ORGANIZATIONAL MINDFULNESS IN HIGHER EDUCATION INFORMATION TECHNOLOGY: A DELPHI STUDY

by

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Abstract

This study examined the opinion of higher education information technology professionals on organizational mindfulness and mindful organizing in aligning their department's organizational goals with the broader college/university institutional mission. It used the Delphi methodology to question experts in the higher education information technology field on their opinion toward the near future of information technology in higher education and the place of information technology in the strategic and operational directions of the institution it supports. In particular, it asked about the place of organizational mindfulness and mindful organizing in aligning the mission of the information technology organization with the broader institutional mission. The study sought consensus on the research questions as determined by statistical analysis of survey answers. Once consensus was reached, both qualitative and quantitative analysis of the data was done. The findings indicate that although information technology professionals' knowledge of organizational mindfulness and mindful organizing is limited, as information technology services become more central to both operational and strategic missions of colleges/universities, they rate this tool highly as an avenue to more closely align the organizational mission with the institutional mission.

Keywords: organizational mindfulness, mindful organizing, higher education, information technology, Delphi methodology, consensus

Dedication

This dissertation is dedicated to my family; the source of my strength and primary motivation to reach for what, at one point in my life, I had assumed was an unobtainable dream.

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This dissertation was not a solo effort. Many people deserve recognition.

First, I would like to recognize my cohort, the 2015 Blue Angels. Our time together in the last few years has helped me tremendously. You have been my cheerleaders, listening ears, emotional support, compassionate friends, and reality check. Your feedback has been invaluable. I believe we've found friendships that will last the rest of our lives.

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"Alone we can do so little; together we can do so much." – ***Helen Keller***

To all of you, "Thank you!"

Karen McArthur

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AAUP: American Association of University Professors
AGB: Association of Governing Boards of Universities and Colleges
CLAC: Consortium of Liberal Arts Colleges
EDUCAUSE: a non-profit to advance higher education through technology use
Higher Ed: Higher education
HRO: High-reliability Organizations
IT: Information Technology
KRNW: Knowledge Resource Nomination Worksheet
LOPSA: League of Professional Systems Administrators
SAGE: Systems Administrators Guild
SWOT: Strengths, Weaknesses, Opportunities, Threats
USENIX: Advanced Computing Systems Association (formerly Unix Users Group)

Chapter 1: Introduction

Higher education institutions in the U.S. have evolved over the past couple of centuries with strong traditions and cultures (McClure, 2003). Information technology (IT) is a new-comer to the higher education realm and is still developing its place within those traditions and cultures. In a world of reducing budgets and increasing expectations, colleges and universities find themselves in a position of attempting to find efficiencies wherever they can. The promise of IT has been that it provides tools for the organization to realize these efficiencies. Technology can, however, become distracted or distracting, causing inefficiencies and revenue losses. Organizational mindfulness, as defined by Weick and Sutcliffe (2001), is an ongoing evolution in an organization's strategic processes based on expectations and experiences, which allow it and its people to improve its ability to react to future events and enhance current functioning. Mindful organizing, as defined by Vogus and Sutcliffe (2012), is focused on the application of collected organizational knowledge and resultant operational outcomes, especially on the front line. The purpose of this study was to examine organizational mindfulness and mindful organizing in the context of higher education information technology departments in aligning the department's organizational goals with the broader college/university institutional mission.

Generally, in the U.S. older private colleges where faculty are a strong force, decision-making processes are tradition-bound. Academically, financially and politically institutions are slow to change from processes followed in the past. A shared governance decision-making structure in those institutions has grown out of a model suggested by the American Association of University Professors and the American Council of Education (1966). In this model, the faculty is a strong force in decision-making. This process can be drawn-out, as it relies on all stakeholders having input in decisions. Change comes slowly. Subsequently, the Association of

Governing Boards of Universities and Colleges (2001) released a statement on governance. In it, they state "internal governance arrangements have become so cumbersome that timely decisions are difficult to make, and small factions often are able to impede the decision-making process" (Association of Governing Boards of Universities and Colleges (AGB), 2001, p. 3).

In contrast, Birnbaum (2004) does not necessarily see shared governance as bad, just a situation that must be acknowledged. He states, "The basic question to ask is not whether we want to make governance more efficient, but whether we want to preserve truly academic institutions. If the answer is affirmative, then shared governance is an essential precondition" (Birnbaum, 2004, p. 20).

Technology, by its nature, changes rapidly. Most software and hardware vendors support their most recent version, but due to resource limitation, can only support one or two prior versions. Thus, many services (administrative software, web applications, management software) need to keep upgrading at this rapid pace in order to have continuous support from vendors. This places information technology (IT) staff in a mindset of expecting to do constant upgrades, in addition to evaluating new and emerging technologies, such as cloud, mobile, social/collaboration, big data, and analytics. Thus, the IT decision-making process, by the nature of the IT industry, should be limber to keep up with the pace of changes and changing needs.

IT decision makers need to balance this need for continuous upgrades and implementation of emerging technologies with the mission of the school they are there to support, their surrounding stakeholders and subcultures and the environment. The stakeholders must be the driving force in all technology implementations. Decisions must not be made for IT sake (the newest shiny thing), but IT must always remember it is in service to support surrounding groups. The IT decisions must align with the goals of the organization.

For the past 20 years, business-IT alignment has been the method seen to achieve this best. It is "the capacity to demonstrate a positive relationship between information technology and the accepted financial measures of performance" (Strassmann, 1998, p. 4). Strassmann (1998) mentions several characteristics to achieving successful alignment of IT and business plans. It must show enhancements to a business plan, must remain updated as business evolves, must overcome obstacles to its purpose, must be planned and must relate to benefits. Further, in order for the alignment to succeed over time, these characteristics need to be able to survive changes both in the organization's goals as well as organizational leadership.

According to Henderson and Venkatraman (1999), in order to achieve alignment, the organization needs to make its decisions that consider both the IT and non-IT perspectives. Closely related to business-IT alignment is the idea of IT governance, the responsibility of creating a management structure that sustains the organization's objectives by managing IT projects and portfolios (Henderson & Venkatraman, 1999), including upper management decisions on which projects receive funds. None of this is accomplished just for technology's sake. The ultimate goal of business-IT alignment is to ensure that IT is a transformative tool in the organization. It can be used by the organization to redesign itself and realize efficiencies that the technology makes possible.

Statement of the Problem

According to Shpilberg, Berez, Puryear, and Shah (2007, p. 3), strict adherence to business-IT alignment holds within it an "alignment trap." Situations develop longitudinally in which performance of companies with a strict emphasis on business-IT alignment either become stagnant or declining. As IT departments attempt to fulfill multiple and occasionally conflicting requirements, over time they build a more and more complex network of systems. These

systems can offer overlapping services. This complex network of systems may result in rising costs, service fragmentation and delays in delivery of projects (Shpilberg et al., 2007). The following diagram, Figure 1, shows data from a Bain Analysis Survey (Shpilberg et al., 2007) that shows the financial consequences of the alignment trap. The goal is to be in the "IT-enabled growth" quadrant, where IT enables and supports organizational growth by being aligned to organizational goals as well as being effective. The "alignment trap" quadrant is where IT is aligned but less effective. Shpilberg et al. see the way out of the trap as a simplification of computerized systems.

What happens over time and how does an organization find itself in this alignment trap? An organization in IT-enabled growth will not stay unchanging. It will continue to add IT projects. With only finite resources available, these additions may take the emphasis off of legacy systems and the need to upgrade and standardize, resulting in higher cost and slowing growth. These move organizations into the "alignment trap." According to Shpilberg et al. (2007), the most efficient way to get out of the alignment trap is to ignore alignment for a short term in order to make simplification modifications by concentrating on upgrades and standardizations. These move the organization to the "maintenance zone" where they are less aligned and less effective. This simplification and standardization enable IT to become "well-oiled" again where they are less aligned, but more effective, before aligning to organizational goals again and moving back to "IT-enabled growth." Interestingly, 74% of respondents in the Bain Analysis Survey reportedly were in the maintenance zone, 8% were "well-oiled" and 11% were in the "alignment trap." These left a meager 7% in "IT-enabled growth" (Shpilberg et al., 2007, p. 52).

This cycle can place stress on an organization. Moreover, an organization can repeat it

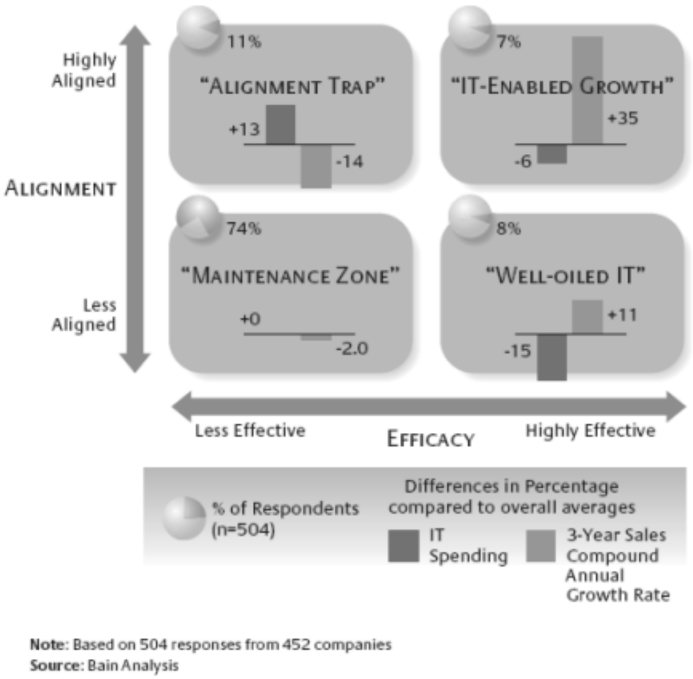


Figure 1. Alignment Trap, Bain Analysis.

This figure illustrates the four possible zones of efficiency in an IT organization: Alignment versus Efficacy. From "Avoiding the alignment trap – in information technology", by D. Shpilberg., S. Berez, R. Puryear, & S. Shah, 2007. MIT Sloan Management Review, 49, p.54. Copyright 2007 by MIT Sloan Management Review. Reprinted with permission.

more than once over time. Is it inevitable or are there ways to avoid it? Weick and Sutcliffe (2001) examined high-reliability organizations (HRO), such as air traffic control and nuclear power plants, that cannot sustain errors without catastrophic consequences. They attribute the organizations' ability to react to unexpected circumstances as "organizational mindfulness." Scholars have extended the use of this organizational mindfulness to organizations they call "reliability-seeking organizations" which are those organizations that are not high risk, but whose operations can be negatively impacted by the loss of reliability. In particular, authors

explain that organizational mindfulness "both increases the comprehension of complexity and loosens tight coupling" (Weick, Sutcliffe, & Obstfeld, 1999; Weick & Sutcliffe, 2001).

However, what if only a portion of an institution is considered: a single departmental organization within the larger institution, such as the information technology department in a college or university? What is the applicability of organizational mindfulness in information technology decision-making in higher education? Would utilizing organizational mindfulness in the information technology department decision-making in higher education facilitate strategic alignment within the broader organization?

This study focused on the decision-making process in the information technology department within the broader scope of a college in order to examine if the use of organizational mindfulness would facilitate alignment with the broader organization. In particular, this study conducted a Delphi Study and utilized a SWOT analysis in order to determine if IT professionals consider organizational mindfulness a useful tool to accomplish alignment. Utilizing the perspectives of various members of the department, top administration, middle management, and front-level employees, professional consensus on the topic were examined and compared.

Conceptual Model/Theoretical Framework

The Organizational Mindfulness Model: Organizational mindfulness, as defined by Weick and Sutcliffe (2001), refers to the ability of an organization to recognize and react quickly to emerging "threats." It encompasses the idea that decisions are made with a conscious awareness of the surrounding community expectations. Decisions made will not be final but have ongoing and continual scrutiny and refinement. The idea of organizational mindfulness incorporates a sense of complete flexibility to be able to adjust as context adjusts. This flexibility enables an improved current functioning and even foresight (Weick & Sutcliffe,

2001).

In contrast, mindful organizing, as defined by Vogus and Sutcliffe (2012) is used by workgroups. It is about collective knowledge. As situations are encountered and worked through, a group adds operational knowledge to be shared among the members. It is this body of collected knowledge that enables a workgroup to detect and adapt to evolving errors and unexpected events. Further, Vogus and Sutcliffe propose a model where organizational mindfulness and mindful organizing facilitate decision-making with resultant improved strategic and operational outcomes. See Figure 2. This study used the framework within an IT department in a collegiate setting.

Technology began to be utilized in many higher education institutions as an administrative tool for business processes. Over the years it has evolved to become pervasive even in classrooms. Faculty, in the role of shared governance, have felt a need for more of a voice in technology decision-making (McClure, 2003).

Thus, it has become more critical that daily strategic decisions of the IT department must be in light of the broader scope of the college. The strategic direction of the IT department must align with the strategic directions of the organization. A top administrator's task is the strategic decision-making of the department. These strategic decisions are made to ensure the work of the department is supporting the mission of the college as a whole.

As front-line employees encounter and solve issues, the attained knowledge is added to the collected body of knowledge of the workgroup. In an IT department within a broader collegiate setting, daily operational decisions include, but are not limited to, direct support of end users, evaluations of innovative technologies, and integration of disparate computer systems.

Bridging these two groups, are the middle managers, who translate between the strategic

organizational mindfulness and the operational mindful organizing.

