibilities beyond that which was looked on before. Because of the consolidation of budgets we were able to have some resources to make that happen. Coupled with that was the salary scale of IT individuals which was very low so we made some adjustments with salary levels to be more consistent with other units within the university. Later on we were able to adjust salaries to meet competition with industry and other universities. And with that we found that there was dedication and an interest to be more professional. Part of that reorganization we felt that it was important to empower employees to be equal to the professional status they had the opportunity of providing a new paradigm for many employees. We are now finding that is paying off where employees are taking ownership and being the best they can professionally.

Q-
There has seemed to have been a cycle of centralization and decentralization not just at Utah State University but at other institutions of high education where the consolidation of budgets or the joining of multi-tier functions or the greater good has lasted for a period of time and then cycled back to a decentralized form. How has the present organization achieved some of the strategic commonly defined goals that you have developed when previous organizational reorganization have failed? What is different this time around?

VP Jeppesen -
This is not a problem unique to Utah State University. You'll find many different types of funding models, organizational models throughout the country as far as IT is concerned. Our concern is meeting the needs at Utah State University and as we looked at that it became apparent that customer service was very important. So we, I guess you would say, marshaled all the support we could get by having the message conveyed that IT is a new organization that can provide that service. So that it was not a temporary adjustment as I mentioned earlier we have empowered the employees to become more professional and more a part of what is going on within IT. So rather than having to be driven as a one or two man show it has been a total organization and team effort. I think that provides stability to an organization. If you have a successful model in place, one that is working well, I think that will survive changes in leadership and changes of employees as they come and go. And we are finding that to be the case.

Q-
When you say you found that to be the case, what are some of the outcomes that this strategy of unification with the consolidation of budgets, continuous orientation of IT

toward this can do attitude in comparison to some of the outcomes that you see being for the institution and for mutual customers so far?

VP Jeppesen-
In order to have a strong organization you must have a basic foundation. There must be a basic infrastructure to build upon. The first year after the reorganization we focused on enterprise type of support. As an example, we recognized that the data center needed to be upgraded, the equipment and capacity needed to be expanded. So as a result we set aside about $1.6 million dollars to upgrade the uninterrupted power supply, the air conditioning, and as we started down that path we were able to incorporate a new technology, particularly in the air conditioning area where you have water cooled and servers and racks. We now have the space which we thought we would not have because of that and we were able to equip or configure what we needed to last us for some time. Perhaps for ten years under normal operation. The next move would mean that we would have to modify part of the building or go to a larger building in order to accommodate the needs of the campus. But that gives us about ten years and forward looking we would like to start that process of a building for IT in order to provide the basic functions for campus. Those benefits are not immediately noticeable. But it does provide a strong foundation so that we are able to take advantage of more of the technology. We were able to increase band width, increase redundancy, increasing the wireless. All of those functions are foundation to better the infrastructure within the university. And we have been able to increase storage. We have focused on all of those aspects so that we have the necessary support or infrastructure to use the new technology for the benefit of students and faculty.

Q-
You mentioned some technical achievements and some technical outcomes that have been provided through this reorganization, how were these infrastructural changes made possible now and were they possible do you believe with the previous organization?

VP Jeppesen –
Now IT is one team and they are working toward one goal and that is to provide support and expertise to the university. IT was organized so that you had silos within IT. Each had their own business office, each had their own director and pretty well functioned as independent units within IT. The association and relationship between those silos were estranged and they were not really close. So it was like having six or seven separate IT operations within the so-called organization of IT. As a result of the reorganization those have melted away and we now have one team of IT. That enables us to focus on the professionalism and the function that is to be provided to the campus. And it has eliminated a lot of inefficiencies because of separate organizational units.

Q-

What type of organizational support outside of the IT organization have you received…….positive or negative have you seen to be able to use these goals? In regards to financial, or other basic changes or

I think the major significant change was from top down. About the time we recognized that the reorganization was necessary there was a change in the president to the existing president who really empowered the VP of IT to make Information Technology serve the university and be an efficient and effective unit. So he placed full trust and provided an atmosphere of support that was necessary in order to accomplish a reorganization of this type. So top down that was very important. As I mentioned earlier we had the cooperation of one of the Vice Presidents to help accomplish this and with that we are now working with the other units on campus to join in on the benefits of consolidating IT teams and we've done that with some really unorthodox or nonstandard type of approaches. If a unit we are supporting wants to have their budget included within IT, or have team members included or not, we would still provide support and assistance and cooperation with the unit. So right now we have a mixture of types of funding and relationships and I think as confidence is built we'll find that that will continue to change so that we will become even more efficient that we currently are.

Q-
You spoke previously about some technical outcomes and the replacement of infrastructure. Have you seen any positive or negative outcomes due to the organizational effort with regard to the none technical issues that you hope to impact through the reorganization. Could you identify those?

VP Jeppesen –
The non-technical impacts hopefully would be that they provide an environment within the university of total cooperation among units and recognizing that where it is advantageous for the university to have centralized and consolidation of assets to be more efficient and effective and when it is more effective to have more decentralized recognizing that can be a variation of the model. We will see a greater benefit to the university. I think IT's role is to encourage cooperation and to provide the most effective and efficient of performing the IT functions in the university. And that may take a combination of different types of organizational adjustments.

Q-
In talking about organization adjustments and change and a series of adjustments, do you view these changes as a symbol of events or as a continuous change process? How do you approach them or a combination of the two?

VP Jeppesen –
It is really a continual process. IT is ever changing. And because it is driven by the technological advances it will have an effect on how you meet those challenges. We just completed a wireless project which will enable faculty, staff and students to communicate on campus both inside and outside and that was not envisioned three or

four years ago. So the important thing is to have an organization which is centered around the functions and not necessarily around a given organizational model. Teams may work well for a while and they may change after while depending on what technological advances you run into. But I think we are close enough to what is happening with the team approach that at least for right now that is the most effective way to meet the needs.

Q-
How have you received input during this continuous change process we are speaking of both inside of IT and outside? In regards to both with the employees and the customers. How have you received input?

VP Jeppesen
You need to validate or at least know that you are moving in a direction that has some merit so that as you look at IT associations, EDUCAUSE and others and what models are out there and what other universities are doing you can learn from those experiences then adapt those to the specific needs of the university that you are involved with. Early on we organized a management team under the reorganization. It consisted of the VP and two Associate VPs and a Business Manager. It is through the massaging of trying to meet needs and gaining advice from consultants who would then provide input from what has been observed by other universities so that we were not creating something in a vacuum. We were able to orchestrate this in such a way that I think we have come close to meeting the needs at Utah State University and making some significant improvements in infrastructure and meeting the needs of users within the university.

Q-
You mentioned initial group that helped provide input for the organization itself. As change continues, is additional or continued input necessary? If so, how do you do that beyond the initial reorganizational efforts?

VP Jeppesen –
By looking around and seeing what other universities are doing we found that some of the universities were using councils or committees very effectively. Within the last six months we have organized what is called an IT User's Advisory Committee. It ideally consists of one member from each department on campus. The members should be a user not necessarily a technical type. So that we can get input from the broader base of the university and look to that group to help make policy and improvements necessary to cause and bring about change.

Q-
You mentioned in both of those comments the importance of working with other institutions. One of the objectives of this study is to speak with others who have had influence in the reorganization and change process. Some of which we have talked about today. Who are those who you might identify as having had strong influence in the goals, objectives, strategies, and methods that have been employed?

VP Jeppesen

I think early on it became evident that Utah State University could not accomplish some goals by themselves. It was necessary that they join in partnership with state agencies. One was with UEN, the Utah Education Network. Mike Petersen was the director and we formed a good relationship and eventually had him fill a position on our IT Executive Committee. We likewise fill a position on the UEN Steering Committee. As a result of that we have been able to benefit from that relationship through a consolidated effort in obtaining funding through UEN from the Legislature to help with some of the basic infrastructure needs. One of those early on was cooperation with Comcast in providing redundancy into Cache Valley where before we had one line for connectivity. Another is the Utah System of Higher Education. Their IT Office, where Steve Hess is the Chief Information Officer, and also fills dual role as being the CIO for the University of Utah. We participate on a CIO Committee which is all of the CIOs from the universities and colleges within the state of Utah and are able to get some help from them and consolidated efforts which will benefit the total IT purposes within Utah. In order to accomplish what we have we have had to branch out and involve as many agencies as possible who are able to help strengthen IT within the university and the state. We have benefited greatly because of those partnerships.

Q-

Can you identify those inside Utah State University that have been instrumental in this reorganization?

VP Jeppesen

I think it probably would start with the IT Executive Committee. That committee consists of all the VPs within Utah State University. That committee is chaired by the Dean of Engineering, Scott Hinton. And then we have some private members UEN, Utah System of Higher Education, Cache Valley Electric, and the Student Government. So the students have a seat on that committee. The committee meets twice a year which provides support, guidance, and direction. That has been very helpful and we have drawn upon the expertise of the chairman of that committee. The VPs that serve on that committee have been very helpful in helping IT to be aware of the needs and move forward with the reorganization. The President has been very supportive. The Provost has also played an important role by providing support for the activities that we have been trying to accomplish, particularly in the classroom mediation area. We have been able to mediate quite a few classrooms by using funds that have been invested by student government, the President's Office, the Provost's Office and Information Technology.

Participant Two

(Dean H. Scott Hinton)

H. Scott Hinton was born in Salt Lake City in 1951. He received a B.S.E.E. in 1981 at Brigham Young University and a M.S.E.E. at Purdue University in 1982. In 1981, he joined AT&T Bell Laboratories in Naperville, IL as a Member of the Technical Staff. He was promoted to supervisor of the Photonic Switching Technologies group in 1985 and then Head of the Photonic Switching Department in 1989.

From 1992 to 1994, he was the BNR-NT/NSERC Chair in Photonic Systems at McGill University and from 1994 to 1999 he was the Hudson Moore Jr. Professor of Engineering at the University of Colorado at Boulder, and finally from1999 to 2002 he was the Dean E. Ackers Distinguished Professor and the Chairman of University of Kansas Electrical Engineering and Computer Science Department.

In 2002, he accepted the position as the Dean of the College of Engineering at Utah State University. He has been very active in the scientific and engineering community where he has published over 35 journal articles and 85 conference papers. He has also been active in service to the professional community by serving in leadership positions for numerous technical conferences and workshops.

Dean Hinton has also been awarded 12 patents. His current research is focused on developing systems applications of smart pixels and free-space optical interconnection, biophotonic systems, and in developing and understanding technology-enhanced learning environments. He was an IEEE-LEOS Distinguished Lecturer for 1993-94 and is a fellow of both the IEEE and OSA.

I have had the pleasure to associate with Dean Hinton in his role as chair of the IT Executive Advisory Board and as a principal advisor to USU IT administration and the IT reorganization efforts. The interview was conducted in Dean Hinton's office on the Utah State University Campus on June 3, 2008. Dean Hinton signed the informed consent information and agreed to be identified with the interview and allow it to be recorded and transcribed.

Q
Scott, what has been your role at Utah State University with Information Technology specifically with the reorganizational efforts the last two or three years.

Dean Hinton –
I think there is has been two areas that I like to think I have contributed in. One is Chair of the IT Executive Committee. I have tried to provide some kind of oversight and help to Kay and his team as they are trying to go through the process. The second role I've played is as one of the crazy deans who is trying to push for a lot of these changes real hard in the direction needed in order to get Utah State up to speed with our peer institutions.

Q
Information Technology at Utah State University recently engaged in a fairly comprehensive reorganization of the central IT function. How in your opinion did that come about? What were some of the drivers from your seat both as chair of the committee and as dean? What instigated a change or what you saw as causing a change to come about?

Dean Hinton –
Well when I first arrived here about six years ago in my opinion IT was a mess. We were way behind as far as all technologies were concerned. We had a single T1 line that was coming up from Salt Lake. There was virtually no wireless. Everything was kind of scattered about. Every department was doing their own thing. Many faculty were doing their own thing and a lot of it was the result of what I view as a very inept IT Department that absolutely no one had any confidence or trust in. And so there needed to be some change. When Kay was put in charge in his kind of quiet just persistence he started looking at a lot of the issues. I think he saw that organizationally there were too many kind of little kingdoms that were set up, there were people, in my opinion, that were in positions because of who they knew and not what they knew. I think Kay also realized that he needed to reduce the head count in order to reach the budget requirements that he had. I think Kay looked at it from the organizational point of view and then said (let me say Kay and his team) and I am not sure on the detail on how exactly the organization evolved other than I was presented the more flat

organization which I thought was very good. They started to focus on some of the main areas, some of the customer support, issues that were very important. I think they started getting some of the right people in the top positions that were allowing the organization to focus on the real problems and real issues instead of just jumping from fire to fire. So slowly this organization started to grow. Kay was very interested in socializing everything with a committee and everyone else. I have to admit that I told him he didn't have to do that and he was in charge of this and he just needed to continue to make some major decisions. You know he doesn't need to check with me or anyone else on everything but move forward and let's talk about the major changes that we need to do. I told him he was responsible so do it. My understanding is that Kay, working with his leadership team evolved to the organization that they have and with the focuses that they have. They also did a survey or had a consultant come in and do a survey. I'm not certain if that added any value or not. I think it helped Kay, and his team, get their head around the whole problem. I think that is one of the things that I have been impressed with that organization is that the top leadership seems to be able to see the bigger picture now where prior to the reorganization it really was a fire station. They just lived from fire to fire and crisis to crisis. They would complain that there was no money and nothing happened. It was very, very frustrating for colleges and departments and even faculty members. And so gradually the centralization and several new things that have evolved I think quietly which I think is the right way so that everyone is building confidence in them. We have gone from virtually no wireless to wireless in almost every place on campus. We have gone from what I think we had a gigabyte backbone when I came on campus and I think we are at a 10 gigabyte backbone now in some places. We have redundant paths going out of Cache Valley. So all of these things are indication that things are happening and it is kind of a slow but it actually is moving quite fast but to the users they just see this continual piece of improvement that is happening so there is some comfort that improvement is happening.

Q-
In your comments you mentioned the importance of the big picture. In your role as Dean of Engineering what is the big picture of Information Technology and what are your expectations to help your college and Utah State University succeed?

Well the key things I think for my college are…. we have to have a strong network that allows us to work with our peers around the world. So as computing needs and other things increase, it is not just computing anymore, it's moving data around, it's databases, it's all of those things. We have to be able to communicate with the outside world and we need to be able to do it effectively. That is one thing that is very important. Every faculty member needs to be able to connect almost anywhere they want at almost any speed they want. We need to have a wireless infrastructure that allows us to move around from offices to labs with lab tops and do other kinds of things that we need to have. We need to have an email service that we have confidence in and trust in. We need to have a secure environment that protects us from all of these road hackers and other people who are trying to disrupt what we do so we have security and the bandwidth. We need to have other kinds of functional capabilities that

allow us to in today's world not to just sit in our office at our workstation and do the things we need to but no matter where we are in the world we need to be able to communicate with our machines and be able to work and to be able to continue our work no matter where we are. We also just need to have other basic things like regular backup kinds of service to make sure that we don't lose things. If a hacker comes along or there is a disaster we need to have redundancy where necessary. We need to have these computer labs where we maintain all of the updated software, where things are managed and controlled. In today's world whether it's computing, I don't even know what you call it anymore, we used to always call it computing but with lap tops it is not just computing anymore and it's got everything from your schedules, to your notes to your main source of communication to video conferencing. It is just part of the whole human communication and thinking because it is part of our analysis and we need to have all of these tools that allow each one of our faculty members and students to extend their minds and tools and capabilities so they can go to through both computing and communications. That is a long winded answer! Hey, it's a long and complicated situation.

Q-
In your role as the Chair of the IT Executive Committee, what was the role of that group, what was the mission and what was your hope for Information Technology for the institution in chairing and coordinating that group?

I think it changed over time. I think when Kay started I think Kay was looking for someone who was going to provide a lot of input for him and in a sense help him make some of the decisions. Now as the chair I wasn't that excited in doing that. I didn't think that Kay had the time, there are too many decisions that needed to be made and the bottom line was that the responsibility was Kay's and his team anyway. They needed to make the decisions because if it didn't work they were going to get fired regardless of what advice was given by this advisory board. The advisory board was all over the map. There were some people that really understood Information Technology and all of the issues and there were some people who were just business men who only understood one aspect of it and so the meetings when we would get through you would spend more time trying decide what we had learned from the meeting so I tried to change that so it is more of an advisory board that is there to help address key issues that we have to look at the bigger picture issues. That is where that board comes in. So if we are going to make major announcements or if we are going to make some major changes then I think the board gets involved. If there is really a question that Kay or his team does not have an answer on or it is going to be political sensitive then I think we give the board a call. But in my mind Kay's shop is like a business and he has got to run the business. He has the right people who are good to help him make the right decisions and our role is to help him if he needs it. It is not to give him advice on what he should do. He is the expert, we are not. We can help but I do not want to get in the way. At least in my opinion this is probably the best advice I ever gave Kay because he has done a marvelous job since then. They tackle a lot of issues, they have solved a lot of things, and IT has really moved forward. I think that

there was a time that we needed to get the political sensitivities and other things taken care of and we have been able to do that. I think that is the role we play in this.

Q-
In the last 18 months there has been a fair amount of technological changes as we have replaced the infrastructure. You mentioned getting the wireless in place and some of the other technical initiatives that have happened in order to gain confidence was something that you mentioned, getting confidence in some of the central IT systems. As that grows, what does IT need to watch out for? If you could mention some cautions. What do we need to be careful about as we move forward?

Dean Hinton –
One of the things that Kay has done so well, in my mind, in his role as a general rule he has become invisible. Most people really don't know what IT is doing. All they know is that the internet service is working well they don't have a lot of outages and their email is working. If something happens it gets fixed very quietly, they do the damage control, and are pretty good with the people. The Help Desk seems to be working. It is more of a people oriented thing. So there is this kind of quiet confidence that things are in place. Now if that organization starts to become the bully and starts mandating you are going to do this and everybody is going to do that, everybody is going to move over to use this particular software; as soon as it starts turning into a big brother organization the confidence will go and you will see the colleges retrenching again and pull everything back. It is a support organization and needs to be a support organization and needs to be invisible. It provides services and that is what it does. There are a lot of things that can be changed. I think the email is a pretty good example. Here is something that has slowly been taking up more and more users over the last two years and the confidence is building. In time I think everyone will move over. But there has never been a feeling that we have to do this. In a university environment the quickest way to get a bunch of faculty members upset is to tell them they have to do something. If it becomes an option and they can see the advantages of going to a particular direction they will typically work in that direction, especially when they some of their other peers. I think that is one of the things that Kay has done very well with his organization to this point is providing options and allowing people to make their own choices. Sometimes some of the tactics of some of the security people, they need a little touch on people skills with a couple of them. The other thing that is going to be critical too is the relationship between the central organization and the technical staff of the different colleges. Typically every college is going to have at least one person that kind of runs their efforts. The other departments have people who are doing websites. And if the central organization looks down their nose at them, treats them poorly, that confidence is going to erode and so it is very important that all of those be very, very good license sharers. If there are some of the colleges that are not working as well as they should, there are ways of working with deans and other people in order to make that happen. Part of this is patience. Faculty members spend a lot of time trying to think about new things in their area and they like to have the rest of their environment stable. Otherwise you get too many variables, you have chaos in your life, and you are not allowed to progress and so you have to change the culture,

their surroundings slowly and very carefully in order to minimize the damage. To me that is the biggest concern is maintaining that quiet dignity so to speak. I perceive the organization has developed this the last two years.

Q-
Talk to me a little bit about your views as to the roles of unit IT operations and central IT operations. What are the differences in their roles? What are the similarities in their roles? Talk a little bit about how they should work together. Solidify those two roles for me.

Dear Hinton –
Well the unit organizations they deal with the day-to-day duty and I assume that overtime a lot of that will migrate into the central organization as technologies become commodities. One of the challenges is always going to be the College of Engineering because we have faculty that should be pushing technology as hard as they can. They are going to be trying to do things that are outside of the standard framework of a regular central organization which is just to provide service and a few other things. Some places like Engineering and some aspects of others like Computer Science and some theirs are going to be pushing things. They will need to have some technical support to do some of those things. So that is one of the roles…….dealing with future technologies and pushing things. Actually that is very good because if you had to have all of the people in central dealing with that kind of stuff it would take them a lot more of their time dealing with this futuristic stuff that is not quite developed and then all of a sudden there is disproportionate amount of time that we focus to some of these other areas. There is also certain software packages and other things that are unique to certain colleges. For instance, my college, I think every department has got some unique software that they have to have. And some of the stuff, you know, is so weird. We still have a couple of software packages that will only run on IBM VMS or whatever it was. And so we have some of these things that we have to deal with. I don't think that is a waste of money for the central to have to focus on some of these kinds of things. There is always the balance of security in all of these things. We need to make sure we keep a secure environment. So it is important that the unit people do understand the issues of security and try and work within those limits. But it is also important that central understands that this is not a corporate environment and they can't lock it down like it would be in a corporation. There is going to be flexibility and there is going to be issues. But I suspect that for several of the colleges that just deal with standard technologies there are not going to need to have the unit size. Most of their needs can be managed for them by central administration. But my guess is that there is going to be certain organizations that are going to need to have unit help. And again, the other thing that is critical on this is the service. So for instance, right now we have put our trust in the organization that is doing websites so most of my departments now have all decided that they are going to let that part of the IT organization develop their website for their department instead of going to the outside and having someone outside do it and have to maintain our own servers. So they have all decided to do that. Now if that service goes bad, you can bet that within a second it will be lost.

Q-
What led to the decision to make that move?

Dean Hinton –
Well we had some good success with it to start with so there were a couple
departments that had success. When the other departments looked and saw they felt it
looked really good and the price was very good so they said okay I'll try it. Again, it is
this natural process where no one was forced but the quality of the product itself sold
it. Every department has done that. Now other than the fact that they have trouble
managing their time, and they are not on schedule, they are doing a pretty good job.
One of the gimmick things about a university is that it is like a Chamber of Commerce
instead of a corporation. You have got all of these little entities that have a lot of
flexibility and they will always try to find the best service. If they are frustrated they
will go other places. (Eric – there is value or there is not). Right….. and, it is very
important that that ability stays alive. If there is not that flexibility then in time the
central IT if they go through that leadership there will nothing to force them into
maintaining any quality so there always has to be that capability for the units. But
hopefully central will continue the organization and to grow and add elements to that
over time.

Q-
What are the required pieces that you have identified to make commoditized central IT
services viable in the eyes of units? With those pieces in place what advantages does
an institution see, if any, from approaching those commoditized from a centralized
instead of a decentralized approach?

Dean Hinton –
The main argument for a centralized organization from my point of view is security.
That is the primary reason. The other thing is that hopefully if we have a big server
farm it should cost less to do that. So those are the arguments for doing that. But the
other problem argument with the bigger organization is that it is definitely slower.
Decisions can't be made quickly, and universities have to be quick so there must be
flexibility to have units be able to do some things as long as they are safe outside of a
central framework.

Q-
The Vice President has mentioned in some of the interviews during this process that he
has approached Information Technology from an institutional standpoint. But from the
standpoint of coordinating it from an institution, not controlling it for the institution, as
a dean when you hear a phrase like that what do you think that means?

Dean Hinton –
Kay has provided, I keep saying Kay but I know it is a team over there that is working.
He is getting input from you and input from others and Kay is very good at sorting a
lot of that out I think. The central organization provides a lot of capability and capacity

and service but as far as the control of that as you know I really think that is what we were talking about as far as deans having the ability to choose what they are going to do. So in a sense a dean does have control to say, well email is working really well and I have heard a lot of good things about it so I am going to move my shop over. But at the same time if email starts having a lot of problems they also have the ability to say this service is so bad that we are going to get our own server or we are going call Google and have Google handle our service ourselves. And so in a sense there is some coordination that a lot of the control is a little more decentralized among the deans and the leadership. I don't know if there is as much control for instance over all the people in the facilities. I don't think they are going to have their options to do a lot of things outside of the organization. But the faculty side I think will always have a little more control over their destiny than others. Does that make sense (Eric….yes it did)

Q-
We are reaching the end of time that we set aside for this particular interview. Are there other closing comments that you would like to make as we wrap this first interview up?

Dean Hinton –
Again, for me, the most important aspect of a successful organization is invisibility. IT is infrastructure now. It is like a desk, it is like air conditioning. Everybody expects it to work all of the time and know body understands what goes on behind it, but that doesn't matter because everything has to work. It is transparent. It is part of our life and you know it is important that we keep it that way that we keep it to the point that know body even thinks about it. That's where you really want to be……..where know body ever really thinks about it they just know they can plug it in and things work. If they have a problem they have a phone number they can call. They can get help, they can get it fixed real quickly, but they don't have to think about anything else. (Eric – so the service needs to work and work transparently). That's right and to me that is the most important thing about central IT is understanding their role of support. And I think Kay, and you, and your team have done a great job so far. I don't know that I have ever been in an institution that has had a positive turnaround as I have seen here so I am delighted and I wish I could say as chair of the IT committee that I had a lot to do with that. Maybe I did by not calling meetings all of the time. You know, it has been a great, great success story as far as I am concerned.

Participant Three

(Dr. Stephen H. Hess)

Stephen H. Hess, Ph.D., is the Chief Information officer of the University of

Utah, reporting directly to the President. He has worked in information and educational

technology services for well over 30 years. He has also worked in business, taught in the public schools, and currently teaches at the University of Utah.

Stephen Hess is also the Assistant Commissioner of Higher Education and CIO for Utah System of Higher Education where he leads the other college CIO's in statewide IT initiatives. Before these responsibilities, he served as Executive Director of Media Services and the Utah Education Network. In that position, he was responsible for developing the state of Utah's extensive computer, satellite, and interactive television networks connecting all public K-12 schools, colleges, universities, libraries, and applied technology centers. He also was the director of the University Press, a scholarly book publishing press for the University, the Director of Instructional Media Services an on-campus faculty IT/media support center; and Assistant Vice President for University and Student Relations.

Hess received his Ph.D. from the University of Utah in 1978 in Educational Administration. He received his master's degree in Instructional Systems and Learning Resources and Bachelor's Degree in History with a Minor in Psychology, and a Secondary Teaching Certificate, all from the University of Utah. He holds an adjunct faculty appointment in the Department of Communications, where he advises doctoral students. He has written several articles and chapters in books on the use of IT and media in higher education and taught at the University for many years

I have known Steve Hess since his appointment to the position of State CIO for the Utah System of Higher Education. I first met him when he was invited by Vice President Jeppesen during the very early stages of USU IT reorganizational discussions in late 2005, early 2006. At this first meeting he introduced the Information Technology

Infrastructure Library (ITIL) to us for the first time. ITIL is a collection of best practices,

originating in the United Kingdom and now "rapidly being adopted across the world as

the standard for best practice in the provision of IT service." (http://www.itil-itsm-

world.com/what.htm) Steve was later asked to join as a founding member of Utah State

University's IT Executive Advisory committee (a principal governing board.) His advice

has proven invaluable to the direction and shape of the present IT organization. Vice

President Jeppesen and I have the opportunity to meet with Dr. Hess many times each

year as part of the Utah System of Higher Education CIO group in discussing strategic

planning and other approaches in managing information technology.

During phase one Dr. Hess and I were in contact to create the following

framework of questions appropriate to his involvement and experience. The interview

was free-form and questions flowed based on the conversation.

Would you please identify yourself, you current position, and your role in USU's

IT reorganization?

What are your organizational values and beliefs in regard to the management of

IT in higher education?