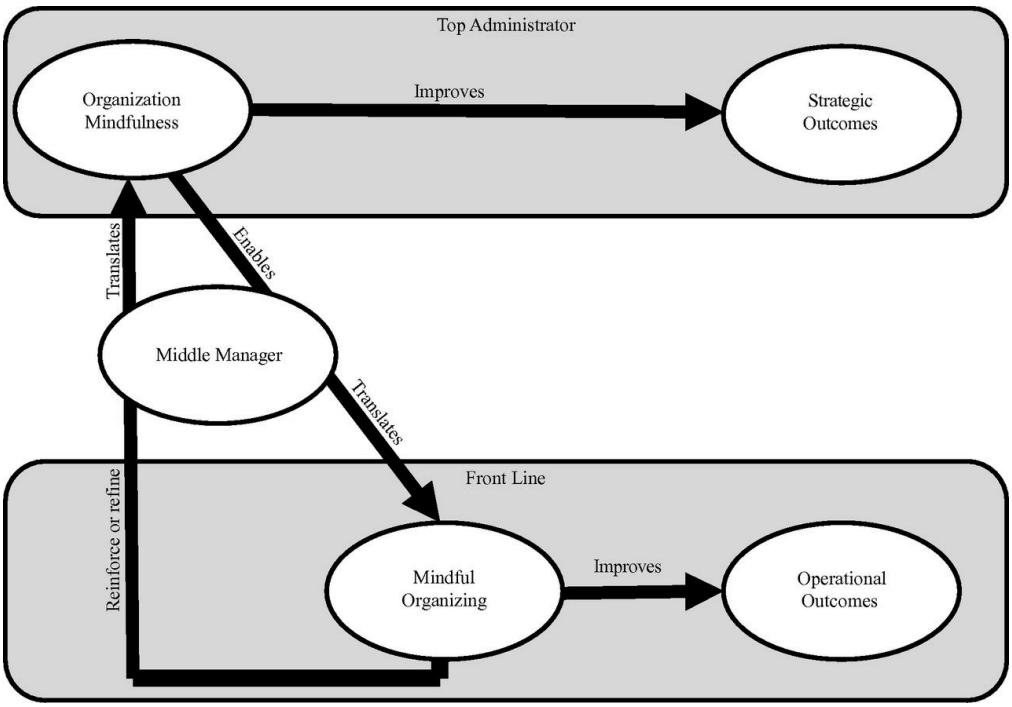


Figure 2. Organizational Mindfulness Model.

The Organizational Mindfulness Model as proposed by Vogus and Sutcliffe. From "Organizational mindfulness and mindful organizing: A reconciliation and path forward" by T.J. Vogus & K.M. Sutcliffe, 2012, Academy of Management Learning & Education, 11(4), p.728. Copyright 2012 K.M. Sutcliffe. Reprinted with permission.

Definition of Terms

Higher education in the United States is a form of post-secondary education (optional learning beyond high school) where the institutions are degree-granting. The institutions include colleges, universities, and community colleges. They are in contrast to non-degree granting

institutions that provide specific vocational, technical, and career training (U.S. Department of Education, International Affairs Staff, 2005, p. 24).

Higher education governance is the means through which higher education institutions, (also known as post-secondary) operate themselves. There are several forms of governance worldwide. Since the mid-1960s, most higher education institutions in the United States are distinguished by a system of shared governance, as opposed to the institutional governance of corporate organizations (Birnbaum, 1988).

Higher education information technology is defined as "technology staff, services, and support associated with administrative systems and services, as well as their strategy, management, budgets, and policy" (EDUCAUSE, 2018). This definition also encompasses all of the services and systems used to store and manipulate college data and processes. These can be on-premise, in the cloud, or shared.

Individual mindfulness curtails negative functioning and enhances positive outcomes in several essential life domains, including mental health, physical health, behavioral regulation, and interpersonal relationships. There are two perspectives: western and eastern. A *Western perspective* is an information-processing approach. It is active differentiation and refinement of existing categories and distinctions, creation of new discontinuous categories out of streams of events, and a more nuanced appreciation of context and alternative ways to deal with it. The *Eastern perspective* is based on Buddhist thought. It is receptive attention to and awareness of present events and experience occurring both internally and externally, or moment-to-moment, nonreactive, nonjudgmental awareness (Brown & Ryan, 2003; Langer, 1989; Weick & Putnam, 2006).

Information technology governance is the process that ensures the effective and efficient use of information technology to enable the organization to achieve goals (Ajami & Al-Qirim, 2013).

Mindful Organizing is a group's collective ability to detect and correct errors and unexpected events based on past experiences. The collected knowledge of the group can be called upon to evaluate situations as they arise and able to be passed on from one person to another (Vogus & Sutcliffe, 2012).

Mindfulness is the ability to be aware and "fully present" in where we are and what we are doing, yet not overly judgmental, reactive, or overwhelmed. The key components are purposeful action, focused attention, grounding in the current experience, and holding a sense of curiosity (Langer, 1989).

Organizational agility is the measure of the ability of an organization to rapidly adapt to changing situations. A high level of agility means an organization can successfully adapt (McAvoy, Nagle, & Sammon, 2013).

Organizational learning is the ability of an organization to gain insight and understanding from experience through experimentation, observation, analysis, and a willingness to examine both successes and failures. It is an integral piece of mindful organizing (McGill, Slocum Jr., & Lei, 1992).

Organizational mindfulness is the combination of ongoing scrutiny of existing expectations, continuous refinement and differentiation of expectations based on newer experiences, willingness and capability to invent new expectations that make sense of unprecedented events, a more nuanced appreciation of context and ways to deal with it, and

identification of new dimensions of context that improve foresight and current functioning (Weick & Sutcliffe, 2001).

Shared governance was first defined in a joint release by the American Association of University Professors, the American Council on Education, and the Association of Governing Boards of Universities and Colleges in the mid-1960s. It has been modified over time, but the basic principles remain the same. It assumes a governing structure where there is a balance in which there are some faculty and staff participation in the decision-making on one side and shared administrative accountability on the other side (American Association of University Professors (AAUP), 1966; Association of Governing Boards of Universities and Colleges (AGB), 2001).

Strategic alignment is the extent to which an organization's resources and structure are linked to the prevailing environment (regulatory, physical) and strategy. It can be seen from three levels: corporate strategy (portfolio and interrelationships among businesses), business strategy (maximizing an organization's competitive advantage), and functional strategy (efficient allocation of resources to functions) (Kochan, 1992).

Strategic business-IT alignment (also known as technology alignment) is the extent to which technology decisions align with business decisions in an organization. Taken in light of Kochan's definition of *strategic alignment*, it would fall within the functional level. Business-IT alignment is a dynamic state in which a business organization can use information technology (IT) effectively to achieve business objectives: typically to improve the financial performance or marketplace competitiveness (Henderson & Venkatraman, 1999).

Research Questions

The research questions for this study were:

R1. What is the role of information technology in the operational and strategic framework in colleges and universities in the near future (next five years)?

R2. What is the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (next five years)?

Also, to further explore this topic, the sub-questions for this study were:

S1. How are organizational mindfulness and mindful organizing currently demonstrated in an organization?

S2a. What are organizational mindfulness' and mindful organizing's impact on organizational mission?

S2b. What are organizational mindfulness' and mindful organizing's impact on institutional mission?

Significance of the Study

From an outside perspective, many see IT as a budgetary "black hole." IT spending is on infrastructure and unseen by many, but typically, it is a sizeable financial number. From an inside perspective, many IT departments spend their days on the minutiae of solving operational problems and general support of their communities. Given the size of their budgets and complexity of ongoing projects, the IT department may assume different priorities than the broader community.

In these times of predominantly shrinking budgets and expanding expectations, it is imperative for IT to begin to realize its promise (David, 1994) of realizing efficiencies for its parent institutions. Previous attempts have made strides toward this with strategic business-IT alignment. However, this has a trap at its end, leading back to more inefficiencies and costs. As

IT attempts to fulfill multiple (and occasionally conflicting) requirements, they build a more and more complex network of systems. These systems can offer overlapping services. Also, the development of new systems can take the focus off of the need to upgrade legacy systems or the need to standardize across systems. This complex network of systems may result in rising costs, service fragmentation and delays in the delivery of projects.

The purpose of this study was to examine organizational mindfulness and mindful organizing in the context of higher education information technology departments in aligning the department's organizational goals with the broader college/university institutional mission.

General Procedures

This study utilized the Delphi study methodology to question experts in Information Technology departments in higher education to reach consensus. The Delphi study was initially designed to be conducted using three panels, one from the perspective of top information technology administration, one from the perspective of middle-level information technology managers/directors, and one from the perspective of front-line information technology professionals. In light of the different viewpoints of these three panels, the researcher expected that their panel consensus may have been different and that those differences could also be examined.

- The selection of panelists was made through stratified purposeful sampling. Experts were be prequalified through the use of a knowledge resource nomination worksheet (Okoli & Pawlowski, 2004) and then selected based upon their fit for the study and their job classification. In order to fill the panels to the required level, snowball sampling (recommendations from people already identified) followed.

- Phase 1 was brainstorming. It consisted of two questionnaires. First, all panelists received the same open-ended questionnaire based upon the Research Questions (See Appendix C: Phase 1 - Brainstorming). After the return of their opinions the researcher removed duplicates and created a consolidated list of replies. The researcher coded initially using In Vivo coding in order to stay as close as possible to the respondents' own words. The researcher then returned the created list to the panelists (Questionnaire 2) to verify if their answers were interpreted correctly, receive corrections, and acquire any additions which might have occurred to the panelists.
- Phase 2 was narrowing down. Using the feedback from Phase 1, the panelists received a questionnaire containing the accumulated list of responses from all participants (See Appendix D: Phase 2 – Narrowing-Down). Panelists were asked to select their top ten items, in no particular order, from the list and return their choices to the researcher. The responses were narrowed down by being a choice of 50% or more of the panel members. Thus, a narrowed-down list emerged.
- Phase 3 was looking for consensus. With the panel list from Phase 2, each panelist received their panel's narrowed down list and panelists were asked to rank items using a Likert scale of 1-5 (See Appendix E: Phase 3 – Ranking). The number of points chosen in the Likert was due to the recommendation of Krosnick and Fabrigar (1997). With more points, a person can more specifically relay their attitude, but with fewer points, the meanings of the options are more defined. The optimal number of options is 5 to 7 points since, as they stated, at that range the results are "more reliable and valid than shorter or longer scales" (Krosnick & Fabrigar, 1997, p. 148). The researcher evaluated all responses by calculating median, percentage of respondents saying items are very important or extremely important (Likert 2

or 1), standard deviation (SD) and interquartile range (IQR). Through this, the next questionnaire was developed.

- The resultant questionnaire sent back to each panelist was to have their response, the median response, SD, IQR, and the same Likert scale. Through this, the panelists would see how their responses compared to other panelist responses. They were being asked to Likert rank the items again. Through this, they would give the option to reevaluate their response (or not).
- If they choose not to change their response to be closer to the panel median, there was a text field to give reasoning why they were not conforming to the rest of their panel. This final form of questionnaire repeated until a stopping event occurred.
- A stopping event was pre-defined as meeting two or more of the following conditions: consensus was reached, a predetermined number of rounds had passed, or there had been no significant changes from the previous round.
- Utilizing the results of the consensus, the researcher formed conclusions.

Delimitations

This study selected panelists from employees within IT departments at liberal arts colleges and universities in the United States. The selected professionals worked in their respective college's information technology services departments, tasked with supporting technology and its users on the campuses they serve. The selected panelists ranged from top administrators (VPs, CIOs), middle managers (area directors/managers), and front-line professionals. They were classified as such from their demographic questionnaire answers in order for separation into panels. A panel, as defined by Okoli and Pawlowski (2004) has between 10 and 18 people, erring toward the upper end of that range to account for any drop-

outs. As the precepts of a Delphi study specifies the panelists need to be experts, the selected panelists needed to be experts in their fields.

The experts needed relevant knowledge, and each panel was made up of subjects from a heterogeneous population (Rowe & Wright, 2001). However, beyond that, literature was vague on the definition of an expert, leaving it to the researcher to make that determination. For this study, an expert was defined as a person working in their position within the college or university's IT department for a minimum of 2 years. Their experience gave them time to acclimate to the position and acquire the necessary job skills to be self-directed in their daily duties. Additionally, they needed to have a capacity and willingness to participate, knowledge and experience in the issue under investigation, sufficient time to participate and effective communication skills. The experts were identified utilizing existing personal connections and memberships with higher education and information technology professional associations, such as the Consortium of Liberal Arts Colleges (CLAC), EDUCAUSE (a higher education IT association), and USENIX (the advanced computing systems association). It is important to note that panelists did not need to be true 'experts' (those with authoritative knowledge), but expert level practitioners (those with expertise in their job functions).

Overview

This study examined the opinion of information technology professionals on organizational mindfulness and mindful organizing as it pertains to the impact upon both departmental and institutional missions. It used a Delphi study, an exploratory sequential mixed methodology, to question experts in the higher education information technology field in order to reach consensus on these questions. The Delphi study was conducted using the perspective of top information technology administration, middle-level information technology

managers/directors, and front-line information technology professionals. Given the differing perspectives of these three groups, the researcher expected that their perspectives may be different and that those differences could also be examined. Consensus on the research questions was sought as determined by statistical analysis of survey answers: interquartile range, standard deviation, and percentage of panelists answering the same way. Once consensus was reached, the data were analyzed to examine the results to find recurring themes and patterns.

Chapter 2: Literature Review

Introduction

In these days of restricted budgets and exploding higher education costs, higher education administration needs to scrutinize every decision in the context of technology's usefulness to the organization and balance that against the cost to the institution. This study focused on the importance of organizational mindfulness in decision-making within this context.

The following themes were found in a review of the literature: higher education governance, information technology governance, information technology decision-making, strategic business-it alignment, and mindfulness. Also, as the research questions presented themselves, the Delphi study methodology and SWOT were investigated.

Higher Education Governance

Higher education institutions in the U.S. have evolved over the past couple of centuries with strong traditions and cultures. Generally, in older private colleges where faculty are a potent force, decision-making processes are tradition-bound academically, financially and politically and they refuse to adopt modern management and planning techniques (Keller, 1983). A shared governance decision-making structure has grown out of a joint release by the American Association of University Professors and the American Council of Education (American Association of University Professors (AAUP), 1966). In this model, the faculty gained its voice in decision-making, which has increased in strength over time. The decision-making process can be drawn-out, as it relies on all stakeholders have a say in decisions. Change comes slowly. Any transformations that may occur need to be aware of the culture and subcultures surrounding it (Berquist, 1994; Birnbaum, 2004; Shinn, 2004).

This shared governance structure has made it critical for higher education administrators to have a clear and comprehensive view of their institution in order to have the institution work effectively. They need to see the institution from several perspectives, such as understanding the organizational structure of the shared governance and bureaucracy, institutional decision-making models, the interactions of political factions and dynamics of power-sharing (Birnbaum, 1988; El-Khawas, 2002; Greenberg, 2004; Huisman, 2009; Minor & Tierney, 2005).

Also, higher education institutions are urged to remember that they do not exist in a vacuum. They exist within the context of a broader external community. Any governing decisions made must be made utilizing principles of accountability and public trust (Association of Governing Boards of Universities and Colleges (AGB), 2001; Bok & Gorovitz, 1983).