What drives the need to make changes in IT organizations, processes, and/or

procedures? How are proposed changes identified? How are they implemented?

There seem to be cycles of centralization and decentralization in IT management

in higher education. What drives this cycle? Is there an "ideal?"

 How would you describe or define a "unified approach to IT"? Is a unified

approach to IT desired? What conditions might be necessary to begin unifiying IT

at an institution?

What benefits and/or challenges might be expected in adopting a unified

approach? What/when might it not be desirable to unify certain IT functions?

What are the critical events you might identify in any IT restructure or

reorganization?

Do you view (and/or manage) change as a single event or as a continuous

process? Why?

In IT, what constitutes success?

Where success is encountered, to what might you attribute such success?

How do you (and by extension, your IT organization) receive input in identifying,

implementing, and evaluating changes? (What partners do you find most

valuable?)

The phase two interview was conducted on June 8, 2008 at the end of the day in

his office at the University of Utah in Salt Lake City. He signed the informed consent,

agreed to have the interview recorded, and indicated that his participation and the

interview data would not need to be kept anonymous pending his review and acceptance

of the use of his data in the phase three meeting. The following interview took about an

hour's time.

(Steve Hess) Give me an idea of what you hypothesis is that you are trying to prove.

(Eric) To identify change processes. Things that will instigate change in information technology, how change occurs in information technology, and to distill the results based on actions. You may not have specifics on the Utah State University reorganization. You have been involved in some way through the IT Executive Advisory Board. The goal is still the change processes. When somebody wants to make a change in IT….. why? What makes people want to make a change in IT? What comes up? This is a case study specific on Utah State University's reorganization. USU did a major comprehensive reorganization of the major information technology functions, but why? Why was the reorganization needed? How did you decide what to

change? What were some of the perceived outcomes at the end? So it is to discover some of those processes.

Let's start with this list of questions and this can be very free forming. We don't need to follow these questions one/one.

Q-

Please identify yourself, your current position and your role in Utah State University's IT reorganization.

Steve Hess –

I am the CIO at the University of Utah and the State System of Higher Education. That is my current position. My role with USU was I did go up and interview some people and sat with the IT group and helped in the initial formulation of an IT plan. I don't know that the plan was fully adopted but it kind of got the process started. And I also suggested ways that governance be put in place to move IT initiatives forward on campus.

Q-

What are your organizational values and beliefs in regards to the management of IT for Higher Education?

Steve Hess-

Organizational values…….. that is an interesting word. What do you mean by that? What are the values that I hold dear that make IT important for campus? (Eric - that help you shape the IT organization and function here at the University of Utah or at Utah State University. What are some of those core principles that you rely on in your role as Chief Information Officer?)

I would almost say okay what are our management values and beliefs in regard to management of IT in Higher Education? First of all I would speak to Higher Education or IT and how it impacts Higher Education. Number one, technology is a tool for access to information and knowledge both internal and external to the Higher Education institutions in a big way. That means that you can get any kind of information that you can imagine that can help a student, faculty, or staff in the assignments and roles that they have in Higher Education. That can be done at any place and time and is a big driver. It's a big driver that the internet has unleashed on the overall world both in the market place and in informational kinds of institutions like Higher Education. It is something that is disruptive to the way that Higher Education has been managed and carried forward in the past because much of what is in Higher Education is moving on-line and if you have access to the internet, and you know the right passwords, and dedication to get in you can really get a lot of the benefit of Higher Education anywhere in the world. IT is also disruptive because it has knocked down the walls that in some respect were a little bit monopolistic. That means that if you are in Logan USU would be about the only place you could go. Now, you could potentially take courses from MIT and that will increasingly become true in the future. So access is a big one.

A second one is communication. IT allows communication in so many different ways: video, audio, and print, multi-media. There are lots of ways that you can communicate back and forth. That makes it possible for students, faculty, and staff to really get information from different people in a free flowing kind of way, both on desktop and mobile devices.

The third thing is it should increase and improve the quality of Higher Education in its primary missions of teaching, research, and public service in a significant way. And part of that quality is in the fact that students may be able to go to other institutions that are highly regarded to get information that may not be a center of excellence at USU or any other local university that they are going to. I always say that it liberates students to pursue and get information from other places other than just the classroom teacher with a textbook and therefore is a significant driver for IT. The other is that students now in order to get by in this world must have IT skills because without these IT skills they probably will not be successful in the business world and the world of research and medicine. Because computers are generally just about everywhere. That is another driver for why the institutions of Higher Education need to have information technology.

I think there are many other values that I hold and we can look at the strategic plan but the ones off the top of my head are (1) central coordination and local control, particularly with an R1 institution like Utah State University where IT grew up distributed in the academic world, it grew up central in the administrative world. The PC that came out in the 70s empowered people to do things in a distributive way. When the networks brought them together students and faculty could get the information they needed from the Internet and so the notion of central coordination local control is what should central IT do to enable departments to get the values I just mentioned out of IT that they couldn't do on their own? There are obviously some kinds of information like email you need your administrative applications to get them registered and get them loans, and get their grades distributed, those kinds of things. You need networks to tie everything together. You need wireless. You need to work together because you probably can't afford to get the connectivity to the outside world if you don't aggregate that traffic.

Q-
Does security in your mind fall in one of those areas?

Steve Hess –
You mean as one of the values? Eric - As one of the roles of the IT functions. Security is a big driver because you can't as a president count on the individual units paying attention to security because they don't have the money and they certainly don't have the expertise to pull it off. And it is not a big concern to them because many times with their little department they seem to be willing to accept quite a bit of risk. Not until it hits the fan and goes to the papers and really degrades the overall trustworthiness in the institution, do they then realize how big an issues security really

is. I think I told you about when we had about 240 faculty member security numbers come up. We were in the process at the University of taking this security policy to the faculty senate. When I went to the faculty senate I said we needed to keep social security numbers off your machines unless you get permission. Faculty said well since when do you tell me what to do with my desktop? I said okay we had a desktop that had 240 social security numbers on it. Those were accessed and downloaded, how do you feel about that because many in this room were on that list. And they could see the security policy was needed so they said okay let's pass the policy but we can't be too heavy handed initially because it is just a new thing to us because we have always been able to do what we darn well please with our laptops and our desktops and you go and search and download and now they realize that the wonderful free environment that used to be there is now full of thugs and people who want to download information. Now security is a big driver.

The other is the notion of central coordination and local control is an enabler. I don't believe enabler is a word but we still use it. The notion is what things can you work together on that would give you the connectivity that you need and that would allow you to do your job that you couldn't do on your own? Social security number, email, that kind of drove our strategic plan and that is what I tried to get USU to focus on. Because you could talk about a lot of things that you ought to do up there but many times it is difficult for the departments because they just don't want to follow them. But if you could get them to agree that yes there are a lot of basic, common things we need to do to get the job done all within the guidelines of central coordination and local group control then that is one of the issues. The other is that IT as a team work environment you need to work as a team. Need to minimize the finger pointing, so that you can get to issues and get things resolved.

Another value that is very important is that you deal with the issue and not the personality. That means that if there is a foul up in the email, you talk about what caused the foul up and deal with the problem but you don't focus on the stupid email team and how they are incompetent and can't do anything. This never accomplishes anything. It doesn't focus you on the issues or things that have been accomplished. You have got to be honest, about your ability to do things. Need to be transparent in how you operate your systems so that people can understand and communicate back and forth. There needs to be a sense of loyalty within the institution. You need to get the greatest amount of efficiency and consistency out of the system. Through the central organization with local control, For instance we don't fund college local area networks that duplicate our backbone. We just say that they need to plan and encourage the administration to not give them any money because what they do is say they are creating more efficiency and they buy more routers and we still have to build out systems and take care of them as they are aging plus the security and all kinds of things that are attached to the network that you wouldn't necessarily want to run on a LAN.

As far as the management of IT you also have to take into consideration governance and how you are going to make IT decisions. You need to get a group of stake holders

together and you take these plans and values to them and policies and procedures and I suggest that you get a group of them together so they are involved in process and hammer them out and you get them written down and out on the web site where everybody can see and then you begin to hold the central IT organization to where you get pretty good accountability. And then the overall campus enterprise to an accountability based on policy and plans that are put together.

Q-
So the value pieces that you mention applies specifically to the central IT organization and you use those values to try institutional policies which are then applied to the distributed IT.

Steve Hess -
Sure because you have two roles to play or at least I do. I think Kay does too and that is there is the extra expectation from the President who expects IT to run just like a clock. It is supposed to automate and provide service to campus and is seamless and wonderful in every way. But you also have these different colleges and their departments have their own IT systems and you need to set the architecture for them and the policies and the standards by which they follow so that all systems can talk to each other that are on campus and there are efficiencies in the equipment that you buy. That has been a big driver.

Q
That also seems to have been a big driver on the state level not just at the institutional level but on the state level with the state CIO group.

Steve Hess
What was the driver on the UEN? What can UEN do collectively to bring the people together that they couldn't do for themselves? Can you imagine what 50-60 separate internet connections would cost from Qwest? They would love to have them. They would make a fortune and the state would pay a lot. So the beauty of that is how the traffic is aggregated and we jointly buy and save the state of Utah tens of millions of dollars. It is just a wonderful kind of thing. The first thing I did when I came to campus was get a governance group and we listed the policies we felt we needed to do and put together a plan with the projects that we needed to address and then we took that to the governance committee. In fact part of the governance committee is a sub-committee, the executive committee, that put the plan together and then you take off all of the projects all of which are generally in various areas in computing, communications, networking, security and those kinds of things and then you start to hammer out the projects and get the policies passed and you always get them on the website where everybody can see them and get them in the policy manual so that there is some accountability. We did the same things when we took it to the CIOs. We just sat down with the CIOs and said okay what collectively can we do to get this together? Then you can determine what they want to do and what you want to keep doing yourselves. Because if you want to keep doing it yourselves then we don't want to get

in that area because it really won't provide any benefit because we will always have kind of a war, so let's find a way that works for both.

Q-
What's in it for you?

Steve Hess –
It is really pretty simple. I need to say that I don't know how it fits here but in the process of planning you have to look at the environment and the swat analysis we talked about. What are the strengths and weaknesses in the group that need to be addressed? You need to build on the strengths and work on the weaknesses. Just to prove that the opportunities and strengths of the other. What opportunities are out there? What threats are there? Generally technology falls into a separate category. Technology is a driver. I have had this debate with many people. I have had people state that technology is not a driver and does not determine what we should do. We should harness technology to serve Higher Education and if we don't have a need for it then we should just ignore it. That all sounds good but it is not true. It is about a 50/50 proposition I think because in fact the internet got invented and we probably didn't need it. If we don't take advantage of it we lose the competitive edge and it becomes critical to central in completing the mission of the university. So technology is a driver and so are the needs of the institution. The demographics, the economy, how much kids can afford to go to school, all of these drivers need to come together and be analyzed. What makes technology such a wonderful tool to the Legislature is that it is about the only tool you can put your finger on that will allow you to deliver Higher Education and to make Higher Education more accessible at higher quality and lower cost. The only way that allows the university to be strategic in how it moves to accomplish its mission. You may have heard me in the regents meetings many times state that you can build buildings and hire faculty and continue to try and solve access to quality Higher Education in that way and in an affordable way but you can't build your way out of the problem that is coming because if we, in fact, have a third to a double in enrollment whatever that turns out to be. First there is no land to build these places, and it would bankrupt the state, so the only route is technology. So I say to the Legislature you need to invest in technology and not just in buildings and faculty. We invest in buildings because many times the president and deans are regarded in their career at the universities as successful by the number of buildings they build. And the people who give the money to them, the Eccles, the Huntsman's and those kinds of folks, are highly regarded for the money they give for the buildings. A building has a physical permanence. So that continues to drive things forward to where in the future it could become a significant liability. I think that has happened now at CEU where the physical plant has become a liability. It may happen at other places as well because these buildings, once you've built them, require dollars and deferred maintenance for Higher Education and the state is really very, very significant. You have agreements to education and the state which is very, very significant between $300,000-$500,000. They could buy a lot of IT and people could stay home. Business has figured this out very quickly. There are people who never leave home now because their office is in their home. And the business pays for their internet connection and don't have to pay

for the office building and the employee doesn't have to pay for driving in and clothes and all of those other kinds of things. There is a significant savings and in this global economy that Higher Education has now become competitive as a result. You have to figure how to knock off the 3-5% expense every year or you are not going to be successful. Somebody will just scalp you. Because faculty members in China get paid a whole lot less than do faculty members here. They may be just as smart and able to deliver in general what the state or anybody needs from them. So you need to determine what is needed of them. You just see these disruptive kinds of things that go on by technology.

Q-
In a university environment how do you drive that message home? For example, if you could deal through a president of a university and build the university from scratch how would IT look or be organized to be able to drive that message home or the message or whatever it may be ten years from now?

Steve Hess –
From this point now forward the most important thing is to have that discussion at the higher levels of administration. The CIO needs to report to the president and be a part of the strategic discussions of the institution; and, the institution itself has to be strategic in its thinking. They have to be able to think outside of the box because the costs of Higher Education are going up almost as fast as medical costs and they may eventually price themselves right out of the market because state governments can't afford to pay for it. The revenues for institutions of Higher Education have dropped in every state not just in Utah. So that needs to be considered. Now if I were king for a day and I was going to build an institution that was based on IT, I suppose I would look at the open University of England as kind of a model as to how you might build an institution because you would consider the end user experience of the student and figure out from there. You could use technology just to deliver instruction and to teach students. You might look at the model of how we produce instruction. For instance, if we are teaching English, and we have 70 faculty members who teach beginning English, maybe a team of five could develop a course and it could be delivered to a student at home and there were experiences where they would come to campus and have discussions about issues where you would get the biggest benefit in that particular sequence of the university. I would also, with every administrative process, have it paperless and online. It would not be required that you go to a place to get done what you need to get done. It would be on the network in every instance and as you possibly could to save people's time and travel and everything else. In research I would connect researchers to every vital database, to their colleagues, through robust networking. I would press things like UTOPIA to get broadband connectivity into homes so that a lot of the work students do could be delivered in multi-media super bandwidth kinds of ways and I would build my campus around the things that you could not do on the internet and that would be some classes. But certainly labs would be a big one although I recognize a need for some laboratory classrooms where students need to get together and discuss in certain disciplines that would be essential like dance and even math where you have high level intellectual skills and there needs

to be a lot of feedback and drill and practice and those kinds of things. Like music. You need to frame the institution a little bit different that way. Perhaps not have to build buildings that would be really pleasing to the eye and to the donor but more functional so that the maintenance cost of those buildings would be a little less. That's not abused too much but sometimes it can be. Sometimes when we preserve historical structures we throw a lot of money into them.