It becomes clear that the governance of the institution requires more than simple managerial skills. The future of the institution depends on its leaders to be proficient in the "soft" skills of interpersonal communication, listening, the ability to deal with a high degree of ambiguity, and the additional ability to set up a system to keep informed (Atwell, 1996; Duderstadt, 2003; Fiedler, 1976; Yanosky & Caruso, 2008).

Information Technology Governance

Within this framework of the broader community, the individual departmental governance structures need to exist and succeed in order for the organization as a whole to thrive. As the new-comer to the higher education culture, information technology departments are still finding their place among the other departments as well as within the decision-making structures of the organization.

Attempts on assessment of information technology management and planning have determined that there has been little research about its impact on access to and use of computing resources by faculty, staff, and students (Ajami & Al-Qirim, 2013; Rocheleau, 1996).

Early studies focused on the financial side of IT and its use within the institution. They were concerned with the effective use of technology as opposed to its use by the institution - keeping track of sunk costs and value-added benefits of IT (Bates, 2000; Cavanaugh, 2004), sunk costs being those unrecoverable costs already incurred.

As presented in a research report by the EDUCAUSE Center for Applied Research (ECAR), IT governance is at a crossroads (Pirani & Yanosky, 2005). Institutions tend to report low levels of IT governance maturity. Chief Information Officers (CIO) were perceived as responsible for IT governance, yet most decisions involved many participants, most notably a central IT office. Technical decisions tended to be dominated by IT, but strategic and business decision inputs were more diverse. The report concluded that the processes most closely related to positive outcomes were actively inclusive and involved some form of post review. Moreover, while executives outside of IT and CIO disagreed that IT decisions were aligned with institutional goals, all agreed on a favorable rating of IT effectiveness (Pirani & Yanosky, 2005).

Kuhn and Bellos (2008) propose policies to convert this interdepartmental relationship into a partnership of shared goals. This report is echoed in a research bulletin presented by ECAR (McCredie, 2006). Recent studies take it a step farther, stating that IT governance can contribute to business agility, allowing an organization to grow and adapt to changes, but only if they allowed a certain level of freedom. It is labeled "adaption versus anticipation." Governance requires anticipation, control, and planning, but agility requires adaptation to unforeseen circumstances (Couto, Lopes, & Sousa, 2015; Eade, 2010).

Information Technology Management

McClure (2003) describes university governing structures as "loosely coupled anarchy" and their management structure will generally reflect what the type of school is, from for-profit and not-for-profit to research institutions (Penrod, 2003). Each of these organizations will have technological needs based upon their constituencies. The more complex the institution, the more complex the technological needs. So, unfortunately, the more complex the technology design, the more prone to security issues and lack of efficiency it will become (McCredie, 2006). The job of the CIO is to be an effective leader in order to mitigate these issues. McCredie suggested that as a good leader, the CIO can solve inefficiencies and security issues with clearly defined roles, effective communication, and defined accountability and responsibility.

As part of his evaluation, McCredie looked at the tension between two opposing technology structures: centralized and decentralized. The issue in a centralized structure is that it will create consistency across all levels of the organization and allow for economic scale in purchasing, but it may stifle innovation and take power from the individual departments in investigating technology use in their fields (Duderstadt, 2003).

Krueger (2009) looked at the tensions in these two models and attempted to find a balance between them utilizing the best of both the centralized and decentralized models. The study came up with several guidelines. First and foremost is a partnership among stakeholders – joint governance partnerships, customer-centered frameworks, and institution-wide security and efficiency initiatives.

Information Technology Decision-Making

Technology, by its nature, changes rapidly. Most software and hardware vendors will support their most recent version. However, due to resource limitations, the vendors are only

able to support one or two prior versions. The need for support on production services (such as administrative software, web applications, and management software) results in ongoing upgrades at the same rapid pace. Moreover, new and emerging technologies may be requested by the broader community, such as cloud, mobile, social/collaboration, big data, and analytics. The IT department's decision-making process, by the nature of the IT industry, must not be slow but must be limber to keep up with the pace of changes and changing needs.

The question then becomes, how does this mutual governance partnership aid in IT decision-making? Weill and Ross (2004) proposed an IT decision-making model consisting of three components. These are defining the decision-making domain, defining who has ownership and input into the decisions, and the enactment of the decisions themselves (Clark, 2005; Weill & Ross, 2004). Weill and Ross (2004) went on to specify five fundamental questions that need answering with every technology decision. These are clarifying the business role of the technology, will services be shared, integration requirements, business needs, and which priority gets allocated the necessary resources.

Strategic Business-IT alignment

All this aside (governance structure and decision-making processes), the critical mission of IT is to be aligned with the mission of the institution and constituents it serves. As defined by Strassman (1998) “alignment is the capacity to demonstrate a positive relationship between information technologies and the accepted financial measures of performance.” Further, in order to be aligned and to remain aligned, Strassman cites conditions that need to be met. Alignments must show enhancements to a business plan, remain updated as the business evolves, overcome obstacles to its purpose, must be planned, and finally, it must relate to benefits.

As noted by Penrod (2003, p. 26), a critical factor is to "align the IT plan with institutional planning, and link it to budget, implementation process, and unit and individual performance." Perception is key. One study found that higher perceived levels of planning, communication, and governance resulted in higher perceived levels of alignment between technology and the organization mission (Albrecht et al., 2004). This statement focuses on constituents. Thus, it is critical that the constituents have a clear understanding of the organization's mission in order to achieve alignment.

Another aspect of alignment is that the decision-makers need to have a clear perception of the direction of the organization (Penrod, 2003). Technology decisions, due to their costs, are frequently long-term directions. If decisions are not made with future organizational directions in mind, technology, and the institution may find themselves diverging from alignment.

Shpilberg et al. (2007) warn of a too-close emphasis on business-IT alignment that might lead to lower productivity and inefficiencies. It is labeled the alignment trap and occurs when an organization continues to add services. Over time, this may result in overlapping services and legacy systems that may not have been upgraded (Jackson, 2007; Shpilberg et al., 2007).

Recently, studies have utilized mindfulness to examine IT departmental agility (McAvoy et al., 2013; Sammela, Tapanainen, Baiyere, Hallanoro, & Galliers, 2015) as well as looking at IT alignment in comparison to organizational alignment (Tallon & Pinsonneault, 2011).

Some studies concentrated on interdepartmental communication as a step beyond alignment toward true institutional collaboration (Eichen, 2006; Grajek, 2011; Hinssen & Derynck, 2009).

Henderson and Venkatraman (1999) state that even though technology has evolved from its initial role as either a research tool or administrative support tool to a more common

organization-wide tool, there is a lack of a framework in order to utilize technology to its full potential. They created the strategic alignment model utilized in this study. It looks at technology from two main perspectives, those of strategic fit and functional integration.

IT strategic planning needs to be looked at from an organization-wide perspective. Since it is tightly integrated into the organization, all IT decisions need to be made in light of organizational goals and directions (Allison, 2016). A recent study took this a step farther and proposed a "digital business strategy" (Kahre, Hoffmann, & Ahlemann, 2017, p. 4706).

Strategic Alignment Model

A Strategic Alignment Model for businesses was proposed by Henderson and Venkatraman (1999) and later broadened to include higher education (Bhattacharjya & Chang, 2006). The model grew out of the argument that the lack of an ability to realize value from IT investments is the result of a disconnect between business strategies and IT strategies as well as there being no process for ensuring alignment between them. In the model are four quadrants representing the relationships of strategies and processes involved in IT decision-making in order to ensure alignment with the business mission (see Figure 3). There are four alignment perspectives to consider in business-IT alignment. The Strategy Execution perspective sees the business strategy as the driver in any IT design decision. Top Administrators are the strategists; middle Management are the strategy implementers. The Technology Potential perspective also sees the business strategy as the driver. However, this perspective sees the driver providing a "vision" as opposed to a direction for decisions. Once Top Administrators provide a vision, it is up to the Middle Management to be a technology architect and design and implement the infrastructure to support the vision while considering the IT strategy. The business strategy does not drive the Competitive Potential perspective. Instead, business strategy adapts to emerging

capabilities new

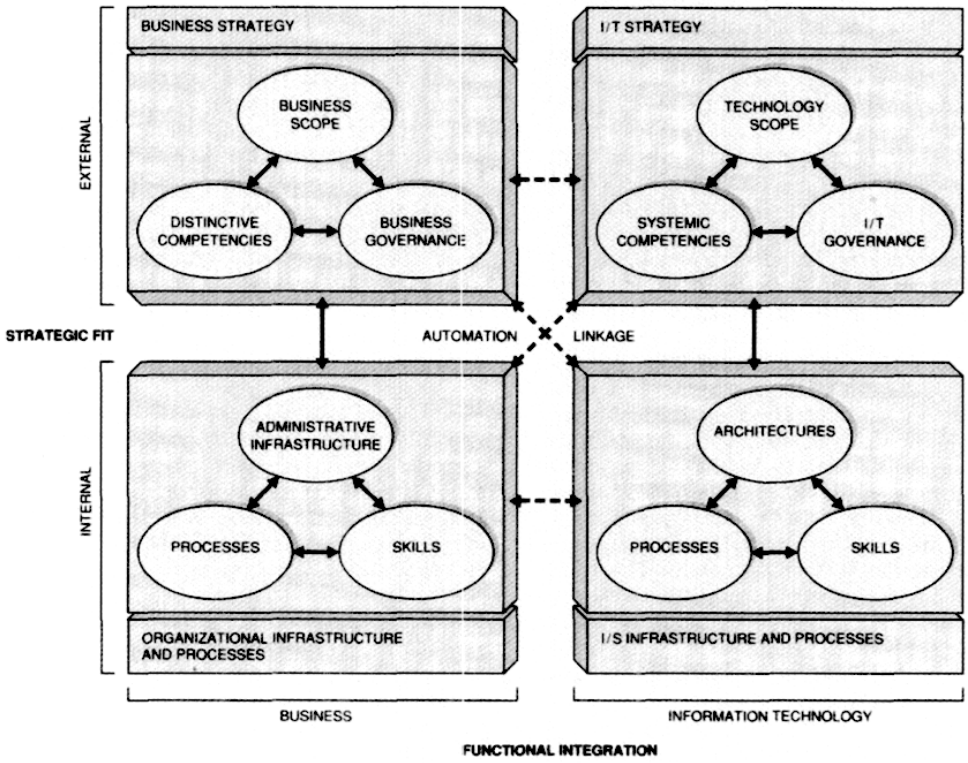


Figure 3. Strategic Alignment Model.

From "Strategic alignment: Leveraging information technology for transforming organizations" by J.C. Henderson & H. Venkatraman, 1999. IBM systems journal, 38, p. 476. Copyright 1999 by N. Venkatraman. Reprinted with permission.

technology provides. The Top Administrator's job is external and strategic, prioritizing IT work and managing investments. This person needs to articulate technology's abilities to the broader community. The Middle Management job is to act as a translator. These managers need to identify and track emerging technologies for the potential of opportunities or threats. Keeping this in mind, middle managers need to translate the strategic directions of the Top Administrator to actual projects and tasks to be passed on to front level service employees. They are concerned

with business leadership. The Service Level perspective is an internal IT department focus on building an excellent IT infrastructure within an organization. They are concerned with customer service and information technology service usage and delivery.

The idea of mindfulness grew out of eastern Buddhist philosophies. It is a process where conscious attention is given to both internal and external experiences happening at a given moment. Those experiences are viewed from a distance with no judgment as to it being right or wrong. The cooperative effort is more productive than individual effort (Johnson, Maruyama, Johnson, Nelson, & Skon, 1981). Langer (1989) worked on the positive health and business effects of mindfulness. The western perspective on mindfulness is an information-processing approach. It involves categorization of those experiences, creation of new categories out of streams of events, and observation and evaluation of the context of events to develop alternative ways to deal with them (Weick & Putnam, 2006).

Mindfulness

Weick and Sutcliffe (2001), examined some high-reliability organizations, such as nuclear power plants and air traffic control, where a failure could mean catastrophe. The high-reliability organizations had developed coping strategies to be flexible in the face of urgent demands. Weick and Sutcliffe (2001) recognized several patterns of behavior in these organizations which made them act more reliably and resiliently. They are:

- the combination of ongoing scrutiny of existing expectations,
- continuous refinement and differentiation of expectations based on newer experiences,
- willingness and capability to invent new expectations that make sense of unprecedented events,

- a more nuanced appreciation of context and ways to deal with it,
- and identification of new dimensions of context that improve foresight and current functioning.

Expanding on the definition of mindfulness, they collectively named these behaviors 'organizational mindfulness'.

Building on this research, Vogus and Welbourne (2003) extended organizational mindfulness to organizations in which errors will not be catastrophic but who wish to be more reliable. They named these organizations 'reliability-seeking'. Thus, organizational mindfulness has become a method for an organization to become more resilient and reliable.

Based on their governance models and context of cultures, educational institutions can be described as loosely coupled organized systems (Clark, 2005). Although mindfulness was not initially developed to examine loosely coupled organizations, it has been noted that it may be useful for learning about interdependencies in those organizations (Vogus & Sutcliffe, 2012).

Organizations do not need to be high-reliability organizations in order to be mindful (Weick et al., 1999; Weick & Sutcliffe, 2007). In fact, as Weick et al. (1999) recognized, all organizations see some level of problems. Given that organizational mindfulness can be used to prevent and respond to problems, this approach can be applied. Also, it has been noted that mindful organizations are more likely to achieve their goals (Ray, Baker, & Plowman, 2011).

Building further on this research, Vogus and Sutcliffe (2012) developed their organizational mindfulness model, which clarifies the different roles of organizational mindfulness and mindful organizing. In this model, organizational mindfulness seen is a strategic perspective, while mindful organizing is seen from an operational perspective. In both

cases, the term mindfulness is used with the idea of collective knowledge within a learning organization.

Recent studies by both Gebauer (2013) and Gärtner (2013) have looked at mindfulness and its usefulness in management and collaborative work. The studies both concluded that mindfulness enhanced both satisfaction and productivity whether employee or manager. Further, a recent study by Vogus, Sutcliffe, and Dane (2016) expanding on earlier work concludes that a cross-level institutional application of mindfulness both on an individual level as well as collectively will benefit the organization.

Delphi Method

In ancient Greece, Delphi was a sanctuary sacred to the god Apollo. Delphi was also considered, literally, the center of the Hellenic world with the Omphalos, or "navel" stone there. Those seeking the advice of Pythia, the Oracle of Delphi who lived there, were thought to be hearing guidance and predictions straight from the god Apollo himself. People from all over, both common and noble, came to consult the Oracle. Delphi became, over time, a meeting place for scholars and a place of intellectual inquiry. This inquiry and prediction gave the Delphi method its name since the Delphi method assumes that group judgments are more valid than individual judgments.

To conduct a Delphi study, a researcher forms a panel of experts on a subject. These subjects agree to participate in two or more rounds of questionnaires. After each round's questionnaire is returned, the researcher creates an "anonymized" summary of the round's judgments to return to the participants. Through this and in light of the answers from the other panelists, panelists can confirm or revise their judgments from the previous round. It is an assumption that at each round, the answers will converge toward the "correct" answer. The

questionnaires stop after predefined stop criterion are reached: the maximum agreed-upon number of rounds, a consensus is reached, a statistical benchmark is reached, or the results do not significantly change from one round to the next.

The Delphi method attempts to build consensus within a group using a series of questionnaires (Dalkey, 1972; Turoff & Linstone, 2002; Young & Jamieson, 2001). The iterative process, also known as rounds, allows participants to give their opinion, compare their responses to others in the group, and revise their opinion if desired. In this way, a consensus is reached. Ludwig (1994) states:

> Iterations refer to the feedback process. The process was viewed as a series of rounds; in each round, every participant worked through a questionnaire which was returned to the researcher who collected, edited, and returned to every participant a statement of the position of the whole group and the participant's position. A summation of comments made each participant aware of the range of opinions and the reasons underlying these opinions (p.55).

The Delphi process is designed to protect a group's opinion from some known group interaction concerns, notably a dominant individual's opinion, noise, and group pressure for conformity (Dalkey, 1972; Douglas, 1983; Ludlow, 1975). This design sets the Delphi method apart from other forms of group consensus, such as a focus group.

A fundamental concept in the Delphi method is the anonymity of the respondents. The identity of participants must be kept confidential even after the conclusion of the study. It protects the group's opinion from a dominant individual's, which may control the conversation and influence others in the group (Dalkey, 1972; Oh, 1974). This anonymity can be reinforced by a widely dispersed geographic location of the group and electronic communication. Also, it

frees participants to some extent from their personal biases, minimizes the possibility of a "bandwagon" effect, allows free expression of opinions, encourages open critique, and facilitates admission of error when revising earlier judgments.

Noise in a group occurs when the conversation strays into interests other than the question at hand (Dalkey, 1972). This noise introduces bias not related to the study. The iterative nature of the Delphi method provides controlled feedback to the researcher, virtually eliminating this noise and allowing participants to concentrate on the question at hand. In addition, since the iterative nature is mostly a summary of the previous round, it allows participants to generate more insights and to clarify their previous standings.

Group pressure for conformity is mitigated by statistical analysis techniques used to evaluate the response (Dalkey, 1972). The statistical analysis will ensure that the opinions of each respondent are reflected in each iteration. As it is possible for the final iteration to contain still disperse opinions, instead of full consensus, that dispersion is proof that there has been no pressure, real or perceived, to conform with the group's opinion. That dispersion may even be a possible result to be investigated further.

Finally, the Delphi method has a moderator or facilitator. This person conducts the study. The facilitator forms the panel by creating a measure of what is considered an "expert" on a topic or in a field and inviting them to join. There appears to be no set of standards in the literature for what is considered an expert (Okoli & Pawlowski, 2004). It appears that individuals are eligible to participate if they have related experiences and background with the subject matter, are capable of making a helpful input, and are willing to participate and revise their opinion if they feel they agree with the direction of the consensus (Oh, 1974; Pill, 1971). Delbecq, Van de Ven and Gustafson (1975) state that there are three groups of individuals well

qualified to participate, the top management decision makers who will utilize the outcomes of the Delphi study; the professional staff members together with their support team; and the respondents to the Delphi questionnaire whose judgments are being sought (p. 85)

Oh (1974) suggests choosing appropriate individuals based on the judgment of the researcher. Hsu and Sanford (2007) and Ludwig (1994) suggest choosing individuals based on a nomination process.

Overall, the selection process is likely to use various methods of selection including positional leaders (Ludwig, 1994), review of authors, and utilizing professional relationships (Hsu & Sandford, 2007).

The number of individuals chosen is the minimal number needed to sufficiently answer the question. This number should be under 50 (Ludwig, 1997; Witkin & Altschuld, 1996) and is generally agreed to be between ten and fifteen on a panel (Delbecq et al., 1975; Okoli & Pawlowski, 2004) as long as their backgrounds are homogenous.

How consensus is defined varies across many different studies. A broad, but not exhaustive, examination of different measures was done by von der Gracht (2012) that looks at 15 of them. The study categorizes them broadly into subjective criteria, descriptive statistics and inferential statistics.

Subjective criteria, such as a pre-determined number of rounds has been reached, are arbitrarily chosen by the researcher. However, it has been pointed out that three iterations are often enough to reach consensus in most cases (Brooks, 1979; Custer, Scarcella, & Stewart, 1999; Cyphert & Gant, 1971; Ludwig, 1994, 1997; Okoli & Pawlowski, 2004).

Descriptive criteria, such as the coefficient of variation, measures of central tendency (median, mode, mean), standard deviation (SD) or interquartile range (IQR) are basic statistical variations of deviation.

Inferential statistics, such as chi-square tests or Kendall's W coefficient of concordance, help to define relationships among variables and draw conclusions from them.

The Delphi research technique has been used in many industries but has been shown to help in educational research to predict trends by reconciling current literature, institutional research, and the campus environment with a Delphi consensus (Green, 2014).

Strengths, Weaknesses, Opportunities, and Threats Analysis

The origins of the SWOT analysis are not clear (Haberberg, 2000; King, 2004). It developed in the 1960s and 1970s as a popular tool to analyze an organization is the SWOT analysis. SWOT is an acronym for strengths, weaknesses, opportunities, and threats. It can be used to evaluate an organization through those dimensions by evaluating both internal and external factors that are either favorable or unfavorable. Strengths and weaknesses are considered internal factors over which there is some level of control. Opportunities and threats are considered external factors over which there is little or no control. Daft's (2006) definition is:

- Strengths are characteristics that give an organization an advantage over others.
- Weaknesses are characteristics that place an organization at a disadvantage to others.
- Opportunities are things that an organization can exploit to its advantage.
- Threats are things that can be problematic for an organization.

An underlying assumption of the SWOT analysis is that an organization can utilize the outcomes of the analysis in order to make strategic decisions that will minimize weaknesses and threats and maximize strengths and opportunities (Daft, 2006).

There have been several corporate studies that have utilized the structure of the SWOT analysis within the methodology of a Delphi study in a corporate environment (Al-Busaidi, 2014; Kazemiyeh, Sadighi, & Chizari, 2016; Párraga, Gonzalez-Cancelas, & Soler-Flores, 2014; Tavana, Pirdashti, Kennedy, Belaud, & Behzadian, 2012). These studies concentrated on strategic decision-making within the organization. Extrapolating from these studies, it would appear the procedures employed could be expanded to apply to educational organizations.

Summary

Organizational mindfulness applies to all types of organizations, including higher education institutions. This is especially critical in the atmosphere of the cherished shared governance practices. Organizational mindfulness was initially developed to describe the methods organizations utilized to avoid catastrophic errors but is increasingly used to describe organizations that pay close attention to their context and surrounding conditions, refusing to act on autopilot, but reacting based upon the specific situation presented. This introduced the ability for an organization to be agile in its actions.

Thus, building upon the work on strategic business-IT alignment as defined by Henderson and Venkatraman (1999), and Jackson (2007), organizational agility as defined by Tallon and Pinsonneault (2011), and Couto, Lopez and Sousa (2015), the alignment trap as defined by Shpilberg, Berez, Puryear and Shah (2007) and Hinssen and Derynck (2009), and mindfulness as defined by the combined works of Vogus and Spreitzer (2011), Vogus and Sutcliffe (2012), Dane(2011), Vogus and Welbourne (2003), Sutcliffe, Vogus and Dane (2016), Weick and Sutcliffe (2001; 2006, 2007), Weick and Putnam (2006), Langer (1989) Vogus, Rothman, Sutcliffe and Weick (2014), and Colville and Vogus (2016), this study will attempt to examine the role of organizational mindfulness and mindful organizing in higher education

information technology departments, and if utilizing them in information technology would facilitate strategic alignment into the broader organization.

Chapter 3: Research Design and Methodology

Introduction

Information technology has long promised cost and labor savings to those who implement it. Business-IT alignment has long been seen as the method to ensure that IT department priorities match up with and support the broader organizational mission. However, alignment alone has not fulfilled the promises that technology has made. As IT departments attempt to fulfill multiple and occasionally conflicting requirements, they build a more and more complex network of systems. These systems can offer overlapping services. In addition, the development of new systems can take the focus off of the need to upgrade legacy systems or the need to standardize across systems. This complex network of systems may result in rising costs, service fragmentation and delays in the delivery of projects. The purpose of this study was to examine organizational mindfulness and mindful organizing in the context of higher education information technology departments in aligning the department's organizational goals with the broader college/university institutional mission.

Research Questions

The research questions for this study were:

R1. What is the role of information technology in the operational and strategic framework in colleges and universities in the near future (next five years)?

R2. What is the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (next five years)?

Also, to further explore this topic, the sub-questions for this study were:

S1. How are organizational mindfulness and mindful organizing currently demonstrated

in an organization?

S2a. What are organizational mindfulness' and mindful organizing's impact on organizational mission?

S2b. What are organizational mindfulness' and mindful organizing's impact on institutional mission?

Methodology/Research Design

To answer these questions, a forecasting methodology would be needed. When possible methodologies were investigated, it was determined that the Delphi methodology fit the criteria (Chambers, Mullick, & Smith, 1971).

The Delphi research technique is helpful in arriving at a consensus among a selected panel of experts, and through that, gaining an ability to forecast or develop a strategy (Hsu & Sandford, 2007; Okoli & Pawlowski, 2004; Skulmoski, Hartman, & Krahn, 2007). A key feature of a Delphi study is that the panelists are anonymous to each other, thus eliminating any undue influence by stronger personalities on the panel. The only one who knows the identity of the respondents is the researcher, also known as the moderator. Selection of the correct mix on the panel is critical to the success of the study.

Delphi studies can be categorized as qualitative, quantitative, or mixed method depending on the research question(s) of the moderator. This study was conducted with the exploratory sequential mixed methodology. The first round of questions was qualitative, introducing the "voice" of the panelists through broad, open-ended questions. The results from the first round were used to create subsequent quantitative instruments. At each subsequent round, the results were correlated, questions became more focused, and thus, a consensus was produced.

Either a Delphi study or a traditional survey could give feedback from the selected stakeholders. However, the Delphi research method was chosen because it was seen as a stronger methodology to question an expert panel. When comparing the two methods, the following advantages for the Delphi methodology were seen:

1. This study investigated factors inherent in management and decision-making in hierarchical information technology departments within a larger collegiate organization. The issues involved needed people with specialized knowledge and understanding of the contributory factors.
2. A panel study gave broader responses than responses from one individual's perspective.
3. A Delphi study does not require a panel to meet. It involves total anonymity among the panelists. Only the researcher was aware of panelist identities, and then, only to facilitate communication in the rounds. This anonymity reduced the risk of a single-sided perspective resulting from a dominating personality, as might be seen in a face-to-face focus group.

Since its introduction and increasing use since the 1960s, the strategic planning tool of the SWOT analysis has been used by both researchers and practitioners. It is capable of segregating environmental factors, identifying those that are favorable or unfavorable to reach a goal (those categories being Strengths, Weaknesses, Opportunities, and Threats) and is used successfully for situational analysis (Weihrich, 1982).

The Delphi technique for data collection with SWOT to guide its analysis utilized in this study combines the strengths of a SWOT with the consensus-building strengths of the Delphi method (Al-Busaidi, 2014; Tavana et al., 2012).

The Sample

A Delphi study does not rely on sampling sizes to be representative of a population. The critical consideration of panel member selection is that they have an expert level understanding of the issues under consideration (Giannarou & Zervas, 2014; Hasson, Keeney, & McKenna, 2000). Various Delphi literature recommendations each panel consist of 10 to 18 members (Delbecq et al., 1975; Okoli & Pawlowski, 2004). The Vogus and Sutcliffe (2012) conceptual model used by this study has three perspectives, with somewhat different perspectives. As the goal of a Delphi study is to arrive at a consensus, it was thought a possibility to separate these three groups into separate panels, given enough participation allowing for comparison of the perspectives of the three groups. Given three panels then, this study would ideally have 30 to 54 total participants, subdivided 10 to 18 members on each of the three panels.

This design lends itself to panelist selection by stratified purposeful sampling. Purposeful sampling is when individuals are selected based upon knowledge or experience with a certain subject. Stratified sampling is when these individuals, based upon some criterion, can be separated into groups (Creswell & Clark, 2011).

Thus, following a stratified purposeful sampling technique, these experts were identified. Okoli and Pawlowski (2004) specify five steps on identifying experts for panels using a Knowledge Resource Nomination Worksheet (KRNW) to build up a potential pool to choose from (see Figure 4). This process allowed for a stratified purposeful sampling to be conducted to find the most appropriate experts. The premise was that a pool of possible experts is created which is much larger than the number required, in order to select those best fit for the study. In the first step, where a criterion for the definition of an expert was created. Using that criteria, the researcher then populated the KRNW with sources to find experts, such as professional

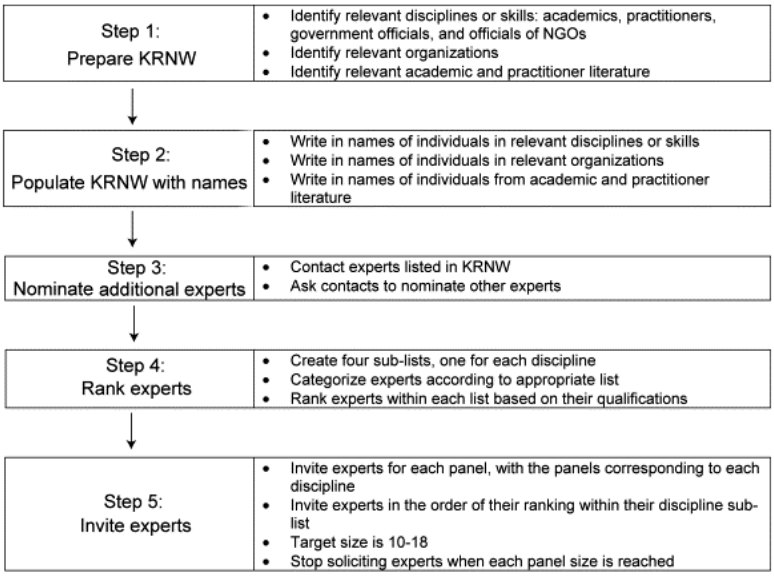


Figure 4. Knowledge Resource Nomination Procedure.