Q-
If you were to take one of those goals, for example, the paperless office or paperless university where you don't have to go to a geographical location to fill out a form, if you were to take that goal and wanted to achieve that at the University of Utah or Utah State University, how would you begin? What is the process that you might follow to eventually achieve a goal like that?

Steve Hess –
Currently we are doing it with what we call a business process management office. That means we have an office that can go in and analyze any administrative academic or research function or medical function and analyze the processes by which business gets done. And then figure out what elements could be automated for less cost. It would speed up the process and make it more accessible to the end user. It would be paperless and it would still get the same result that you need. This business process group would go and flowchart these processes and then come back and make recommendations for projects where code could be written and networks connected and infrastructure put in place to support that particular application.

Now this is not a very academic one but for example travel. Travel is a very paper intensive process. You fill out a paper, a courier takes it to the dean, they sign it, then it goes down to the VP and they sign it. Usually it requires three levels. After these three levels then you have to call state travel and you get a ticket and then you travel and then you fill out the reimbursement and the whole process is repeated. You could go on line and fill out the form, get the reservation and the university could specify the deals they have created that will save money by defining whatever airline and the deals that have been put together and send that on to the supervisor. Maybe they have a Delta contract but you want to go on United, then that supervisor may be able to give you the clearance to go on United. But they will need to make it known that it will cost you more and you will need justification. Then all of the paperwork would be electronic. I know that Cisco did that and saved about $40 million in travel. I don't think we would have that large a savings nor would Utah State but we could save a significant amount. Purchasing is another one.

Q-
What are the roadblocks that are typically in place at an institution that prevent or cause these solutions to not materialize?

The roadblocks are, and there are two or three, one would be turf. This is my job and I am threatened if it is automated. I will lose my job. The other is the unwillingness of

the administration to support those kinds of initiatives to see if there are more efficient, productive ways to do things. They may say they don't want to ruffle anyone's feathers, leave it like it is; there are bigger fish to fry. But as the price keeps going up for Higher Education and everyone kind of has their own pots of money, there is not a private business net profit figure that is before your face all of the time, you need strong administrative backing before you pull something like this off. In an institution that prides itself in being bottom up sometimes that can be a formidable task. If you could convince the faculty that it is in their own best interest to do that because we ought to be spending money on academics and not the administration processes. As I say to my administrative folks, there is no academic freedom really in administrative services. You shouldn't be able to have your own computer and download and do all of these kinds of things because in business, as you know, they give you a computer, they put the image on, they lock it down, and they restrict your administrative rights because they don't want you to use it for private work. The academic freedom piece has kind of shifted into that. The question is how do you get it started with the business process? The other thing, you know, is putting in a good infrastructure that would support that by making sure the architecture is in place so that it can be seamless and passed back 'n forth through the university and off campus as well where it needs to go.

Q-
How do you balance the concepts of consensus and buy in with the need to get something done? A decision made…..and carried forward.

Steve Hess
Again, it depends on the pocket you are in. It takes patience for administrative services. There shouldn't need to be as much consensus if it is going to save money. If it is an academic process there needs to be consensus. Those processes are by their own credit. Democracies are messy and it is going to take some time. But if you don't get consensus you are going to get undercut and they won't buy into it. Faculty won't like it because they feel very much like they have the right and the agency to vote as to how the institution moves forward and if you don't understand that culture you'll fail. If you come from business to a university and it is top down and you don't understand you will be out on your end in a year or 18 months as soon as they discover you are that type of a person. So you pick your battles. Administrative can be pretty top down although there is an academic freedom notion that you need to be careful to work through. The academic research pieces will take time but you can get consensus there. And the consensus comes in the form of a plan. That's where the consensus comes together and policies. (Eric, and the plan and it has to show clear benefit to the institutional goals and benefit to the constituents you mentioned.) And then your project dies and you develop your portfolios and the projects you are going to run forward and then you run them forward and in the end you extract the savings and show the administration what that project did.

Q-

A lot of the things you talked about so far I think answer this question but I would like you to address this one directly. With the cycles of centralization and decentralization in IT management in Higher Education, what drives this cycle? Is there an ideal?

Steve Hess

There are a few things that should drive it. What drives a cycle? It is control, or people wanting control over their computing environment? Because of the distributive nature we have in computing they want to be able to control and get things done. There is a worry in central bureaucracy in systems that they won't be able to get done the things they need to get done. In that case they need to change the central infrastructure or management to make sure that you have a high quality, good central group that can carry out things very quickly and; I think, organized in such a way that they focus on the end users themselves in getting things accomplished. That is one thing that drives it towards decentralization. They need to want to make certain they don't feel captive to the central unit. So if they don't buy it they get a central unit to get it done. The thing that drives it toward centralization is the security, efficiency, monitoring 7/24. It is impossible for a college to do that. This is a notion that I have used many times…….. commodity, that means if you look at things as a stack. Some of the things that are lower on the stack such as networking and communications and those things are almost like electricity. As Kevin would say, you don't need to know how to wire your house and you don't need to know much of anything about electricity to blend up a malt. You just plug the blender in and fire it up and off you go. We are getting very close. I know there is intelligence in networking. One of the drivers I use is to hand that off to central and we have tried to do that in security and compliance policy, general policy, email, communications, networks and those types of things. Communications with email, wireless, all of that should be commodities stuff and if you as a dean or department chair want somebody to run that it means taking away their time for applications that are at a higher level that would give added value to the college and department or neglected because they are down doing these low level things that probably should be outsourced. In business if that is not a center of excellence, the outsourcing. The in-source does a part of the business. In this case on the campus it could be central IT where I am not going to do networks anymore. We did that with email. We shut down almost 450 mail servers to one and saved $6 million. Everyone is happy. But we had to gather the information and make sure we got the product that everybody wanted. But whenever somebody comes on campus now immediately as they applied for permission to have an email account, they don't' have to go to the department and get an authorization or sit down and have the LAN manager initialize an account. It is already to be delivered just like that. And all of a sudden they have access and go to work and do the things they need to. You give them a unique identifier and password and they are digital citizens. And LAN managers don't need to deal with that. You could talk a lot about credential stores, directories, all that stuff. The more you duplicate that the more complicated it is for the end user and that is another big driver for centralization. Or at least policies is that you have to consider how bewildering it is for a student to come to Utah State and try to figure out how you get through the digital world and become a digital citizen so that you can function and operate. If it is all silowed that becomes a very, very complicated issue.

Now some things need to be a silowed but I think it is the higher level applications. So I say to the LAN managers, move up the stack, let this other stuff go and you will probably be around longer than if you dabble and keep doing the things that you don't need to do, the commodity stuff because the commodity stuff as you know, like email, may go right out the door to gmail.

Q-
How do you deliver that message to LAN managers?

Steve Hess
We have a LAN managers group and I go talk to them. The problem is you look at some of the software packages, like in math. LAN managers may not be able to add a whole lot of value to that. Maybe it needs to be a post-doc or a junior faculty member that does that. But I was a LAN manager I think I would become much attuned to those kinds of things and try to help faculty learn those packages so that they could be more effective teachers or researchers. (Eric, like with central IT if you want to stick with the commodity) Or join central IT. Even central IT has got to be careful because portals…..what is going to happen? Do we just make portlets that students can take and put in their portal that they have through Goggle? All of those discussions need to be going on because this is a free environment. We have got this customization they call it where you are getting customized. Where the market place has just delivered iphones and boom all of a sudden the campus has to deal with it. And boom that becomes your computing platform. And most people are saying that students are going to take charge of their computing platform and that is probably something that IT is not going to have to deal with so labs may begin to fade. They will bring their own laptops. They'll buy them, they'll own them, and we need to learn how to accommodate those and move up the food chain.

Q-
Do you like your IT staff and IT organization to change as a continuous process which is something we are always doing or as single events?

Steve Hess
It is step by step so that we can keep our sanity. It is continuous step by step. It is whatever is around the corner. We run student mail now. If we get forced out we just understand that it is the way it has got to go. There are a number of unique things we could do with email but some who would not want us to move on so those are all considerations.

(Eric) – At Utah State University when we outsourced our student email, financial drivers were one of the big reasons we administratively decided to take that direction among others. It was interesting that the largest group in opposition to it was the central IT staff. They were concerned about that very thing, well, what will be doing when we no longer have to maintain email? It has been interesting to see that there are plenty of things to do when you don't have to do email.

Steve – Again, that is moving up the stack and you have to do so to meet the obligations, and to add value to the institution. So central staff needs to move in that direction as well. Central staff can be one of the biggest roadblocks to move it forward but I tell my staff that this will be of value to them. If they are willing to change, and go to school and pick up new skills. Maybe they did program in Cobalt sometime but you need to be willing to step up and make the change to go to JAVA and we will help pay for it and help support. But if you get to the point where you don't want to change, then you need to go some place to work where they do Cobalt because it won't work here. So we could say, is there an ideal? Yah, the ideal is win/win when we are with the department and we figure out what they need to have to control run what they do and get away from that local control. The other win is what we need to run the central system to be able to support them so they can have that control. Does that make sense?

(Eric) – And maintain that balance

Steve – And to maintain that balance you are always going to have a cast of characters that will change. A new LAN manager comes in and wants to do this over and you go through the same waltz again. I think there needs to be a written formula for networking, mail, and all of these other things that departments may try to pull back where you say no this is how we decided to do it and this is why because you get what you want and we get what we want as the university and the client gets what they want.

Q-
At what level would that written recommendation become policy? Does that become simply procedure?

Steve Hess –
I think that once you get worked around it, I think it is a policy issue. Because again, you need to visit efficiencies. President Young has said that we need to be more efficient. We can't waste dollars just because someone wants to run their own system.

(Eric) – But we still need to meet their need which seems to be a lot of the balance. At USU in the last two years during the reorganization talking to Dean Hinton originally the IT organization, there was no trust; there was no confidence that we won't give it to IT because they won't meet our needs no matter what. Irrespective we have had too many situations where it won't happen. Defining those common needs and reaching a plateau of trust where some organization can centrally meet and fit in an institution has been the challenge at USU.

Steve Hess –
It is a large challenge to any university or R1 institution there is a financial piece to it as well. Where does the money reside in a university? In the colleges. They can generally afford more than central IT. For Central IT sometimes it is difficult to fund IT where the state of Utah didn't give didn't give funding. And when you fund it through a charge back system through the colleges that is a sense of irritation to them.

You always have financial paradigm you are playing on all of the time. You don't have enough money. The colleges have a little bit more money so you can't take it all over because you don't have enough money to do it. They probably wouldn't be willing to give up the money to do it. If you could find the piece of money then you could probably win them over and go for that lower tier stuff and just run that for them and then they would be happy. For instance, if I just said we'll take over your network server and we will replace the edge and the core and run it the basic way and you will not have to pay for it or bother with it anymore. Would any dean turn that down? No they wouldn't. But if you went to them and said we will take this over but it is going to charge you for it then all of a sudden they are out of control. Going to the Legislature to get infrastructure money is a driver to try and get the efficiencies that you need for the commodity stuff so that you don't have to charge the colleges for it and then they can move on and the deans are happy the central administration is happy and everybody is happy. That is a biggy.

(Eric) – That is precisely what happened and how we have been able to achieve some success but not only with the financial pieces. We also had to dramatically restructure administration governance, staffing to get the technical skill, and quite frankly confidence from departments that we have sufficient technical skills in addition to finance. All three pieces had to be dramatically restructured at Utah State University before, as Scott Hinton states it, he would even talk to us. He required all three pieces.

Steve Hess –
That was almost a self-fulfilling prophecy that they are no good so can't fund them so it is all set up for central to fail. You have to get the confidence. So how does the central IT organization get the confidence of the administration to move forward? They have to develop a plan where they get consensus where all of the stake holders, that is the faculty and the deans, say, yah this is a good plan. Then you can go to the president and ask if he will support this plan and he will say will the faculty support it? You say yes and he will say yes, we will. Because the target is not on the president, it is not on the CIO, the target is on the governance committee. You know what I mean the target where they want to shoot you out of the tree. People always say where is the target on you when you know that your career is over kind of thing. I never say I made the decision. I say the ITC made the decision, that is our governing body. The IT council. So that is a good thing to remember. Never use the "I" word. Always use "we".

Q-
Critical Events your might want to Identify or any IT reorganization or restructure.

Steve Hess –
IT is shifting to be less organized on the function and more organized on the client or customer. I have a chart that shows how we are going to do that but you have your constituents. You have students, HR, finance, faculty, academic stuff, research stuff, and of course we have the hospital and clinical stuff that we do as well and we're in the process of not having administrative computing in OIT but we are going to have a

group that focuses and as a team that serves students. They will have people with end user experience who can look at the end user experience and let the student sit down and play with them and make sure it makes sense to them. The quality assurance people will look at the code and make sure it is good for the developers and everything and for them to be empowered to deal with the needs to provide this service. Now that will be vertical and will be top down and you can do it when you are empowered. But there will be some horizontal support too. We won't run infrastructure that way. Infrastructure will be the horizontal that supports this as will architecture and content management. Those will be the horizontals for reporting that everybody needs how you get the data freed so that people will have access. Because there are three ways you can organize IT. One is on the client or business, number two is on the function, like you can have a development department a networking department and the third one is the process. How do you get things done? More project oriented. We are going to organize based on the client but we will have horizontals where the developers can get together from those teams to come up with standards for developing on campus.