Note. From "The Delphi method as a research tool: an example, design considerations, and applications" by C. Okoli & S.D. Pawlowski, 2004. Information & Management, 42(1), p.21. Copyright 2002, Suzanne Pawlowski. Reprinted with permission.

associations, literature searches or colleague recommendations within disciplines. In step 2, the KRNW got populated with names from each of the identified sources.

As shown in step 3, the individuals identified were then contacted. Contacts were also asked to nominate likely experts. Once experts were identified and contacted, in step 4 those experts were ranked according to discipline and qualifications for inclusion on panels. Finally, in step 5, experts got invited to join the study. It appeared to be best to fill each of the panels closer to the maximum level to accommodate any drop-out that might occur. In this way, invitations ended when the desired number of acceptances was reached.

Requirements for panelists to be included in the invitation were that they have knowledge and experience with the issues under investigation, capacity and willingness to participate, and

effective communication skills. The panelists needed to be informed in their invitation that the time required for the study will be a maximum of six questionnaires spaced approximately four weeks apart (two weeks for return of replies and two weeks for data analysis), for a total commitment of six questionnaires over an 18-week period.

The panelists were assured of anonymity. No names were used in comments. In respect for their time, panelists were to be given two weeks to decide if they will participate and to forward any questions they may have before the first questionnaire is issued. For a copy of the study information sheet and study invitation letter, see Appendices B and C, respectively.

The Consortium of Liberal Arts Colleges, CLAC, is an association of information technology professionals from liberal arts colleges dedicated to promoting the role of technology in liberal arts. There are 70-member institutions in the U.S. CLAC has given the researcher permission to utilize its member listservs (member email list system), on which the researcher is also a subscriber from a member institution, to query for willing participants to participate in this study. Given that in general only a few members per school are subscribed to the CLAC listservs, the researcher requested institution contacts forward the request for participants on to their respective IT teams. In this way, the researcher was able to request background information from willing individuals in order to evaluate their expertise and to fill in specific names and contact information in the KRNW. CLAC specifically requested that solicited members be fully informed of the context of the study beforehand as well as what will be done with the data collected afterward.

Data Collection and Analysis

Utilizing the Delphi study administration process as set forth by Okoli and Pawlowski (2004), there were three phases in this Delphi Study: brainstorming, narrowing down and

ranking (see Figure 5). Okoli and Pawlowski adapted previous protocols by Schmidt, Lyytinen, Keil and Cule to conduct the phases of the process and analysis of the collected data in their study. Okoli and Pawlowski had four panels in their study. This study was to have at most three panels but otherwise followed the three-phase Okoli and Pawlowski procedures.

An online survey software, Qualtrics, was chosen to accommodate the possible wide geographical dispersion of the panelists and to facilitate communication between the facilitator and the panelists.

Given that the panel members were experts in their field, an assumption was made that they may have time constraints on answering any survey. In consideration of this, care was taken to limit the time required by members to complete each survey to no more than 30 minutes. In order to assure this, a pilot survey was administered to non-panelists and their feedback requested.

Phase 1

In Phase 1, the goal was brain-storming idea generation. As in Okoli and Pawlowski (2004), for the first round, the panelists were treated as individuals as opposed to members of distinct panels. The first questionnaire was identical for all individuals. The first questionnaire was sent within a week of the KRNW being filled and participants chosen. The questionnaire closely paralleled the research questions of the study and was an open-ended search for ideas. It consisted of a short (approximately 150-200 word) explanation of organizational mindfulness and five questions, each corresponding to a research question or sub-question (see Appendix C: Phase 1 - Brainstorming). Panelists were given two weeks to respond back to the researcher.

Once receiving the responses, the researcher removed duplicate entries and then applied In Vivo coding to the remaining items. In Vivo coding was utilized due to the desire to stay as

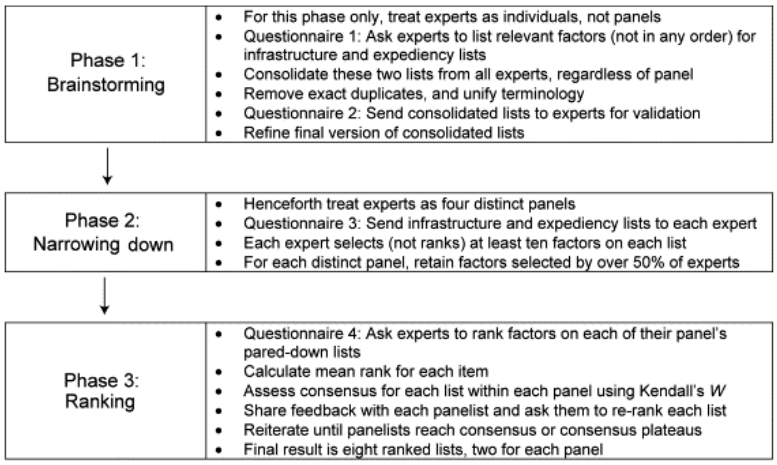


Figure 5. Delphi Study Administration Process.

Note. From "The Delphi method as a research tool: an example, design considerations, and applications" by C. Okoli & S.D. Pawlowski, 2004. Information & Management, 42(1), p.24. Copyright 2002, Suzanne Pawlowski. Reprinted with permission.

close to the original wording of the participants. This type of coding was selected to capture the key concepts being described and to "honor the participant's voice" (Saldaña, 2015, p. 91).

The collected codes were consolidated into one list in Qualtrics, Questionnaire 2, and sent to the panelists. The purpose of this step was to allow the panelists to verify that their answers were interpreted correctly and to allow the panelists to refine the categorizations. Panelists were also asked to add further factors if there were some not thought of with the first questionnaire.

Phase 2

In Phase 2, the goal was narrowing down the answers received in Phase 1. After Questionnaire 2 was received back with revisions, verifications, and possible additional list items, a consolidated final list of items was made. Questionnaire 3 was built in Qualtrics from this final

list of codes, and a checkbox added to each item (see Appendix D: Phase 2 – Narrowing-Down). This questionnaire was sent to all panelists. Panelists were asked to select the ten items they considered the most important choices from the list by placing a check next to their choices, in no particular order and with no regard for positive or negative connotations. A Qualtrics limitation was placed on the questions, where it specified that exactly ten checkbox selections were required per question or sub-question. Once replies were received back, the researcher sorted the responses by the number of checks per code. If 50% or more of panelists selected an item, it was placed on the list for the next round. If not, it was dropped from the list.

Phase 3

In Phase 3, the goal was to reach a consensus. The new questionnaire built for this phase was to include items not dropped from the previous round, and a Likert scale, 1-5, for each coded item (see Appendix E: Phase 3 – Ranking).

Once responses were received from all panelists, the respondents were to be separated into up to three groups based upon the number of panelists in each of three defined panels: top administrators, middle managers, and front-line employees. From this point, and moving forward, the panelists' responses were to be considered separated into their respective panels. It was expected that the different panels would answer differently depending on their perspective. Each panel was to have their responses evaluated.

Analysis of the results was by panel. It consisted of finding the median for each item and some statistical calculations. Items chosen as important by at least 51% of each of the panel's experts were retained and their interquartile range, IQR, and standard deviation, SD, calculated based on the Likert scale responses.

A consensus was defined as IQR <= 1.0, SD <= 1.5, or being chosen as Likert 1 or 2 by more than 50% of the panel. An item should have met two or more of these calculations considered having reached consensus (Hsu & Sandford, 2007). Items reaching consensus on this round and going forward were dropped from further questionnaire rounds (the researcher retaining the data for final evaluation). The dropping of items was done in respect for the time of the panelists so as not to ask them to answer unnecessary questions. Items not reaching consensus were added to the next round's questionnaire.

The next questionnaire was the same as the previous, with the items and a 5-point Likert scale, with the addition to each item of the panelists' answers and its statistical evaluation and a free text box. Seeing this comparison would allow a panelist to see how their answer stands with the panel's answers. They could re-evaluate their response in comparison to that of the group, and revise if desired. Alternatively, if not, give a reason.

As in the first Questionnaire of Phase 3, analysis of the results consisted of the median, IQR, and SD being calculated as well as evaluating for 51% importance for each item. In this way, more Likert answers would (or would not) approach consensus as people reevaluated their responses.

Phase 3 repeats until one of 3 conditions is reached: 1.) statistical consensus had been reached, based on interquartile range, standard deviation and percentage of people judging an item important, 2.) the number of iterations of the questionnaire promised to the panelists, six (Phase 1, Phase 2 and three rounds of Phase 3), was reached, or 3.) the mean ranking of two consecutive rounds was not appreciably changed.

Once Phase 3 concluded, the final analysis of the data could happen. With further qualitative coding in other forms, such as holistic, versus and values coding (Saldaña, 2015)

chosen at the time of analysis to match the data collected, and a SWOT analysis of the data collected, the researcher could compare how the different respondents viewed organizational mindfulness and mindful organizing.

Further, if the panelists were grouped into panels by their job function, it might have even been possible to compare the results from their different perspectives within IT and draw conclusions from those similarities or differences. Through this consensus process, it may have been able to propose answers to the research questions.

Summary

At the end of this process, the study produced prioritized lists. Based on those lists, the researcher was able to utilize a SWOT process and qualitative data coding to examine the importance of organizational mindfulness and mindful organizing in higher education information technology departments in aligning the departmental goals with the broader college mission.

Chapter 4: Analysis

This chapter presents the results of the nationwide study. The data were collected as a result of an exploratory sequential mixed methods Delphi study, utilizing experts from within the Consortium of Liberal Arts Colleges (CLAC). The data was analyzed, first, to achieve consensus, and afterward coded for themes. The following five research questions were explored:

Q1. What is the role of information technology in the operational and strategic framework in colleges and universities in the near future (next five years)?

Q2. What is the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (next five years)?

Q3. How are organizational mindfulness and mindful organizing currently demonstrated in an organization?

Q4a. What are organizational mindfulness' and mindful organizing's impact on organizational mission?

Q4b. What are organizational mindfulness' and mindful organizing's impact on institutional mission?

Exploring these questions followed a Delphi study approach, an exploratory sequential mixed methodology.

The Knowledge Resource Nomination Worksheet

The first step in completing the Knowledge Resource Nomination Worksheet (KRNW), as described by Okoli and Pawlowski (2004), was to review disciplines, skills, academics, practitioners, government officials, and officials of NGOs. As this study specifically focused on

higher education information technology professionals, professional organizations supporting them were selected to populate the worksheet. EDUCAUSE offers professional educational opportunities and publishes relevant articles for the professions, as well as CLAC, SAGE, LOPSA, and USENIX. After review of their memberships and missions, the researcher decided to focus on CLAC, the Consortium of Liberal Arts Colleges. This decision was made since the selection of panelists and the level of their expertise directly influence the outcomes of any Delphi study. While SAGE, EDUCAUSE, LOPSA, and USENIX are organizations for information technology and higher education professionals, CLAC consists of a closed, selective membership of 70 high reputation higher education institutions. An assumption was made that if a person continues in employment for a length of time at one of these institutions, that their expertise will be of a level to enhance the reputation of their institution. Thus, their expertise would be of a level to positively influence the outcome of this study. For a matter of consistency in panelists, a deliberate decision was made not to look at the relevant literature for experts. Thus, the KRNW was populated entirely from CLAC member schools.

Call for Participants

The researcher (who is an institutional CLAC representative) contacted the administrator of the CLACreps (CLAC Representatives) email list requesting permission to solicit participants. Upon receiving permission, the researcher sent out an email requesting willing participants (see Appendix B: Study Invitation Letter). This email contained a link to a Qualtrics survey the participant would need to complete before becoming a panelist. The survey included an informed consent page, which would need to be positively answered, before continuing to some necessary demographic information (see Appendix A: Informed Consent & Demographics). At the end of the demographic information, the Qualtrics survey requested an email address

(specifically a ".edu" email address) and collected those in a Qualtrics email list, "Collected Respondents." The purpose of the .edu email address was two-fold: first, to ensure the respondent was, in fact, an employee of an educational institution, and second, for identification of that institution to ensure a broad population base in the study.

Initially, the intention was to receive responses back within one week. When nearing the end of the initial week, only 13 responses had come in, the researcher sent out a reminder email to the CLAC email list and decided to extend the close of the call for participants an additional week. The KRNW allows for this, as the final stage says it will not end until enough respondents are found (Okoli & Pawlowski, 2004). According to the academic research consulting company, Ithaka S+R, two to three reminders should be sent over the course of a call for participants. In addition, these calls should hit people's email boxes Monday, Tuesday and Thursday mornings. The researcher should also consider the actions of the respondents on when to close the call (Ithaka S+R, 2015). Thus, after two reminders where a few responses were received, and an additional reminder email with no response, the researcher closed the call for participants.

A final tally of positive responses was 28 respondents from 20 unique institutions. Due to this limited participant response rate, the study was conducted with one panel. These people were from different professional tiers within their institutions: top administrators, middle managers, and front-line professionals. As a Delphi study should have between 10-18 members on a panel (Okoli & Pawlowski, 2004), this was deemed adequate for the study to proceed.

Phase 1: Brainstorming

As stated previously, the initial questionnaire was created directly from the five research questions. The questions were purposefully open-ended. Their wording was created to avoid as much bias as possible. The researcher recognized the fact that the wording of the research

questions can introduce bias and spent much discussion with her advisors on their construction both to avoid that bias and to ensure that they reflected the questions which the researcher intended to answer (see Appendix C: Phase 1 - Brainstorming). A Qualtrics survey was created with these five questions expecting free text essay responses with no limit on length. The distribution email was sent out via Qualtrics to the 28 Collected Respondents.

After two weeks had elapsed, with two reminder emails sent through Qualtrics in that time, 14 responses to the open-ended questions were returned. This response constitutes a melt of 50%, however, since no one requested removal from the study, their email addresses were retained for Phase 2.

The data collected was coded using in vivo coding techniques, preserving the respondents' own words. While coding, the researcher also utilized memo-ing to write down impressions of the data and developing patterns, this to be used in the final analysis.

After coding, the researcher ended up with a total of 120 codes across the five research questions: 31 for question 1, 29 for question 2, 24 for question 3, 20 for question 4a, and 16 for question 4b.