Eric – How will it be handled……….between 2 & 3?

Steve Hess -
(At this point Steve shuffled papers) I don't know there is a way of handling. Here is content management, here is the user experience, now that could be separate or it could be in each one of these portfolios. Here is the architecture that ties everything together. There is the infrastructure, the routers and switchers, wireless and those kinds of things. They generally just support everything and then this is cyber for research. It is kind of a neat way to approach it but that is the direction we are moving and that's the direction that IT is generally moving because if IT doesn't have value then it is not going to get a seat at the table strategically what it needs to do for the company or the university to be successful.

Eric – How does this map to your organizational chart?

Steve Hess –
I will be very close to our organizational chart.

Eric - Will they be included in groups?

Steve Hess –
Yes, because I have ACS, CHPC, OIT, OIS, media solutions, instructional media services and it is very functionally organized. So say we have a project that we want to do for the academics and put in some project management system for faculty activity reports, okay how is that going to work? ACS has a piece, data solutions has a piece, and I am the arbitrator. People are coming to me all of the time and asking what about this? We are not getting the right kind of network connectivity or those kinds of things that we need to do. But if you empower somebody and one of these portfolios to deal with students to take care of it. You look at the whole student experience and you

come up with a portfolio of projects. We call it a portfolio because it is like a stock portfolio where you have of these different kinds of stocks and things like that.

Steve Hess –
I am excited about this because how many times have we talked about how we have got to be organized?

Eric –
Kay & I are struggling with this very issue. Because right now we are very functionally oriented but we have…………..

Steve – This is going to be a very big topic at our CIO retreat.

Eric – I am exceedingly interested in this.

Steve – We are going to address this at CIO meetings. If you haven't dealt with it, it is in the future because as the projects mount there are other issues in portfolio management. In fact we have a tool now, a plan view, of what are your capacities to get things done? Because in a portfolio you should be able to get your capacity determined by how much you can get accomplished. And you should also then be able to know how much you can do and manage your expectations. Because the administration may have all kinds of things plus you can bring projects up and the portfolios and lay it on the table and say okay help us make the prioritization. You see the central administration many times in institutions has no idea, no clue what is going on. You are not going to get any relevance of IT to them if you don't sit down and show what these portfolios are and what they are going to do for the institution with improved productivity access and the drivers. They state they will throw a little money your way once in a while. Because these are all change agents as to how the university is going to be more effective and more accessible, and of higher quality and the president should be very concerned with that. So that is one that is a critical event and in the restructure of any organization is that it is really a client centered now. It has to be client centered. And you can't have 15 different organizations hitting students from 15 different directions and have a very happy student, or productive student, or faculty, or anything for that matter. So the portfolio has helped to bring that together, prioritize it, make it a good end user experience, set the architecture so that it works back and forth seamlessly.

Eric – So you are already trying to implement your organizational changes on the organization chart to match this.

Steve – Yes and these are pretty well set up but there are little pieces and fragments. But this of course is a huge one but before it is over I will have someone that I can go to and say give me the portfolio students and the direction that will work with the VP

for Student Affairs so that they are hand in glove knowing how we are going to move forward in IT to improve overall Student Services. So there is no question.

Eric – So the person in charge of that portfolio has to be very, very close in the way that they are associated with that function of the university and not just from a technical perspective.

Steve – That's right and they have to be a person of stature that the student administration folks would respect.

Eric – Are you pulling these people, are these people not part of central IT but you are asking people outside of IT to fill these roles?

Steve – The product managers would really be outside of IT. The project portfolio managers and overall I guess we could call them program managers and that ties it all up and together. For instance, maybe I take Kevin and I say Kevin, you do students in addition to your other roles. You take care of that portfolio and program we will have a unified plan that we can move forward with students. If there is any problem that Barb Synder has, she is the VP of Students; she can go to you and say where are we?

Eric - Quite frankly this is forming a mini strategic plan for that function that when joined with the others becomes the institutional strategic plan.

Steve – And then I am out of the middle of it. I can help set it up and then I can work on making sure all of the pieces are functioning together.

Eric – And you may be able to go home by 5:00 p.m.

Q-
Have you managed change?

Steve Hess –
I would say in relationship to that that our strategic plan we do once a year but if iphones come mid-year or wireless, or whatever hits us we adjust very quickly.

Eric – You change the strategic plan in mid stream!

Steve – Right. It is continuous and we again tell our people that they are not going to lose their job if they are willing to change, but there will be change. I don't know if you are but we are taking phones out of the dorms. So we just said okay we would like to keep that revenue and we will provide wireless. That is what we do. So we put wireless in and kept the revenue. But the net is not as good. We are getting out of desktop too. We are not going to do that anymore.

Eric – That is exactly what we did.

Q-
What constitutes success?

Steve Hess
Where success is encountered……….well the success is in alignment of what you provide in IT through the actual business processes or academic processes. If there is good alignment there that means that the process will be improved more, more accessible, and more cost effective. You should attach metrics to that which are measurable. They are there and I don't think you drive metrics on people but you say to them you need to sit down and think about this. What are your metrics for success?

Eric – How do you know you are there? How do you know that you have made it?

Steve – That really makes peoples' heads hurt. For the networking people it is fairly easy. They know all that is dumped on them with bandwidth and all of those kinds of things but for others that might be a little more difficult. But none the less even if it not qualitative and is quantitative they still need to come up with a quantitative measure for success. Our president has asked me, what are your methods for success?

Eric – Do you have a dashboard that you have to present?

Steve – No but you could develop a dashboard out of reporting that would help not only with my metrics for success but the president's metrics for success. Because the president needs to measure how effective he is. He could make better decisions if he had the reporting he needed and of course that is leading to dashboards. We don't need to get too far out in front of that because private industry has figured that out. When I encounter success usually what I determined success is a direction, number one is that they know what my vision and direction is; number two it's whether they are in the right job. It is an alignment thing for them. Are they in a job that aligns with their skills and abilities that they have? Because if they are they are going to be by far more productive and people are your most important product. Making sure that they are happy and in the right position is a critical kind of a thing. We do that through employee evaluations where we go down through their major responsibilities every year and say okay. I inquire if these are their major responsibilities and ask if they are doing pretty well and we have ways to mark that and then I ask if this lines up with their skills and abilities. Do you like this job and if you don't what would you rather do and how can we help to get you into that kind of a position? That helps morale and lets them know that you care about them. And it is going to be a bigger driver for success.

Eric – Do you have a personal conversation with most of you IT staff or just direct reports?

Steve – The direct reports and then we have a couple of meetings a year but I have an open door policy. Anybody can come and see me, and they do, when they have something to say. We have a direct report meeting but I also have a managers meeting

where the second tier come in as well and we go all around the room and they all get a few minutes to explain what it is they are doing and it helps with the general overall communication to determine what is going on. But at the same time I get a sense of whether they are happy or not.

Eric – How often are you conducting those meetings?

Steve – Once a month

Steve
The other thing you attribute your success to good processes. Where the charge here is I tell them how we are going to do the infrastructure process for service management and that is just the way it is. That is how we are going to talk. That is how we will analyze problems and get them resolved quickly and do those kinds of things. Just make sure you hire good help in the first place and we have gone to ends to get recruiters that often recruit help and not just kind of let it drift in through the mail and read through them and sift through. We want to know who the really good people are and make sure that we hire those. The other is that we've followed the market for IT salaries and make sure the people are getting compensation fairly. We have a huge benefit package. So we go within about 85% of what the market is and then we tell our people that we are going to do that. That keeps them happy and they don't walk out the door and that helps with success. The plan helps with success because the plan itself is nothing more than what you want to do, how you are going to do it, and how do you know that you have done it when you have done it.

Q-
How do you extend to your IT organization to receive input in identifying and evaluating changes?

Then need to evaluate changes. We did surveys, online surveys, cyber ware for structure for academics and for administration. We do them all of the time. We do them for not only for the immediate client like Student Services, Finance and HR but we also do them for the end user. You know, the faculty, staff, the students and then payroll reports, accountants, and others that need the information from finance. We evaluate how the end user likes our portals. We actually have someone sit down with them and say does that make sense and click there and there and do the online survey with the students asking them what they would like to see, for instance, on the portal, we have two or three ipods to give away and that generates 300-400 students and drives them to fill out the form and enter so we get a good response to those. Every year in our ITC we review our strategic plan and we go through the strategic plan and report whatever we have accomplished on all of the projects. All of the projects have the name of the person who is responsible, the budget, and they know that is going to go to a larger group.

Eric – Who is the ITC composed of?

Steve – It is all the representation which is an assistant dean from every college, it is the faculty member and then the key IT departments. The major departments on campus like Finance and HR. Those who are the data stewards.

Q-
What partners do we find most valuable?

Steve Hess –
The deans are great partners. They have a much broader vision of how this should all occur than the IT managers. But the IT managers can be good partners too if you make their life easier and don't threaten them too much. I work both angles. I talk IT managers but I also talk to the deans and say you should work out the stack and they don't want to hurt them too bad understand and they like their IT people and so it just slowly works that way and that is how it has to happen.

Eric – I appreciate your time and answers to these questions. I will complete this series of interviews and do some analysis on the points. If I need to follow up I may give you a ring on the phone or catch you at one of the events.

Steve – Content management, we are not so sure that should be centralized. It is so huge and I don't know if you have read the literature on this but content management projects are crumbling under their own weight.

Eric – We are under our first three months of Gartner membership and so I am just delving into the information they have on portfolio management content management. I am just trying to get my head on with the concept.

Participant Four

(Dr. Stacie Gomm)

Dr. Stacie Gomm joined Utah State University in 1995 as adjunct faculty, and seven years as the director for the Computer and Information Literacy program. From July 2005 until May 2006, she served as Assistant Provost, coordinating space, employee approval process, and many other functions in that office until appointed to an Associate Vice President position in the USU Information Technology organization. She holds two graduate degrees, including a doctorate, in Instructional Technology.

Stacie has a position analogous to mine (Associate Vice President) and was called into the IT organization in April, 2008. She was not involved in the IT organization or reorganization discussions that occurred prior to that time. I have worked side by side with her since our individual appointments as Associate Vice President. Please see the section on researcher background/bias in this study for more detailed information. This interview was conducted in Dr. Gomm's office on July 22, 2008. Dr. Gomm signed the informed consent document and agreed to have the interview associated with her, and the interview recorded, and transcribed.

Eric-
The interviews, Stacie, are very informal, open ended, and we just follow the train of thought. The purpose for the study is to investigate the change processes in the IT organization. Specifically to talk about how the change came about. Why did this happen? What prompted the reorganization? And through some of the critical events throughout the organization up to today. The first question I have for you is rather procedural if you don't mind identifying yourself, your job in your current role at Utah State University in the IT reorganizations.

Stacie –
My name is Stacie Gomm. I am an Associate Vice President for Information Technology. I oversee more of the information and end user side of the IT organization. I work specifically with the Service Desk, with the FACT Team, with lab group, with Media Production, with the EDO Team, and the Web Development Team.

Q –
What are your organizational values and beliefs? This is a very open question in regard to IT management in general. When you think of managing information technology, organizing information technology, what are some of the first values and principles that come to mind?

Stacie –
For me personally it is serving our customers. It is more about that we are truly a service organization and we are doing everything that we can to meet the needs of our customers at Utah State University. I tend to focus more on the services that we are providing and then being able to provide those services in a very happy and collegial manner. Not, just, hey …….we do email and that's it. But, we do email and let us help you with this email. We are taking everything just a step farther.

Q-
Have you been involved since the very early parts of the reorganization?

Stacie –
I have

Q-
Comparing the previous IT organization with the current IT organization what were some of the reasons in your mind that the reorganization occurred? What were some of the drivers in your mind? Why was the reorganization required?

Stacie –
That is an amazing question when you think about it now two years down the road and looking back. I think at Utah State we always knew about Information Technology and we knew that they could do things but they never really kind of got around to doing things and speaking mostly of Computing Services not so much the Telecom, but the Computing Services here on campus we kind of knew what they were but yet we didn't trust we didn't have faith but yet I don't think we really knew that. Seeing what we are now, and seeing what we were, holy cow…… we have just come so far. The need for the reorganization was there because I don't know……we were moving along in ignorance. We had no idea that there was anything better but together we have created something better. I think it has exposed the places where we were weak before without knowing that they really were our weaknesses. So the big reason to drive this is totally customer service and providing services for Utah State University having the can do attitude and we have had that all along. But without the reorganization I don't think we realized how much we were not doing.

Q-
Think back through the events of the reorganization. Even before you were in the IT office and were in the Provost's office, some parts of the reorganization were occurring with a new CIO before you joined IT. What are some of the critical change points from the beginning to the end? As you go back, what are those pieces that make you say, wow, that was a big change that happened? Step two, wow, here is the second big change that happened. Step three; here is a big change that happened.

Stacie –
 I think that at the very beginning the changes that happened that were significant are personnel changes. I think having Kay come on. You know that Vice President Jeppesen bringing all of the directors together and saying what's right with what we are doing and what's wrong with what we are doing and actually questioning how this should all be run with the current directors. That is amazing. There have been few vice presidents in my tenure here at Utah State University that have really come in and really evaluated how their organization was run. Some people just come in and start making change because they need to make change but I really think that was the first big thing is starting to question and really look at what we are doing and what we

should be doing. I think it made a lot of people uncomfortable especially probably those directors that were already there. Some directors saw excitement in this, like, my gosh we are actually going to be able to serve. Some directors saw of my gosh this is not going to work. My whole empire is going to change. So I think that was probably the first one. As things happened, again, first changes in personnel.