Phase 2: Narrowing-down

Once coding was complete, the researcher collected all 120 codes into one list, headed by its initial research question. A Qualtrics survey of these codes was created. Following each of the five questions, was a list of its codes with a checkbox. The respondent was instructed, for each question, to select the ten items which, in their opinion, were the most important (in no particular order and with no judgments on positive or negative meanings). In addition, a text field was included for each question for the respondents to write in anything they thought was missing from the list (see Appended D).

A distribution email via Qualtrics was made to all 28 Collected Respondents, in addition, two reminder emails were scheduled within Qualtrics. After two weeks, seven responses came back. A melt of 50% over Phase 1. Again, no one had requested removal from the study, so all 28 emails were retained for Phase 3.

Coding commenced with responses received. Narrowing-down required some decisions to be made. The researcher had assumed that the final survey would include the top 10 choices for each question. On three questions, there were responses tied for the 10th place. The researcher concluded that a determination on what got included could not be made without introducing bias, so all tied answers were included for the next Phase. For the five questions, this resulted in 58 codes moving to the next Phase: 14 codes for question 1, 12 for question 2, 12 for question 3, 10 for question 4a and 10 for question 4b.

Phase 3: Ranking

Once coding was complete, the researcher collected all 58 codes into one list, headed by its initial research question. A Qualtrics survey of these codes was created. Following each of the five questions, was a list of its codes with a 5-element Likert scale (Extremely important, Very important, Moderately important, Slightly important, and Not at all important). The respondent was instructed, for each item, to rank its importance (see Appended E).

Since only brainstorming ideas have been collected up to this point and no opinions on them, it was decided that input could be sought from all 28 panelists this one last time, but not after this point. A distribution email via Qualtrics was made to all 28 Collected Respondents, in addition, two reminder emails were scheduled within Qualtrics. After two weeks, 11 responses came back, which constituted a 57% increase over Phase 2. With Okoli and Pawlowski (2004) saying 10 is a minimum for a panel, this number is sufficient.

Coding at this point was statistically based on the Likert responses. The researcher calculated the interquartile range for each item as well as median, standard deviation, and if a majority of respondents selected the code as very or extremely important.

Once these values were analyzed, the researcher saw that consensus had been reached on all 58 items across all 5 question. A consensus was defined prior to the study as meeting at least two of three criteria: standard deviation <= 1.5, interquartile range <= 1.0, or the majority (more than 50%) of respondents saying an item was very or extremely important (see Table 1- Consensus values). In addition, minimum, maximum, mean, and variance were calculated (see Appendix G: Phase 3 - Statistical Calculations).

With consensus reached in three rounds, this study, validates the methodology of a Delphi study, with three rounds being the typical number (Bourgeois, Pugmire, Stevenson, Swanson, & Swanson, 2006; Giannarou & Zervas, 2014; Green, 2014; Okoli & Pawlowski, 2004).

When analyzing the statistical values, looking at the high value of the statistical means in conjunction with the small standard deviation and interquartile ranges as well as the percentage indicating "Very important" or "Extremely important," the researcher concluded the participants placed a high value on this issue (see Table 1- Consensus values). For question 1, the average mean overall on this question was 4.25. The minimum was 3.64, and the maximum was 4.73. For question 2, the average mean overall on this question was 4.27. The minimum was 3.55, and the maximum was 4.82. For question 3, the average mean overall on this question was 4.08. The minimum was 3.73, and the maximum was 4.55. For question 4a, the average mean overall on this question was 4.13. The minimum was 3.91, and the maximum was 4.36. For question

4b, the average mean overall on this question was 3.98. The minimum was 3.73, and the maximum was 4.55 (see Table 2 - Means).

Data Coding Analysis

Returning to the qualitative responses collected in the open-ended Questionnaire from Phase 1, Brainstorming. The researcher began a two-cycle coding method (Saldaña, 2015) on both sets of data. In the first cycle, this data was analyzed utilizing three coding methodologies: Holistic coding (Dey, 1994; Saldaña, 2015), Values coding (Gable & Wolf, 2012; Saldaña, 2015), and Versus coding (Altrichter, Feldman, Posch, & Somekh, 2007; Hager, Maier, O'Hara, Ott, & Saldaña, 2010; Saldaña, 2015; Wolcott, 2003).

For the second cycle coding, the researcher utilized Pattern coding (Saldaña, 2015, p. 209). By collecting all codes that emerged in the first cycle coding and then evaluating them for themes, followed by grouping them by theme, the researcher was able to evaluate overall patterns in those themes (see Appendix I: Coding and Themes). This process ultimately identified themes running through the data.

Research Question 1. What is the role of information technology in the operational and strategic framework in colleges and universities in the near future (next five years)?

Over repeated responses, the same ideas presented. With the coding exposing codes such as "intersection", "integration", "asset", "utility", "supporting" and "facilitator" among others, (see Appendix I: Coding and Themes), the researcher saw the development of three themes answering this question. Grouping of the codes created depth, as well as added nuance.

For example, the first theme was that IT holds the roles of both strategic and operational. This developed around codes that dealt with the operational need institutions have for IT as well

Table 1- Consensus values

Question 1			
Code Number	Standard Deviation	Interquartile Range	Majority selection
1	0.48	1	100%
2	0.75	1	82%
3	0.62	1	91%
4	0.64	0.5	91%
5	0.51	0	82%
6	0.43	0	91%
7	0.67	0.5	73%
8	0.64	1	55%
9	0.72	1	64%
10	0.66	1	91%
11	0.78	1	82%
12	0.45	0.5	100%
13	0.5	1	100%
14	0.72	1	82%
Question 2			
Code Number	Standard Deviation	Interquartile Range	Majority selection
1	0.45	0.5	100%
2	0.78	1	82%
3	0.39	0	100%
4	0.48	1	100%
5	0.64	1	91%
6	0.74	1	73%
7	0.57	0.5	91%
8	0.5	1	55%
9	0.67	0.5	82%
10	0.75	1	82%
11	0.83	1.5	73%
12	0.66	1	91%
Question 3			
Code Number	Standard Deviation	Interquartile Range	Majority selection
1	0.9	1	82%
2	0.72	1	82%
3	0.66	1	91%
4	0.67	0.5	82%
5	0.57	0.5	73%
6	0.72	1	82%
7	1	2	64%
8	0.66	2.5	91%
9	0.79	1.5	64%
10	1.05	1.5	64%
11	0.62	1	64%
12	0.62	1	91%

Question 4a			
Code Number	Standard Deviation	Interquartile Range	Majority selection
1	0.57	0.5	91%
2	0.57	0.5	91%
3	0.67	0.5	73%
4	0.79	1.5	73%
5	0.74	1	73%
6	0.85	2	64%
7	0.72	1	82%
8	0.75	1	82%
9	0.51	0	91%
10	0.64	1	91%
Question 4b			
Code Number	Standard Deviation	Interquartile Range	Majority selection
1	1.21	2	55%
2	0.6	0	82%
3	0.75	1	82%
4	0.79	1.5	64%
5	0.45	0.5	73%
6	0.67	0.5	82%
7	0.5	1	100%
8	0.67	0.5	73%
9	0.75	1	55%
10	0.9	1	73%

Note: Consensus is defined as meeting 2 of these 3 criteria: SD <=1.5; IQR<=1; Majority selection>50%

Table 2 - Means

Question 1		Question 2	
Code Number	Mean	Code Number	Mean
1	4.64	1	4.27
2	4.27	2	4.45
3	4.27	3	4.82
4	4.64	4	4.64
5	3.91	5	4.36
6	4.00	6	4.00
7	3.91	7	4.18
8	3.64	8	3.55
9	3.82	9	4.09
10	4.45	10	4.27
11	4.45	11	4.18
12	4.73	12	4.45
13	4.55		
14	4.18		
Average mean	4.25	Average mean	4.27

Maximum mean	4.73
Minimum mean	3.64
Range of means	1.09

Maximum mean	4.82
Minimum mean	3.55
Range of means	1.27

Question 3	
Code Number	Mean
1	4.09
2	4.18
3	4.45
4	4.09
5	3.82
6	4.18
7	3.91
8	4.55
9	3.91
10	3.73
11	3.73
12	4.27
Average mean	4.08
Maximum mean	4.55
Minimum mean	3.73
Range of means	0.82

Question 4a	
Code Number	Mean
1	4.18
2	4.18
3	3.91
4	4.09
5	4.00
6	4.00
7	4.18
8	4.27
9	4.09
10	4.36
Average mean	4.13
Maximum mean	4.36
Minimum mean	3.91
Range of means	0.45

Question 4b	
Code Number	Mean
1	3.73
2	4.00
3	4.27
4	3.91
5	3.73
6	4.09
7	4.55
8	3.91
9	3.73
10	3.91
Average mean	3.98
Maximum mean	4.55
Minimum mean	3.73
Range of means	0.82

as due to that operational need, a necessity to include IT strategic planning within institutional strategic planning. Almost a third of all responses, 31%, supported this theme. One respondent stated, "Information technology has evolved to where it is essential for the university as another 'utility' such as electricity or water." Also, "IT has the role of providing a mechanism for improving efficiency and leading innovation." That respondent goes on to say, "it is important that both the utilitarian and innovative components of IT work closely with the operational and strategic plans to enhance them." The idea that IT is becoming more like a utility than a service was observed several times in the responses. Respondents said operations institution-wide rely on its availability. The respondents go on to say that this reliance "make it critical to have IT partnered with all operational units in strategic planning efforts." This theme was reinforced by derived codes such as "integrator", "enabler" and "partner", which were taken from a context of the position of IT in institutional activities.

A second theme that emerged with 20% of responses supporting it, was, IT is positioned in a central intersectional and/or integrational role. The data supporting this theme developed around an idea that IT exists in a position within the institution where disparate functions come together to work on passing projects. One respondent says, "we will talk less about information technology as a standalone thing and more about managing the intersection of process, data, and people in a digital platform." Repeatedly, respondents spoke to the role of information technology as a cross-road of institutional functions where different functions of the institution place their data and processes, both administrative and academic. Among others, one other respondent states, "IT designs quality experiences at the intersection of mission, people, location, and technology."

A third theme that emerged with 44% of responses supporting it was, IT stands in a

supporting role in the institution. Supporting this theme were codes stating ideas that IT is not a leader, but a service provider for fulfilling institutional goals. As one respondent states, “IT will continue to have a utilitarian function, facilitating operations and communications throughout the institutions, for all manner of academic, administrative and management functions." A second respondent describes the IT role with four words: “Partner, enabler, facilitator, asset”. These two responses highlight a repeated idea of how IT professionals perceive their role within the institution.

Overall, these three themes say that information technology holds an increasingly central place in the organizational and strategic framework of their broader institution. It plays the critical supporting role of integration and communication between disparate functions.

Research Question 2. What is the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (next five years)?

Over repeated responses, the data grouped around common ideas. Coding resulted in codes such as “IT serves”, “expectations versus IT changes”, and “organizational mindfulness is at the heart of organizational agility” (see Appendix I: Coding and Themes) and revealed three themes with this question. Grouping the codes gave the themes dimension and gradation of concepts.

The first theme, organizational mindfulness allows IT to be intentional in its decisions, developed around codes that dealt with the idea that IT needs to understand the organization they are within as well as how IT decisions effect the broader organization. Overall, 30% of the codes for this question supported this theme. As stated by one respondent, “A good IT department has to deeply understand the organization they serve.” Moreover, another said, "IT

staff have got to remain mindful if we want to succeed." Another respondent stated it this way, “Intentional evaluation of the role technology plays, how the organization has to evolve to meet the expected demands, or more importantly be able to be ahead of demand has to be a continuous focus.” These three responses highlight the recurring idea that decision-making process within the IT organization needs to be within the framework of the wider institution’s wants and needs. This theme is reinforced by other codes that were found in the data such as “mindfulness equals success” and “thoughtful application of IT”, taken from the context of where IT professionals perceive their work lies strategically.

The second theme that emerged, organizational mindfulness facilitates communication between groups, developed around codes revealing that understanding the broader institutional community was important and this was accomplished through thoughtful communication. Thirty-eight percent of the codes supported this theme. One respondent said, "Everyone needs to understand the central role communication plays in all of this since as an institution we need to be making these changes in concert." Another said, “it is important as you plan for future information technology or improving current information technology that you take into consideration past experiences and knowledge while also considering new and current expectations.” Also, a third said, “IT must understand the people and culture of the institution … it would be important to understand current experiences and expectations to understand what change is needed (or not needed).” These responses highlight the role that communication plays in the coordination of effort and planning within the institution and that organizational mindfulness is perceived to facilitate that communication.

There were outliers where people were unfamiliar with the term organizational mindfulness. One respondent said, “I honestly do not know.” Another said, “I had not

previously been exposed to the term" but then continues to say, "the concepts are a key component of IT."

Taken together, these two themes say with the increasingly central role of information technology in the organizational fabric, organizational mindfulness and mindful organizing can assist information technology to be consciously aware of the surrounding institutional culture and values, as well as the current and evolving information technology field. This allows IT to make deliberate decisions aimed to further the institutional mission.

Research Question 3. How are organizational mindfulness and mindful organizing currently demonstrated in an organization?

Over repeated responses, the data coalesced around common ideas. Coding for this question resulted in codes such as "knowledge building", "process versus methodology" and "listening" (see Appendix I: Coding and Themes), which revealed three themes. Grouping the codes resulted in depth and dimension of those ideas.

The first theme that emerged was related to employee empowerment. This theme came from codes surrounding the idea that and employees are given freedom, if not responsibility, in order to inform themselves and act upon situations as they arise. Forty-two percent of codes supported this theme. One respondent stated, "Each of our employees is expected to build upon their current knowledge base by learning from others as needed to meet the expectations for the projects they are involved in." Another stated, "Within my team, I strive to enable members to act when they observe errors or unexpected events to correct or adjust to them." Organizational mindfulness and mindful organizing have given managers the confidence to allow their professionals the authority to act upon their expertise.

A second theme that emerged was related to evolving procedures, with 34% of codes supporting it. The codes reveal the idea that past methodologies should evolve and situations be evaluated on their own merits, as opposed to automatically using past procedures to react. One respondent said, "it [organizational mindfulness] closely resembles continuous improvement cycles. We do well when we are reflective of our services and procedures and iterate to improve them." Another respondent stated, "we aim to balance having established procedures but not being too rigid in responding to technological or community needs." These highlight the recurring theme seen in the responses that organizational mindfulness and mindful organizing allow for situational flexibility.