The next one, of course, was you and I coming in and then working with Vice President Jeppesen in defining what the organization should be like. Flattening the organization is another huge milestone that made for these changes. I think another one is developing the SLA process. Even though we are still not where it should be just the fact that we actually have a procedure or something where we are documenting what we are doing and we are getting agreements ahead of time and we are defining as much as we can up front, even though it is not perfect, that is a significant change.

I want to go back to flattening the organization. One of the things that was significant in flattening the organization is all of those little things that could stay hidden within the hierarchy of an organization didn't stay hidden when you level it. It is like all those weak spots and all of our strong spots were now exposed. We found out what we did well. We found out what we did poorly. Nothing was hidden behind hierarchy any longer. It was open and it was exposed. Both the good, the bad, and the ugly. I think that was significant. We found, oh, we can do this well let's build on this, let's do this. Let's bring up an exchange server. We can do this. Let's change this because it is not working well. As we go down the road you can see other significant events. I really feel that the reorganization of the Service Desk, the front door, has been a significant contribution to how IT is viewed on this campus. I think that is a major milestone in our positive redirection. I really think that one goes unnoticed as far as the great things as we hear the great things the service desk does. But I think as we are working closer and closer with customers with the Service Desk, and even with the FACT Team, people are noticing IT has changed. Even though it is subtle and it is kind of behind the scenes. Even though it is right in the front door and it is not anything like this new service or anything big it is changing the way. It is probably, in my opinion, one of the most single contributors to the positive change that people are seeing within IT.

Eric –
So to review some of the critical points let's talk about changes to people. Changes to organization, changes to the development of a project management or SLA process, and the Service Desk. Does that accurately reflect some of the critical points? Are there others?

Stacie –
There are probably others as I, you know. As you think about it there are so many things that have happened in the last couple of years. You know, bringing the three FACT Group together with RCDE was a critical juncture in this.

Eric –

By saying FACT and RCDE. Those used to be separate organizations each doing their own thing. That was the situation where they were brought together?

Stacie –
Yes. They were doing the exact same thing for two different entities. So an instructor would come in and say they needed some service for their RCDE class through the FACT Center and they would have to send them to the other group. The other group was vice versus so we were giving people the run around. Now we have one central location where any faculty can get this same service from the same people. I think that is significant. I think bringing those things together and having a single point of contact is just great. We are focusing on serving faculty, not about reporting lines.

Eric –
That was done for FACT, it was done for Extension.

Stacie –
Yes, Extension was another one. But that was done a little bit before I came to be part of it. I think the same thing, I am sure, happened with the Extension merger and now we are serving Extension and we are serving campus. There is not that messy line like where do I go for this and where do I go for that? It is like one organization.

Eric –
You talked quite a bit about weak versus strong points and how we saw and how the whole thing became opened up with the changes within the organization. I would like for you to identify some of the weak pieces that were firmed strong in some of the critical areas that nobody has mentioned. Why don't we start with the organizational structure? With the flattening and also the joining of other entities like FACT or Extension. The organizational restructures. What were some of the weaknesses you saw previously and follow up with the strength that you see today?

Stacie –
The first thing that comes to mind is probably Banner. Here we had a team of programmers that were solely focused on Banner. We still kind of do but we took some of those and we added some personnel that had stronger database background to that group. We also brought in some other people who were doing backend things to that group and created an Enterprise Data Operations group.

Eric –
So there were some functional pieces missing?

Stacie –
There were some functional things missing as well as that group could help some other functional areas and so by sharing what is happening there I think that brought out a significant change to how we can serve Utah State University. It was so siloed. Banner is the only thing that I do. I only do the card system. I only do this and now we have a team approach.

Eric –
A database or enterprise which has data function for more than just those two pieces with the same staff.

Stacie –
Absolutely. And, not only that, now we have a backup for these different services. It is like oh my gosh. In Banner we did our own system admin support, we did our own database; I mean our module leads did it all. I mean they did databases, they did.

Eric – There was no backup?

Stacie – None and if you were financial module lead versus the HR module lead or the financial module lead how you even did your database backend might have been totally different. There was no consistency. When you applied patches it was on your own free will whatever happened.

Stacie –
This test incidence and …..we are just Banner. What happened to just Banner and so it was just very, very siloed. Banner was very, very siloed and I think that same principle applied elsewhere. It became very evident in the Telecom organization when you recall we talked with the director of Telecom to find out from him about people two below him and what they were doing. He had no idea. You would call in the supervisor for Telecom and you talk to him about what people two below him were doing, he would have no idea. And so these people were so busy managing they were not getting into what was happening in the organization itself. So you have these worker bees down there who are really hard workers and defining everything but nothing filtering up and nothing filtering down. There just was no communication whatsoever.

Eric –
For a long time you were on the customer side outside of IT using and seeing those services.

Stacie –
Yes

Eric –
What was the effect to you as an end user as far as the old way of doing things? Where the Director of Telecommunications didn't know what his staff two below was doing.

Stacie –
You would never go to the director to talk to him about Telecom. If you needed to know, you learn who to go to. There were three people that you would go to get anything. And anytime you talked to the director about. I remember talking to, I think it was actually Scott Wells, where we needed this new service. He couldn't even talk

to us about it. I had to go to Wendy to find out about this new service. It was way back when I was in the CIL Lab. They couldn't even talk their business. Now if you wanted to talk philosophy and where Telecom Services should be going, ya, from a practical standpoint I didn't care about that at all.

Eric –
From an organizational structure to project management, compare some of the weaknesses that have passed with the strong points that you see today.

Stacie –
I say this in that we are still weak in project management. But we are a thousand times better. We actually talk project management. Everything that was done in the past just seemed to……well first of all, it wasn't well thought out. Ya, that sounds like a fun thing, maybe we should try it, or no, you know what, that's too hard and we don't have time for that. No thought went into any project. No thought. Plus no team work. It was a one man you develop it from beginning to end and no documentation. Nothing…….and we are still lacking in documentation. Don't get me wrong. There was just absolutely nothing. To introduce the thought of a technical person meeting with a customer and writing down on a piece of paper what the customer would like and then showing it to the customer saying is this what you mean and you agree to this was non-existent. Just that little step alone has taken us miles and it is still a difficult process for many. It is not easy because I deal with the Programming and Design Team and they have a tough time. Some of those team members say I don't know and the customer keeps changing their mind and they don't know and it is a very dynamic process. Well that's what needs to change. It cannot be a dynamic process or it is going to be very expensive. We so much create on the fly and we make it up as we go along and if there is any forethought what-so-ever it saves time, money, and it is a much more efficient way to do it. So the more we can do that in a real world, because it is very difficult to do that in a real world, the better off we are.

Eric –
Talk about some of the weaknesses versus the strong points in the Service Desk.

Stacie –
I think the weakest link in the Service Desk, honestly was that we had students trying to serve faculty and staff. With the turnover and with everything going on they could not get to know the services we have to offer in a way where they could truly serve. Now, I will say that we originally thought, let's go only with professional support for all of the Service Desk and I think that was also too extreme. Because, again, professional people don't understand the student side. Unless you are in the system registering for courses and knowing how frustrating that can be, how can you help students? I think the model we have now where we have students helping students. Students who understand what students are going through day in and day out. Staff serving staff is the perfect model.

The weakest part was we just were not able to meet all of our customer's needs when it came to serving in this Service Desk. We were giving half-way answers. They were not thought out. We were inconsistent so the other thing we have come up with is scripts, a knowledge base where all of the information that they need to answer and use is right there so no matter who you talk to you get the exact same answer. I know that Steve, our manager of the Service Desk, has wanted to do that from the get go. But he always came up with road blocks under the previous organization. No money, it is not an important thing, nobody cares about the Service Desk anyway, blau, blau, blau, blau.

Eric –
Within the consulting reports one of the problems phrases used was not enough time, not enough people, not enough money………..

Stacie –
Yes. Under Networking and Computer Services.

Eric –
So what changed in the Service Desk, as I understand it, it moved from two full time people to what is the full time count?

Stacie –
Right now we are at eleven. And we are hiring two more to make it thirteen.

Eric –
To thirteen full time and wow that is a whole lot more people. Maybe they were right, not enough time, not enough people, and not enough money. So what changed to allow the Service Desk for example, to hire more people which clearly cost more?

Staci –
Quite honestly under the previous organization you had five departments and five different budgets. You had some people who had a ton of money and could spend a ton of money. And you had other departments that had very little. Plus, I think, there was some sort of history, the only thing I can blame it on is history of this is the way we have always done it and this is the way we always will. I notice some of the things that money was spent on. Even with those groups who complained poverty. There were a couple of groups who complained that they had no money but yet they always found money to do these extra frivolous things. In my mind they seemed frivolous. So I wonder if there was a little bit of poor business sense. Or not really looking out for the university. But again we had the haves and the have nots. There is no question that there were those entities that had a ton more money than others.

Eric –
From the siloed have/have not situation to the situation today where we can suddenly afford all of this. What changed?

Stacie –
One is the way we do the funding. The way that we distribute our budgets. We have one centralized account.

Eric –
So all of the funding was pulled out of the silos?

Stacie –
Yes and into one account. That is what is amazing because we are doing more, in my opinion, than silo ever did other than certain people are not allowed to go to as many conferences as they want. Oh, oh, we don't get jackets for every single person in IT every single year. We don't have these big to-dos and we are a lot more practical in the extravagant ideas but are a lot more extravagant in our practical ideas and the services we offer to campus.

Eric –
Is it fair to say that what is occurring now is being accomplished with the same financial resources that were in place two years ago?

Stacie –
 It would have to be. Our funding model hasn't changed. It absolutely has not changed. And so therefore we've got the same money coming in and we have, if I remember right, we are now 15 employees more than what we were under the previous organization. I can't remember what the real number is. We lost a few in the reorganization and some people chose to go to other jobs. It might be near twenty but we are significantly higher in number of employees and look at all of the services we are doing. And, our funding model has not changed.

Eric –
So not just people reorganization like we talked about but also financial reorganization was a big part to it.

Stacie –
Yes, I totally believe so. And probably should have been one of the milestones. I don't worry about the money thing.

Eric –
Indeed, the Vice President gets to worry about the budget.

Stacie –
We just concentrate on the services which is great.

Eric –

How were the decisions made to pull funding into a centralized budget? Or make wide swiping changes in the people structures. How did those changes happen? What were the drivers? Who were the drivers?

Stacie –
I remember a lot of nights with you, me and Kay sitting alone in this room trying to get out a white board and brainstorm some ideas. I know the directors were involved somewhat in brainstorming some ideas how things were passed around and we talked a lot about what should we do and then finally we took all the input that we could and we just decided. We just thought and made a decision and decided to go with that decision and let the pieces fall. Now there were some things that we chose wrong. And we fixed those. There were some imbalances and noticed that you know what, we probably should do this. That's what is great about the organization that we have now. It is very flexible. And, if we need to change some things we can change some things without having the organization fall apart. It is very, very insignificant.

Eric –
Part of the research goal of this study is to discover some of the change processes and from what I am hearing, change is what is becoming regular for the organization.

Stacie –
This is IT. You are not in a static world in IT. There is nothing static. If we do not remain flexible we will lose. We will become what we were. Because we have to be able to move as things move as campus needs change. I'm sorry but our faculty has a high turnover rate. We have new faculty, we have new staff all of the time. That changes the dynamics of the university. You can say that we have been the same forever. No, I have been here ten years and I can see significant differences here at Utah State University. Just in the way that we offer registration services to our students. That has changed in my tenure here at least four times. How can IT stay static when you have those kinds of major changes happening at your university? I have been through three presidents. It all is very, very volatile. The minute you think you have defined it and this is the way we are going to go forever and ever, we might just as well pack our bags and be done.

Eric –
Do you view change as a process or as an event?

Stacie –
That is a great question. I definitely don't think an event causes change but yet process ……I don't think it is process either. Because I think that makes it too rigid. I mean there is just …..I think, and I don't know how to say this but I think it takes good leadership and a lot of gut feeling and you just feel it when you have good leaders in place and I know this sounds a little cocky but you, I and Kay are good leaders and we make a great team. I don't think one of us stands out as being great but I think we make a great team by putting all of the good people together and I think we have a great feel when something needs to change but you never change and say of let's just

try this and see what happens. You can feel when something is not gelling. where you have a flat organization there is no place to hide, it exposes itself 100% and I think you have to be in tune to your organization to what is happening to find those things.

Eric –
To know what is happening based on what you are hearing.

Stacie-
And watching and seeing and feeling and what feedback you are getting from your customers. It is really easy. You know you get those ones/twos that are like……..just throw that out but it is almost like the ITIL change management. You know I am here and this same thing from this same group a lot. Okay, maybe it is time to look at that and we need to go in and we need to go into the change management process and evaluate what is going on and see if you can find the root cause and make a change and then see if it changes, see if it fixes.

Eric –
Change is an interesting topic. There are cycles of change and I know you have read a fair amount and fair management literature on change. How the natural tendency of a human, an employee, is to resist change to feel very comfortable because change brings a certain amount of discomfort. How in IT is the organization do you combat that? Or make changes as part of the culture instead of change being seen as something uncomfortable and destructive? Or, do you ever get over that?

Stacie –
That is a tough thing. But I also think it is one of those things that comes out very quickly as you change things. There are those that have a tough time adapting to change and they become very exposed as you make some of these changes. It is interesting because those that and we have come across an example recently. As you make changes as long as somebody thinks that you feel oh yes it is a good idea, they have no problem changing with you. And they look very adaptable. They appear to be buying into the organization but then all of a sudden you make a change that goes against their grain and they are against everything that you do. So I think change is okay for everybody as long as they agree with the changes. I think you find those when you make a change that don't agree with that change and then they come out of the woodwork and it is different people for different changes. I'm not explaining this very well but I think there will always be somebody who goes against the change whatever you are doing. But it will always be a different somebody. And, you just have to know one that is going to happen and two do your very best to help them understand the backside and the reason for this change and have them be able to see it beyond themselves. Because most of the time when they don't want to change is because we don't want to change. Because you are changing my world. You have moved my cheese. It is all about me and my little circle. And we have to expand the circles.

Eric –

In the first six months of the reorganization, if I remember correctly about 10% of the IT took other positions. Why do you believe that occurred in general and was it a good thing?

Stacie –
I think it was a good thing. One reason is because those people had a very difficult time with the changes that were being posed. They absolutely could not live with them. They could not work in the environment that was being presented to them. That's real life. Many times we are provided a change or an opportunity and we can't live in that world so now we need to find another world. And that is what they chose to do. I feel that it was a good thing. Not so much as I think they would not have complained but they wouldn't have allowed the change to happen. Many times when you are against change you oppose it so much that it keeps it from happening. And without them here we were able to make the changes and now looking back on it we can totally see those were the right changes.

Eric –
There seem to be cycles of centralization and decentralization of IT management in higher education. We have talked about a couple of pieces that were centralized that seem to be working well. The Extension pieces, the RCDE and FACT organizations. What drives this cycle of centralization and decentralization? Is there an ideal that you have seen in your experiences at Utah State?

Stacie –
I think any time you can centralize services I think research shows and all kinds of things show that centralization is more economical. We have seen consolidations of school districts. You have one set of overhead, one district office versus two sets of overhead. We have seen that in society, in different businesses. You know, just the overhead costs are a savings when you centralize. However, I think it is very important to make sure that you don't over centralize because we cannot specialize. When you are central you are very generic. And I mean by generic those that can serve the mass. There are many things that happen in a university setting that do not serve the masses. And there is no reason to centralize those kinds of things otherwise we are going to have to do too much. We don't have the personnel to specialize in every little thing that exists in the university. Those things that are very specialized I do not believe should be centralized. I believe they need to stay in their units and be managed within their units. Now defining scope and defining mass I think is where the grey area comes. As you think about services that should be centralized I think that is our most difficult task is trying to determine is this a specialized service or is it a generalized service?

Eric –
Some have called this reorganization a first unified effort for information technology or the institution. When you hear that, what does it mean to you?

Stacie –
"Whoooo-Hooooo!"

Eric – What does a unified effort mean to you?

Stacie –
It means we are together. If you used unified you think more together and central. That we are looking for the good of the whole. I think we are looking for what is best for Utah State University, not what's best for IT, not what's best for this, not what's best for any single entity. It is just what is best for Utah State University. Now do I understand your question?

Eric –
Yes…..right. I am just looking for how you define unified.

Stacie –
I think it is all. Unified, in my opinion, means Utah State University and what is best for this institution and that is not easy to do.

Eric –
Because who decides what is best for the institution?

Stacie –
Exactly

Eric –
 So how do you do it? Who determines what the institution needs?

Stacie –
And this is where I think we need to know our users and we need to constantly be involved with our users. Now we are working on this. We still have a ways to go with this but our IT User's Advisory Committee and being able and I think the Service Desk is probably the group that has the biggest handle on what our user base is beyond any group in IT because they deal with them every single day. And so we just have to understand our users and their needs. You can do surveys, you can do all of these other things, but I think there is nothing better than having that relationship with our users.

Eric –
Can you identify those within Utah State University that have been instrumental during this reorganization outside of the present IT organization?

Stacie –
Well definitely the administration at Utah State University has been specifically, you know, President Albrecht, Provost Coward, and Vice President Cockett. They have been supportive of having us be able to do those things.

Eric –
Also the Executive Advisory Board.

Stacie –
Yes, Scott Hinton I think has been incredible in helping us define where we should take this reorganization. And you don't want to use the word allow but giving us the freedom to take these risks. I am sure it was very risky for this proposal to go forward and say we want to reorganize IT and as critical as our services are here at USU, I mean people cannot work at USU without IT. They just cannot do their job. So our services are critical and so when you do this quote, reorganization, there is a risk of what about my services. And so by minimizing those risks we were able to do what we needed to do. We had to have that trust. It is more than trust, it faith. They had to put their faith in us. And they did.

<p style="text-align:center">Participant Five</p>

<p style="text-align:center">(President Stan Albrecht)</p>

STAN L. ALBRECHT is the President of Utah State University, appointed February 2005, where he also served four years as Executive Vice President and Provost.

Albrecht has acquired a broad range of administrative, research, teaching, and outreach experiences through his career. This includes administrative assignments as a department chair, academic dean (twice), associate director of a major research institute, and academic vice president. At Utah State University, he was Dean of the College of Humanities, Arts, and Social Sciences prior to his appointment as Provost. He has served in a number of professional assignments, including a Congressional Office of Technology Assessment Panel on Alternatives for Basing the MX missile and as a member of the Department of Interior's Minerals Management Service Science Advisory Committee.

He has authored or co-authored five books and published over 100 articles in refereed journals and book chapters. His research has been supported by the U.S. Department of Agriculture, the U.S. Environmental Protection Agency, the National

Institute of Environmental Health Sciences, and a number of other programs and

agencies. He has received outstanding research awards at both the University of Florida

and Brigham Young University and several teaching awards. Albrecht currently serves on

the Economic Development Corporation of Utah Board of Trustees, Cache Valley

Regional Council, United Way Financial Stability Council, Salt Lake Chamber Board of

Governors, the Wells Fargo Northern Utah Community Board, the Inland Northwest

Research (INRA) Board of Directors, the National Association of State Universities and

Land-Grant Colleges (NASULGC) International Agriculture Coordinating Committee

Council of Presidents, as Chair of the NASULGC Selection Committee for Engagement

Award, Member of the American Council on Education's Commission for Women in

Higher Education (OWHE), and as a Commissioner of the Northwest Commission on

Colleges and Universities (NWCCU).

I have not been directly involved with President Stan Albrecht. Throughout the

reorganization, that relationship has been appropriately placed with the Vice President

and CIO, M.K. Jeppesen. Dr. Stan Albrecht, as president of Utah State University, is

appropriately credited with initiating the chain of events which led to the successful

reorganization of the Information Technology unit. He recognizes the strategic

importance of information technology at USU. He appointed VP Jeppesen to the senior

executive post and has provided unwavering confidence, trust, and support in the many

initiatives accomplished. He was kind enough to grant a short interview to discuss his

views on information technology in general, and with regard to the IT reorganization here

at USU. Because the President's time is extremely limited, this single interview was the

only contact with the president for this study. I met with VP Jeppesen to review and

formulate a brief and appropriate set of questions. I met President Albrecht in his office

for the interview on August 5th, 2008. The following potential questions were provided to

him through his administrative assistant a week before the interview occurred with an

indication that the interview would be free-form, casual:

>How does information technology at USU impact the present and future at USU?

>How can IT help you?

>What changes/evolution (in vision, role, expectation, and/or performance) have

>you seen in IT at USU in your tenure as President?

>At the level of the board of regents/office of the commissioner, how is

>information technology, as a function, perceived?

>Do you see IT's role becoming more strategic at an institutional level or is it

>primarily still seen only as "infrastructure."

>The VP for IT/CIO is a position at USU (and at the majority of institutions in the

>USHE) which reports directly to the President. What benefits do you see in this

>direct-reporting arrangement?

>If you were to give IT a one sentence "charge" at USU, what would it be?

The President's schedule was tight as an earlier meeting had run over. He had not

taken the opportunity to review the questions before hand, but felt comfortable jumping

right in and having the interview recorded. President Albrecht signed the informed

consent form and agreed to remain associated with his interview data. The length of the

interview was only approximately 15 minutes due to schedule, but was sufficient to

obtain his views on the reorganization and the role of information technology.

Q-
How does Information Technology at USU impact the present and the future of Utah State University?

Eric – That is a broad, open question

President Albrecht –
We are totally dependent upon Information Technology side of the operation. Whether we are looking at research, whether we are looking at teaching, whether we are looking at university governance. It has become an essential part of the backbone of any institution of this size and magnitude.

Q-
Do you see IT's role becoming more strategic at an institutional level or is it primarily seen only as infrastructure?

President Albrecht –
Well I think it has to be more strategic because if we are constantly in the mode of simply reacting we are not going to keep up with the evolution of the technology, we are not going to stay ahead in terms of anything we do whether it is student recruiting. I drive in each morning and listen to our sister institutions and listen to what they are doing with their student recruiting efforts. If we are not strategic, if we are not anticipating and becoming increasingly competitive out there and again if we are not strategic, we are not going to be competitive in the ways that we should be. And it extends through all parts of the operation. That is why I am laughing at the response of the first question whether it is in the classroom, whether it is in a research laboratory, whether it is with the recruiting, in development, whether it is simply the way we communicate with the world…….it is just an essential part of everything we do.

Q-
In that sense the Vice President for IT and CIOs, the position at USU and the majority, though not all, of the Utah State System of Higher Education Institutions where that position reports directly to the president, what benefits do you see in the direct reporting right now and the arrangement that you have chosen?

President Albrecht –
Well again, this individual is a Vice President and I think it critically important for communication purposes that the Vice Presidents have access to the President and vice versa. The only alternative model and this is a senior level appointment at Utah State and must be would be to have the Vice President report to the Executive Vice President. But yet the kinds of things that we have already talked about really do describe a much broader port folio and so the Executive Vice President/Provost is primarily responsible for the academic side of the institution. IT is critically important to the academic side of the institution but is also

important to business and finance and the physical facilities and to our research operation and so for that reason if for no other I think it is important that the IT VP is a direct report to the president. And it is important for me as I talk with Kay in his current role, when you asked the previous question about should the operation be strategic………absolutely but it is important for the president to understand what this involves as opposed to any recommendation to a decision at the end of a process and so that one/one communication, I think, is essential.

Q-
Talk to me a little more about what you expect from that role as a president.

President Albrecht –
I think what I expect is again, it is such a rapidly changing world and such a rapidly changing environment that I expect that person, and that person's staff to be… I am not an IT person, and so I simply must depend on someone in that role or that person's direct reports being IT people so that they understand the changes that are occurring and they keep us ahead of things as they help us be strategic and they help us deal with security and access issues; and, that changes on a daily basis and I can't do that. That person has to be doing that and has to be doing it well.

Q-
What changes or evolution, vision, role, expectation and performance have you seen in Information Technology at Utah State University in your tenure as president?

President Albrecht –
Well there is a very different structure right now than there was just a few months ago. Certainly from a couple of years ago. Kay has been very, very pro-active in coming in and talking about the kinds of changes that he and you and your senior colleagues feel are essential to keep Utah State University current and on the cutting edge and so there has been an evolution of a structure that I think has been more driven by that as opposed to a kind of traditional, we'll always have this kind of organization, structure, these positions, and these people report here. So I think we have changed in response to the changing technology, changes in the world around us, and have been very positive with the structure that we have
 in place now.

Q-
Of you were to give IT a one sentence charge at USU, what would it be? Or this may be too big for one sentence.

President Albrecht –
Oh wow!
It is probably too big for a one sentence charge. But again, it is interesting. The President's role is to know a little bit about Athletics so that when folks start

talking about changing coaches for success or lack of success in a program I have to know a little bit about business and finance so that as I am doing something with budget issues with the Regents and Legislators, boards and others to whom we report, I have to know something about the academic side of the institution. I need to know something about research, I need to know something about economic development, and the role we are playing there, but I have to rely on the senior team which is the Vice Presidents and so for IT it would be the same charge that I give each of these units. You need to be quick, your need to be nimble, you need to know what the issues are, you need to keep Utah State a player.

Eric – And not be afraid of change.
President – Absolutely

CURRICULUM VITAE (2008)

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OBJECTIVE:
   To make a major contribution as a leader, innovator, and motivator for an institution that values a top-tier information technology organization.

PERSONAL PROFILE:
   − Accomplished leader.
   − Persuasive consensus builder.
   − Adept at aligning vision, mission, and strategies to measurable results.
   − Skilled fiscal and human resources manager: transparent, inclusive, and open.
   − Able to communicate clearly with a wide variety of audiences.
   − Strong technical, business, and interpersonal skills base.
   − Commitment to increasing diversity in IT and higher education.
   − Innovative, focused approach on driving "future-is-now" collaborative technologies.
   − Unequivocal understanding of the interactive functions of technology within higher-education.

EDUCATION:
   − Doctor of Philosophy in Education, Utah State University, November 2008 (Specialization: Management Information Systems)
   − Master of Science in Business Information Systems, Utah State University, December 2002
   − Bachelor of Science in Computer Engineering, Utah State University, May 1999 (Minors: Mathematics, Computer Science, Portuguese)

RELEVANT EXPERIENCE & ACCOMPLISHMENTS:
UTAH STATE UNIVERSITY
Administrative / Strategic Impacts
   − Unified independent central IT units with a total staff of over 100 FTE to realign central IT focus on benefit to the institution.
   − Lead a major $5 million two year project to replace and upgrade all major information technology core systems, from infrastructure to services, to better enable Utah State University's mission.
   − Developed Utah State University's premier Information Technology unit from the ground up and subsequently extended the model to the University at large.
   − Led a system-wide grassroots effort to shift the mindset of IT from enforcement

and control to innovation and customer support.
- Co-authored USU's first successful broad-based, whole-system IT strategic plan.
- Led a technology effort to successfully and comprehensively integrate over 88 of Utah State University's nation-wide education sites, centers, and campuses with USU's main academic and administrative campus.
- Created a strong outcome-focused technology research and development arm.
- Introduced the internationally accepted ITIL (IT Infrastructure Library) as a model framework for best-practice IT processes, organization, structure, and communication.
- Created an IT organization that is successfully eliminating campus digital-divides (technology "have" and "have-nots") across academic, research, service, and outreach organizations, regardless of location.
- Served as President for USU's Continuing/Distance Education Association, coordinating training and professional development activities for all faculty and professional staff involved in distance education activities. Used this vehicle as one venue to introduce more effective distance-capable technologies.
- Developed Utah State University's first Wireless Campus.
- Member of the USU President's Blue Ribbon Task-Force for the reorganization, integration, and expansion of Continuing/Distance Education at Utah State University.
- Rebuilt academic curriculum for project management, networking and communications, e-commerce, and business information systems. Also adapted such curriculum for credit and non-credit, face-to-face, and distance-delivery modalities.
- Worked with state and local entities to create ADA accessible technology services and content.
- Implemented comprehensive training and support programs for new and existing technologies.