A third theme that emerged with 25% of the codes supporting it, was related to concrete actions that organizational mindfulness facilitates. The codes center on specific actions organizations have taken in response to situations based on awareness of surrounding conditions in the broader institution. One respondent stated their organization demonstrates it through "transparent advance budget planning, regular feedback, … a willingness to listen carefully, exploring new options for ongoing needs." Another mentioned "a push from the President to consider if the work that we are doing makes us happy. If not, why not?" On the surface, these two quotes may not be related, but they are examples of concrete actions taken to give organizational mindful and mindful organizing characteristics to IT.

Altogether, these three themes say that the tenants of organizational mindfulness and mindful organizing empower IT professionals in their daily jobs. They can be responsive to issues that arise, and instead of following inflexible procedures, are given the ability to improve on those procedures based on the issue at hand. This empowerment results both in improved IT employee satisfaction and an improved perception of the organization.

Research Question 4a. **What are organizational mindfulness' and mindful organizing's impact on organizational mission?**

Over repeated responses, data melded to form recognizable themes. The variability of responses gave depth and range to these themes. Coding for this question resulted in codes such as "communication", "do what is best for the institution, not for yourself" and "easy versus agile" (see Appendix I: Coding and Themes), revealed two themes.

The first theme, which revolves around the idea that past practices can be improved upon and that failure can ultimately lead to success, can be summed up by the adage: when at first you don't succeed, try. Try again. Thirty-four percent of the codes support this theme. One respondent said, "One of the tenants of our mission is to try things. We will experiment and have some things fail, but over time the changes will be impactful and appropriate." Another stated that organizational mindfulness has resulted in "better teamwork, more questioning of the 'way we have done it.' Sensitivity to responsiveness, improved service feedback from customers, more agile/less silo." These quotes are representative of others in that they covey the idea of an atmosphere tolerant of trying new procedures and methods in the expectation of long-term improvement.

A second theme that emerged is that the organizational mission is a guide. Codes from the data, 32% of them, revealed the idea that the IT mission is one of support to the community, and this should guide daily activities. One respondent said, "the mission is our guiding star." Another said that "Our organizational mission is entirely based on providing service to our community and being responsive to their needs. As I understand organizational mindfulness, our ability to collectively understand and respond to community needs is critical." Also, a third said, "The mission of IT is to provide and support the information technology needs of the university

so it can complete its mission." These quotes highlight the often-repeated idea that the organizational mission is central to the daily operations of IT.

Taken together, these two themes say that internal to the information technology department, organizational mindfulness and mindful organizing result in a better functioning organization, with improved teamwork and a culture of self-improvement, allowing for some failures along the way. This self-improvement, with the assistance of organizational mindfulness, will be with an awareness of the effects of their actions within the broader institution.

Research Question 4b. **What are organizational mindfulness' and mindful organizing's impact on institutional mission?**

Over repeated responses, the data for this question revealed ideas surrounding the theme that daily work needs to be done not only with the broader institutional community goals in mind, but also in concert with those community members. Coding for this question revealed such codes as "understood mission", "individuals versus collective" and "community work" (see Appendix I: Coding and Themes). With the variety in responses, each one afforded a nuanced approach to this idea.

The theme that emerged, supported by 54% of the codes, is that organizational mindfulness allows the organization to fully support the institutional mission, by setting the organization to be responsive and agile. One respondent stated, "Organizational mindfulness, … has more to do with being strategic and selective about what future changes are meaningful for us. When we do that well, we are resilient and flexible, but never lose sight of our identity." Another stated it this way, "using an organizational mindfulness approach of building on what has been successful to meet expectations of … stakeholders is vital." As seen in these quotes, a

redundant idea became apparent from the data that the IT organization needs to be aware of its surrounding institution and community members. That awareness needs to include community expectations and what IT can deliver, fitting these two perspectives together on a per situation basis.

This emergent theme says that organizational mindfulness and mindful organizing keeps the IT department constantly aware that their position is one of support of the broader institution. Decisions IT makes need to support the needs of those stakeholders. Viewing these themes through the lens of the theoretical framework, the Organizational Mindfulness Model (recall Figure 2), we can see how they align with the model. In particular, notice how strategic outcomes are "reinforced or refined" by operational.

Strengths, Weaknesses, Opportunities, and Threats Analysis

Quantitative analysis (mean, median, standard deviation, variance, and interquartile range), as mentioned previously, was utilized during the data collected in order to recognize consensus. After consensus was recognized, Evaluation Coding (Saldaña, 2015) was used to incorporate the quantitative data by performing a SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats).

For each of the 58 response items, the researcher asked two independent questions. Was this an internal or external factor? Was this a favorable or unfavorable influence? The standard the researcher used to evaluate this was:

- Internal: brand identity, company culture, staff, geographic location, partnerships
- External: economy, market size, buying behaviors, trends, weather, governmental regulations

For each answer, the researcher assigned a code (i=internal, e=external, f=favorable, or

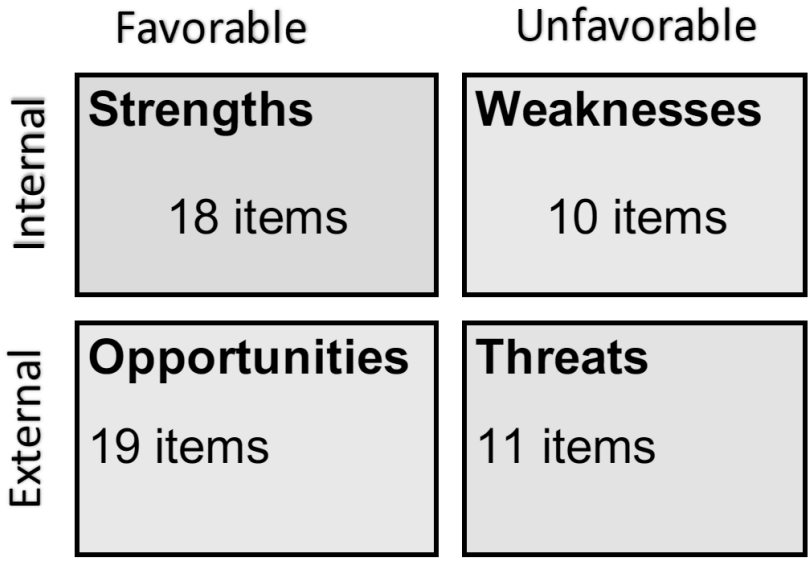


Figure 6. SWOT Chart.

Note: SWOT chart with number of items per category

u=unfavorable). These were placed in an Excel spreadsheet. When applying a vlookup table to these results, the item was categorized as Strength (if=internal favorable), Weakness (iu=internal unfavorable), Opportunity (ef=external favorable), or Threat (eu=external unfavorable) (see Appendix H: SWOT Categorizations).

Once a SWOT categorization was assigned, the item was moved to that category's worksheet in an Excel document, creating four worksheets, one for each category (strength, weakness, opportunity, or threat). These were combined into one chart, resulting in the SWOT chart (see Figure 6. SWOT Chart). On the surface, we can see that as a list, in both the Favorable and Unfavorable side, External items outnumber Internal items. In both the Internal and External side, Favorable items outnumber Unfavorable items. Of the four quadrants, Opportunities (Favorable External) is the most populous, and Weaknesses (Unfavorable Internal)

is the least populous. The Favorable sides Strengths and Opportunities, appear to be relatively equal in number. The Unfavorable sides, Weaknesses and Threats, appear to be relatively equal in number.

Looking closer at the SWOT Excel document and the means of the items (see Appendix J: SWOT Categories with Means), when the means were placed in a chart the researcher saw that the values were consistent within the classification, but consistently high across all classifications. When all four SWOT values were combined into one radar chart the SWOT baseline (Figure 7) showed that Strengths and Opportunities outweigh Weaknesses and Threats. In particular, Total Opportunities show as an outlier. What does this say?

That strengths and opportunities outweigh weaknesses, and threats show that organizational mindfulness is seen as a positive influence overall. Surprising to the researcher was an overall impression taken from comments such as “I honestly do not know” and another, “I had not previously been exposed to the term” was that organizational mindfulness was a relatively unfamiliar concept. However, taken in that context, perhaps we can infer that information technology staff are actively looking for solutions. A possible subject for future study would be to question, “why?”

What does the SWOT tell us? Looking at the codes that were classified as a strength, the overall themes of that group revolved around cooperative communication, empowerment, and forethought. Recurring ideas were brought forward, such as "understand current experiences and expectations," and "thinking ahead, considering alternatives and trying to remain flexible," as well as striving "to enable members". Looking at the codes classified as opportunities, the overall themes of that group revolved around IT being seen as an "integrator," "innovator" and "facilitator." As far as opportunities go, IT could not be in a better place in order to understand

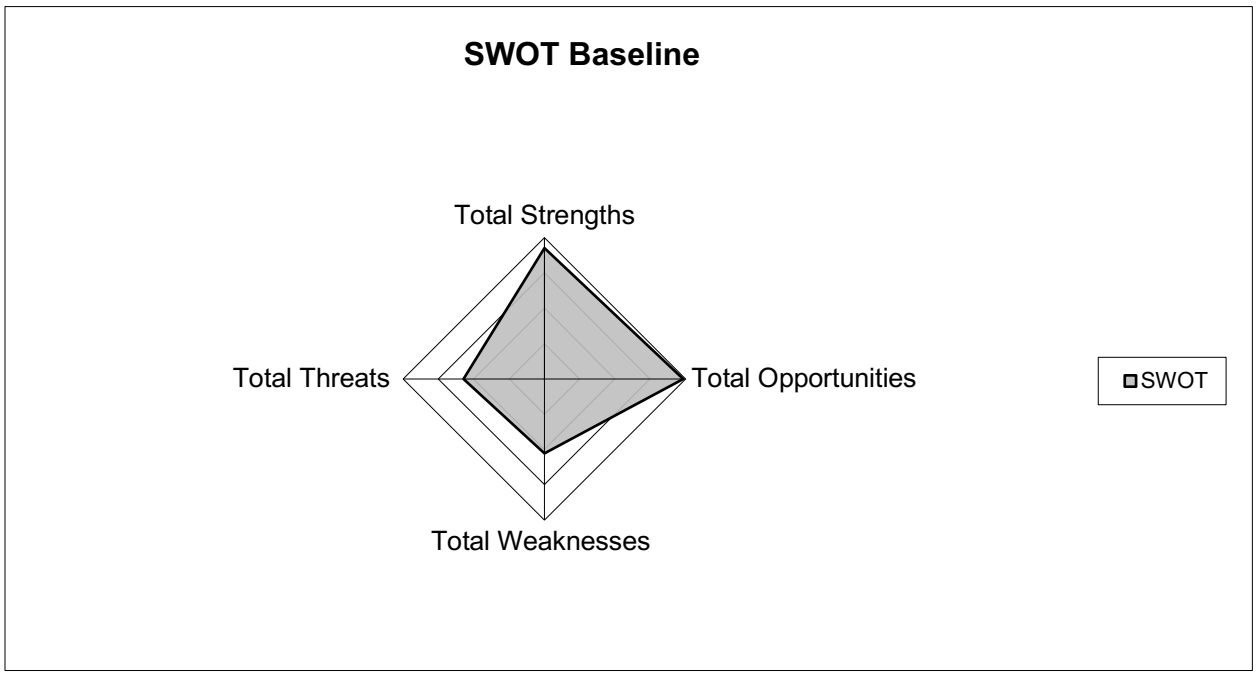


Figure 7. SWOT Baseline.

Note: Radar chart of means in each SWOT category

and respond to community needs. Next, in codes classified as weaknesses, the recurring theme was that IT needed to be constantly vigilant not to become stagnant or too entrenched. It needs to be "more questioning of the 'way we have done it.'" The themes coming out of the threats group were that IT needs to keep appraised of the latest innovations in order to evaluate those which are best for their institution. They also need to keep in mind their institutional mission in order to support it as opposed to moving down some other path.

Chapter 5: Findings and Conclusions

This study examined the opinion of higher education information technology professionals on organizational mindfulness and mindful organizing in aligning their department's organizational goals with the broader college/university institutional mission. It used the Delphi methodology to question experts in the higher education information technology field on their opinion toward the near future of information technology in higher education and the place of information technology in the strategic and operational directions of the institution it supports. In particular, it asked about the place of organizational mindfulness and mindful organizing in aligning the mission of the information technology organization with the broader institutional mission. The study sought consensus on the research questions. Consensus was predefined as meeting two of three criterion: an interquartile range of less than or equal to 1.0, a standard deviation of less than or equal to 1.5, or a majority (more than 50%) of respondents choosing the item as extremely important (Likert 1) or very important (Likert 2). Once consensus was reached, both qualitative and quantitative analysis of the data was done. The findings indicate that although information technology professionals' knowledge of organizational mindfulness and mindful organizing is limited, as information technology services become more central to both operational and strategic missions of colleges/universities, they rate this tool highly as an avenue to more closely align the organizational mission with the institutional mission.

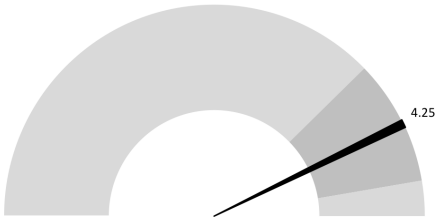
Findings Research Question 1

What is the role of information technology in the operational and strategic framework in colleges and universities in the near future (next five years)? A review of what was discovered

Table 3 - Question 1 Means and Variances

Question 1		
Code Number	Mean	Variance
1	4.64	0.23
2	4.27	0.56
3	4.27	0.38
4	4.64	0.41
5	3.91	0.26
6	4.00	0.18
7	3.91	0.45
8	3.64	0.41
9	3.82	0.51
10	4.45	0.43
11	4.45	0.61
12	4.73	0.2
13	4.55	0.25
14	4.18	0.51

Average mean	4.25
Maximum mean	4.73
Minimum mean	3.64
Range of means	1.09
Average variance	0.385



Note: The means are across all Likert response values on that code for that question. The Likert range is 1-5. Variance is how far the data spreads from the mean. Larger numbers are farther from the mean. Zero means no spread. The gauge chart shows the average mean and the average variance spread.

in the quantitative statistical calculations, the SWOT analysis, and the themes from qualitative codes follow.