Financial Management
- Empowered as Associate Vice President for Technology to centralize diverse IT budget silos across USU, totaling over $20 million in an effort to increase efficiency and identify available resources.
- Oversaw a $2 million budget which included institutional and legislative appropriations as Director of Extension and land-grant technologies.
- Successfully partnered with Utah State government entities for financial support of Utah State University delivery systems that deliver on the land-grant promise.
- Consistently increased IT services and customer support levels with a flat departmental budget over four years.
- Implemented IT services to decrease travel and infrastructure costs.

Community Programs
- Assisted in the development of CALFNES (Computer Assisted Literacy for Non English Speakers) which is aimed at helping migrant Hispanic children to learn to read and write in Spanish, then in English. The Program is offered in select

elementary, middle, and secondary schools in Utah and also promotes the learning of basic computer skills. The program has been recognized by the Mexican Federal Government.

- Founding member of USU's E-Commerce issues team, driving e-commerce curriculum and education for small business nationwide. Leading collaborative efforts including targeted e-commerce conferences with the assistance of Western Regional and Southern Regional Development centers, including region-wide events for faculty and businesses held in Texas, Oklahoma, Utah, Idaho, Montana, New Mexico, and Arizona.
- As a member of the Cache Valley IT Board, assisted in bring in Cache County's first redundant data path to the area, resulting in increased growth of technical business to the Cache metropolitan area.
- Provide volunteer technology and technical consulting services for the Nibley Utah Stake of the Church of Jesus Christ of Latter Day Saints.

Major Technical Projects
- Guided a major 3 million dollar statewide IP-video project to replace a national satellite digital-video delivery network. System is responsible for the delivery of 16 hours per day, 6 days per week of interactive class delivery across the region, as well as ad-hoc broadcast delivery, video-teleconferences and access-grid based meetings.
- Spearheading development of an institution-wide LDAP compliant central directory system to interface with the Banner ERP system of record for USU. This project will result in a major migration of dozens of fragmented Exchange, GroupWise, and other directory-based services to create a unified system to enhance communication and coordination and provide a base for singe-sign-on and portal initiatives.
- Coordinating and integrating many developments of web-based systems, including academic course approval systems, electronic forms, learning management systems, comprehensive FAQ and knowledgebase systems, improved database and searching operations, improved interfaces and systems for user and instructional-design, and comprehensive content management systems to expand access, maintain ADA compliance, and reduce costs and "time-to-web."
- Pioneered the use and integration of smart-phones while decreasing unit telecom costs by 20%.
- Introduced and oversaw projects from conception through production of USU's most successful collaboration systems, including Macromedia Breeze, Microsoft Exchange, WebCT Vista, and IP-Video delivery systems (Tandberg/Polycom.) Travel costs for outreach units have dropped by one-third.
- Coordinating with UEN (Utah Education Network) and other statewide agencies to complete the last phase of creating a statewide gigabit backbone extending USU's high-performance IP-based services to all of Utah's populations, rural and urban.
- Implemented major programs to combat spyware, spam, virus, patching, and other security initiatives throughout the USU land-grant system.

EMPLOYMENT HISTORY:

UTAH STATE UNIVERSITY

2006-present:	Associate Vice President for Information Technology
2004-2005:	Executive Director, University Extension & Delivery Technology
2002-2004:	Director, Extension Technology
2003-2006:	Specialist
2001-2006:	Adjunct Professor
1998-2003:	Lead Network Administrator
1996-1998:	Programmer
1995-1996:	Youth Programs Coordinator

UNIVERSITY OF PHOENIX

2005-present:	Faculty

CONSULTING/ADVISING

2008-present:	Coleman Research Group, Advisor
2004-present:	Bridgerland Radio-Control
1999-2002:	KRT Drywall and Acoustics
1996-1997:	North Logan City Library

AWARDS AND HONORS:
- Taggart-Ballard Award for Excellence, Administration (2006). Office of the Vice President for Extension and Agriculture. Utah State University.
- E.G. Peterson Award Nomination (2006). Extension's highest award, Utah State University.
- New Specialist Award (2005). Extension Specialists Association, Utah State University.
- Golden Mouse Award Nomination for excellence in integrating technology in teaching and learning. (2004). Office of the Provost, Utah State University.
- Vice-President's Award for Excellence - Team (2004). Office of the Vice President for Extension and Continuing Education, Utah State University.
- Early Career Award (2001). Epsilon Sigma Phi.
- Taggart-Ballard Award of Excellence (2000). For Exceptional Service to the People of Utah. Extension, Utah State University.
- PEA Scholarship (2000). Professional Employees Association, Utah State University.
- Governor's Honors Academy Award (1990). Office of the Governor, State of Utah.
- Sterling Scholar in Mathematics (1990). Region 10, Utah Sterling Scholar Program.

COMMITTEE / UNIVERSITY SERVICE EXPERIENCE:
- Utah System of Higher Education Network, Infrastructure, Systems, Storage, and Telecommunications Committee Co-Chair (2008-present).
- University Alternative Work Models Committee Member (2008). State CIOs, Utah State University.
- University Transmission Communications Committee Chair (2007-present). Utah State University.
- Utah System of Higher Education State CIO Group Member (2006-present). Utah System of Higher Education Utah System of Higher Education
- Unified Messaging Committee Chair (2006-2007). State CIOs, Utah System of Higher Education.
- President's Blue Ribbon Task Force Committee Member (2005-2006). Utah State University.
- University IT Director's Council, member (2004-2006). Utah State University.
- Innovation Campus IT Committee, member (2004-2006). USU Research Foundation.
- Community IT Board, member (2004-2005). Cache County Chamber of Commerce and Utah State University.
- President (2004-2005). Extension Continuing Education Association, Utah State University.
- Search Committee for Position of Vice-President of Information Technology, member (2004). Utah State University.
- Planning Committee, member (2003-2006). Extension Continuing Education Association, Utah State University.
- University Wide Infrastructure and Networks Committee, member (2003-2004). Utah State University.
- Security Week Committee, member (2003). Networking and Computing Services, Utah State University.
- E-Commerce Issue Team, member (2002-present). Extension, Utah State University.
- Information Technology Oversight Committee, member (2003-2004). Utah State University.
- Vice-President's Advisory Council, member (1998-2000). Extension, Utah State University.

ADDITIONAL CERTIFICATIONS:
- ITIL Master Training (2006). Hewlett Packard.
- Foundations IT Service Management Certification (2006). EXIN International, itSMF, Office of Government Commerce.
- Integrated Faculty Certification (2005). University of Phoenix.
- IRB Research Certification (2004 and 2008). Institutional Review Board (IRB), Utah State University.

PROFESSIONAL AFFILIATIONS:
− ACM SIGUCCS, 2008
− IEEE, Computer Society, 1997-present
− Epsilon Sigma Phi, 1999-2006
− Extension Continuing Education Association, 2002-2006
− Extension Specialists Association, 2004-present
− Academy of Model Aeronautics, 2003-present

PERSONAL INTERESTS / AVOCATIONS:
− Bicycling (both road and mountain), hiking, camping, backpacking, climbing.
− R/C Aircraft, video, and photography.

ACADEMIC CREDIT COURSES TAUGHT
 IN-PERSON, FACE-TO-FACE
− BIS 6950/5950, Computer Assembly and Security
− BIS 6200, Business Data Communications
− BIS 5100/5110, Project Management for Business and Technology
− BIS 5300, Advanced Data Communications
− NTC 410, Networks and Telecommunications II
− CIS 319, Computers and Information Processing

 DISTANCE EDUCATION, ONLINE, OR OVER TECHNOLOGY
− BIS 3100, Overview of Business Information Systems
− BIS 5300, Advanced Data Communications
− BIS 5100/5110, Project Management for Business and Technology
− BIS 6400/5400, Local-Area-Network Management and Design
− BIS 6200, Business Data Communications
− NTC 410, Networks and Telecommunications II
− CMGT 578, Information Systems Strategic Planning

TEACHING EVALUATIONS
Regular Semester For-Credit Course Evaluations

Date	Course	(Overall Course Quality/Instructor's Effectiveness)
Fall 2005:	BIS5700	(5.4/5.5 - USU course average: 4.6/4.7)
Spr. 2005:	BIS5300	(6.0/6.0 - USU course average: 4.5/4.6)
Spr. 2005:	BIS3100	(5.2/5.3 - USU course average: 4.8/4.8)
Spr. 2005:	BIS5400	(4.7/4.4 - USU course average: 4.4/4.5)
Fall 2004:	BIS6200	(5.8/5.8 - USU course average: 4.9/5.0)
Fall 2003:	BIS 5100	(5.0/5.3 - USU course average: 4.5/4.5)
Fall 2003:	BIS 5300	(5.1/5.2 - USU course average: 4.4/4.5)
Sm. 2003:	BIS 5400/640	(5.6/5.7 - USU course average: 5.2/5.2)
Spr. 2003:	BIS 5300	(5.5/5.8 - USU course average: 4.0/4.2)
Fall 2002:	BIS 5400	(5.2/5.1 - USU course average: 4.4/4.5)
Spr. 2002:	BIS 5100/511	(5.1/5.2 - USU course average: 5.2/5.1)

Evaluation Comments from Students:
- "Extensive knowledge of subject with good real world examples."
- "We need to clone you so your 8 twins can teach all BIS courses!"
- "Eric is the best instructor in the BIS department, he knows his stuff."
- "More real world than most BIS courses."
- "Eric is patient and explains things extremely well."
- "Project requirements fit very well with course content."
- "The instructor made great use of his technical background to bring relevance to the material."
- "Best course I've ever taken, and this is my last semester."
- "Instructor was very enthusiastic about the subject matter and was understanding to all students' needs."
- "Instruction was filled with stuff I can use every day. Mr. Hawley makes class fun!"
- "Very up to date – incorporated a lot of valuable info on newer technologies."

SELECTED PRESENTATIONS - PEER REVIEWED OR BY INVITATION
(Outside of Utah State University)
- *Strategic Unification in IT Functional Realignment* (2008). Technical Paper at Association for Computing Machinery SIGUCCS Fall Conference. Portland, OR.
- *Digital Photography* (2008). Career and Technical Education Family and Consumer Sciences Conference. Kaysville, UT.
- Online Financial Essentials (2008). Career and Technical Education Family and Consumer Sciences Conference. Kaysville, UT.
- *Western Style E-Commerce Training* (2008). Lead Trainer/Presenter, Two-Day Small Business Training. Moscow, ID.
- *Western Style E-Commerce Training* (2008). Lead Trainer/Presenter, Two-Day Small Business Training. Bozeman, MT.
- *Western Style E-Commerce Training* (2008) Lead Trainer/Presenter, Two-Day Small Business Training. Sidney, MT.
- Electronic Communication with Customers (2008). Presentation and Training at Regional Diversified Agriculture Conference. Logan, UT.
- *E-Commerce Marketing and Technology* Overview (2007). Southwest Marketing Network. Flagstaff, AZ.
- *Centralizing IT Services in Higher Education* (2007). Microsoft Higher Education Symposium. Chicago, IL.
- *Four Ways, Two Approaches to Selling Online* (2007). Senator Bennett's Entrepreneurial Sustainable Agriculture Conference. Logan, UT.
- *E-commerce Development and Planning* (May, 2006). Seminar at Cashing in On Business Conference. Howard College, Big Spring, TX.
- *Technology and the Small Business* (February, 2006). Presentation and workshop at the Diversified Agriculture Conference. Cedar City, UT.
- *Voice over IP* (October, 2005). Presentation at faculty certification training, University of Phoenix, Murray, UT.
- *E-Commerce Approaches and Connections* (May, 2005). Multiple presentations at the SRDC E2 Entrepreneurship & E-Commerce Conference. Oklahoma City, OK.

- *Living Online* (March, 2005). Present at Issues 2005 Community Conference. Heber City, UT.
- *Selling Online* (February, 2005). Presented at the Diversified Agriculture Conference. Brigham City, UT.
- *Internet and Computer Security* (August 2004). Presented at the Utah Farm Bureau Annual Retreat. Park City, UT.
- *Four Ways and Two Approaches to One Goal: Selling Online* (April 2004). Presented at the Four Corners Regional Conference on E-Commerce. San Juan College, Farmington, NM.
- *Imaging for the Internet* (April 2004). Presented at the Four Corners Regional Conference on E-Commerce. San Juan College, Farmington, NM.
- *E-Commerce Overview* (April 2004). Presented at the Four Corners Regional Conference on E-Commerce. San Juan College, Farmington, NM.
- *Classes of E-Commerce* (February 2004). Presented at the Community Vitality Initiatives (CVI) conference. Las Vegas, NV.
- *Computer and On-Line Financial Tools* (February 2003). Presented at the Utah Farm Bureau Women's Conference. Murray, UT.
- *Digital Imaging* (November, 2003). Presentation at the Weber County Holiday Fair and Conference. Weber State University, Ogden, UT.
- *Personal Digital Assistants* (2002 and 2003). Presented both years at the annual conference for the American Association for Adult and Continuing Education. Park City, UT.
- *Beginning Internet* (December 2002). Presented at the Smart Utah Exposition and Conference. Brigham City, UT.
- *It's a Thin, Thin World: Thin Clients in Higher Education* (May 2002) Presented at National Extension Technology Conference, Penn State University, PA.
- *Land, Air and Sea: An overview of wireless and streaming technologies* (August 2001). Presented at American Phytopathological Association (APS)/MSA/SON Joint Meeting. Salt Lake City, UT.
- *CALFNES: Computer Assisted Literacy for Non-English Speakers* (2001). Presentation with Hector Mendiola. Bridging the Digital Divide planning meeting. Omaha, NE.