The statistical calculations showed that the overall attitude toward information technology in the operational and strategic framework in colleges and universities in the next five years was that it was scored between very important and extremely important. With the

Table 4 - Question 1 SWOT

S	1-1.	fundamental
S	1-4.	integration and security are paramount
S	1-6.	both the utilitarian and innovation components of IT work closely with the operational and strategic plans to enhance them
O	1-2.	we will talk less about information technology as a standalone thing and more about managing the intersection of processes, data, and people in a digital platform
O	1-5.	providing a mechanism for improving efficiency and leading innovation
O	1-7.	facilitating operations and communications throughout institutions, for all manner of academic, administrative, and management functions
O	1-8.	Scholarship in many disciplines will be expanded and transformed by access to new types of data, resources, and methods
O	1-12.	Partner
O	1-13.	Enabler
O	1-14.	Facilitator
T	1-3.	Expansion of digital business and the digital workplace make it critical to have IT partnered with all operational units and in strategic planning efforts
T	1-9.	new forms of data analysis and communication will impact our business operations
T	1-10.	Strategically, leaders would be wise to realize this and treat it as an opportunity, not a burdensome and annoying financial sink
T	1-11.	The challenge is for leadership to grasp how central IT is strategically as well

Note: S=strength; W=weakness; O=opportunity; T=threat

range from minimum to maximum only slightly more than 1 Likert value (1.09), it also shows an attitudinal consistency among information technology professionals (see Table 3 - Question 1 Means and Variances).

The SWOT analysis in light of the question (see Table 4 - Question 1 SWOT), showed an overall attitude that IT organizations are in a fundamental and pivotal position in the institution, providing more than just utilitarian function but are also a catalyst for change. IT has an opportunity to maximize these strengths by taking advantage of its ability to facilitate a transformation within the institution: improving efficiency while leading innovation.

Thus, the themes from the qualitative coding were threefold. First, IT holds both strategic and operational roles in the institution. Second, IT is positioned in a central intersectional and integrational role. Third, IT stands in a supporting role in the institution.

Combining the results of the statistical analysis, the SWOT analysis, and the coding analysis, what is revealed is agreement that the role of information technology in the near future (next five years) is and will continue to be central to the operational and strategic framework of higher education institutions. As a supporting service in the institution, information technology will play a pivotal and integrational role among organizations within the institution.

Findings Research Question 2

What is the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (next five years)? A review of what was discovered in the quantitative statistical calculations, the SWOT analysis, and the themes from qualitative codes follow.

The statistical calculations showed an overall attitude that the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the next five years was scored between very high and extremely high. The range of the means was slightly larger than the previous question, 1.27 Likert values, but the scores were still centered around very important, showing a consistent attitude of importance among IT professionals (see Table 5 - Question 2 Means and Variances).

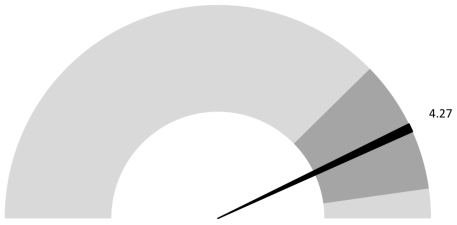
The SWOT analysis in light of this question (see Table 6 - Question 2 SWOT), showed organizational mindfulness gives information technology professionals the ability to be agile in meeting the current and future changing needs of the institution. Knowledge of the institution allows IT to recognize that any changes that are made serve its institution's needs. Building relationships with other organizations within the institution will facilitate communication in order to define priorities and streamline operations.

So, two themes emerged from the qualitative coding. First, organizational mindfulness

Table 5 - Question 2 Means and Variances

Question 2		
Code Number	Mean	Variance
1	4.27	0.2
2	4.45	0.61
3	4.82	0.15
4	4.64	0.23
5	4.36	0.41
6	4.00	0.55
7	4.18	0.33
8	3.55	0.25
9	4.09	0.45
10	4.27	0.56
11	4.18	0.69
12	4.45	0.43

Average mean	4.27
Maximum mean	4.82
Minimum mean	3.55
Range of means	1.27
Average variance	0.405



Note: The means are across all Likert response values on that code for that question. The Likert range is 1-5. Variance is how far the data spreads from the mean. Larger numbers are farther from the mean. Zero means no spread. The gauge shows the average mean and the average variance spread.

allows IT to be intentional in its decisions. Next, organizational mindfulness facilitates communication between groups.

Combining the results of the statistical analysis, the SWOT analysis, and the coding analysis, what is revealed is a high agreement on the importance of organizational mindfulness and mindful organizing in being part of the strategy and operations in higher education institutions in the near future (next five years). By continual communication with other organizations within the institution, organizational mindfulness and mindful organizing give

Table 6 - Question 2 SWOT

S	2-5.	understand current experiences and expectations to understand what change is needed (or not needed)
S	2-8.	Organizational mindfulness seems to be at the heart of organizational agility, which will only grow in importance
S	2-10.	'mindfulness' implies thinking ahead, considering alternatives and trying to remain flexible.
W	2-2.	make sure they are getting the full needs of the offices before delivery of a solution
W	2-3.	IT must understand the institutional mission and the various activities that achieve that mission
W	2-4.	IT must understand the people and culture of the institution
W	2-6.	consider new and current expectation
W	2-9.	organizations also need to be strategic and thoughtful about which information technology innovations server their needs
O	2-11.	understand the central role communication plays
O	2-12.	A good IT department has to deeply understand the organization they serve
T	2-1.	Campus constituents need to be active players in helping define the priorities
T	2-7.	hugely relevant as institutions face ever-more pressure to streamline operations, and reduce costs without reducing services

Note: S=strength; W=weakness; O=opportunity; T=threat

information technology the tools needed in order to deliberately align its decisions with institutional goals.

Findings Research Question 3

How are organizational mindfulness and mindful organizing currently demonstrated in an organization? A review of what was discovered in the quantitative statistical calculations, the SWOT analysis, and the themes from qualitative codes follow.

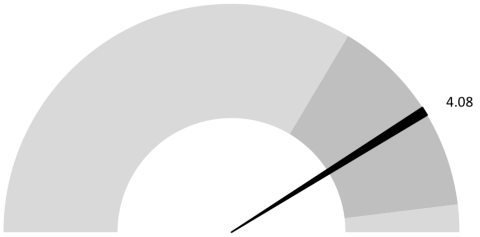
The statistical calculations showed that information technology professionals see organizational mindfulness and mindful organizing having a significant impact on the organizational mission, with the average mean above very important. The range of means is smaller than in the previous two question, 0.82 Likert values, showing an even more closely defined attitude around this question (see Table 7 - Question 3 Means and Variances).

The SWOT analysis in light of this question (see Table 8 - Question 3 SWOT) showed that organizational mindfulness and mindful organizing allow the organization to be nimble by

Table 7 - Question 3 Means and Variances

Question 3		
Code Number	Mean	Variance
1	4.09	0.81
2	4.18	0.51
3	4.45	0.43
4	4.09	0.45
5	3.82	0.33
6	4.18	0.51
7	3.91	0.99
8	4.55	0.43
9	3.91	0.63
10	3.73	1.11
11	3.73	0.38
12	4.27	0.38

Average mean	4.08
Maximum mean	4.55
Minimum mean	3.73
Range of means	0.82
Average variance	0.58



Note: The means are across all Likert response values on that code for that question. The Likert range is 1-5. Variance is how far the data spreads from the mean. Larger numbers are farther from the mean. Zero means no spread. The gauge shows the average mean and the average variance spread.

empowering the professionals to respond to issues, not by rote but on the merits of the individual circumstances, continually improving organizational knowledge. IT needs to be attentive to being flexible to situations and listen to needs of the broader institution.

Thus, three themes were seen from the qualitative data coding. First, employees need to be empowered to do their jobs successfully. Second, IT needs to be flexible in order to improve their processes continuously. Third, IT needs to demonstrate their mindfulness by concrete evidence of improvement.

Table 8 - Question 3 SWOT

S	3-2.	strive to enable members to act when they observe errors or unexpected events to correct or adjust to them
S	3-4.	strive to be nimble in both integrating IT innovations and in responding to IT problems
S	3-5.	to do so in a way that helps us develop shared expectations and methods
S	3-7.	Transparent advance budget planning
S	3-11.	It closely resembles continuous improvement cycles
W	3-10.	taking a very mindful approach in determining where changes to the organization are [needed]
O	3-1.	We have been adjusting roles / job descriptions / organizational structure / services to catch up as well as evolve with current college strategies
O	3-3.	strive to always operate with a strong, and shared, understanding of our larger institutional mission
O	3-6.	aim to balance having established procedures but not being too rigid in responding to technological or community needs
O	3-8.	willingness to listen carefully
O	3-12.	We do well when we are reflective of our services and processes and iterate to improve them
T	3-9.	looking very carefully at how we are organized and where we are successfully supporting our community and where we are less successful

Note: S=strength; W=weakness; O=opportunity; T=threat

Combining the results of the statistical analysis, the SWOT analysis, and the coding analysis, what is revealed is a high level of agreement that the outcomes of organizational mindfulness and mindful organizing, place the organization in a better position to provide support to its institution.

Findings Research Question 4a

What are organizational mindfulness' and mindful organizing's impact on organizational mission? A review of what was discovered in the quantitative statistical calculations, the SWOT analysis, and the themes from qualitative codes follow.

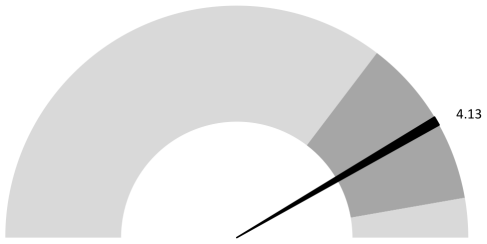
The statistical calculations showed that organizational mindfulness and mindful organizing's impact on the organizational mission is also very important. An even more tightly clustered range of means, only 0.45 Likert values, shows the most consistent opinion among IT professionals yet seen in this study (see Table 9 - Question 4a Means and Variances).

The SWOT analysis in light of the question (see Table 10 - Question 4a SWOT), showed that organizational mindfulness and mindful organizing provide information technology with a

Table 9 - Question 4a Means and Variances

Question 4a		
Code Number	Mean	Variance
1	4.18	0.33
2	4.18	0.33
3	3.91	0.45
4	4.09	0.63
5	4.00	0.55
6	4.00	0.73
7	4.18	0.51
8	4.27	0.56
9	4.09	0.26
10	4.36	0.41

Average mean	4.13
Maximum mean	4.36
Minimum mean	3.91
Range of means	0.45
Average variance	0.476



Note: The means are across all Likert response values on that code for that question. The Likert range is 1-5. Variance is how far the data spreads from the mean. Larger numbers are farther from the mean. Zero means no spread. The gauge shows the average mean and the average variance spread.

context to adapt and be responsive to community needs. A culture of improving processes and trying new things will, in the long run, instill better teamwork and have a positive impact on attitudes, processes, and the organization as a whole.

So, the themes that emerged from the qualitative data coding were, first, to try new methods and processes, since attempting new things will add to organizational knowledge. Second, the organizational mission should be a guide for IT. Third, information technology's mission is to assist the institution to achieve its mission.

Table 10 - Question 4a SWOT

S	4a-3.	sensitivity to responsiveness
S	4a-4.	more agile/less silo
S	4a-6.	a positive impact on the hearts and minds of the employees and students
S	4a-7.	IT must be willing and able to improve processes and be able to react to future events through organizational mindfulness
S	4a-8.	our ability to collectively understand and respond to community needs is critical
S	4a-10.	Our mission does not change often, so the mission is the guide star which we use to improve our organization
W	4a-1.	Better teamwork
W	4a-2.	more questioning of the "way we have done it"
W	4a-5.	It will hopefully make the department more agile
W	4a-9.	We will experiment and have some things fail, but over time the changes will be impactful and appropriate

Note: S=strength; W=weakness; O=opportunity; T=threat

Combining the results of the statistical analysis, the SWOT analysis, and the coding analysis, what is revealed a high level of agreement that organizational mindfulness and mindfulness have a positive impact on the organizational mission, as demonstrated by increased responsiveness and the ability to adapt to situations.

Findings Research Question 4b

What are organizational mindfulness' and mindful organizing's impact on institutional mission? A review of what was discovered in the quantitative statistical calculations, the SWOT analysis, and the themes from qualitative codes follow.

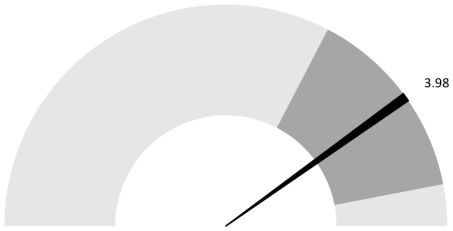
The statistical calculations showed that organizational mindfulness and mindful organizing are perceived to have a very important impact on the institutional mission. While not as tightly packed as in the previous question, the Likert score range of 0.82 was still less than one Likert value, showing a very consistent opinion among the IT professionals questioned (see Table 11 - Question 4b Means and Variances).

The SWOT analysis in light of the question (Table 12 - Question 4b SWOT), showed that organizational mindfulness and mindful organizing allow IT to be flexible, yet never lose

Table 11 - Question 4b Means and Variances

Question 4b		
Code Number	Mean	Variance
1	3.73	1.47
2	4.00	0.36
3	4.27	0.56
4	3.91	0.63
5	3.73	0.2
6	4.09	0.45
7	4.55	0.25
8	3.91	0.45
9	3.73	0.56
10	3.91	0.81

Average mean	3.98
Maximum mean	4.55
Minimum mean	3.73
Range of means	0.82
Average variance	0.574



Note: The means are across all Likert response values on that code for that question. The Likert range is 1-5. Variance is how far the data spreads from the mean. Larger numbers are farther from the mean. Zero means no spread. The gauge shows the average mean and the average variance spread.

sight of their institutional identity. A clear, concise institutional mission, in fact, empowers IT to be able to use what they know and learn to build upon positive aspects of the institution. Conversely, one that was complex or poorly understood could lead to organizational confusion.

Thus, the theme that emerged from the qualitative data coding was that organizational mindfulness allows the organization to fully support the institutional mission by setting the organization to be responsive and agile.

Combining the results of the statistical analysis, the SWOT analysis, and the coding analysis, what is revealed is a high level of agreement that organizational mindfulness and

Table 12 - Question 4b SWOT

S	4b-6.	When we do that [organizational mindfulness] well, we are resilient and flexible, but never lose sight of our identity
O	4b-2.	Using an organizational mindfulness approach of building on what has been successful to meet expectations of students, parents, board members, employees and other key stakeholders is vital
O	4b-5.	Organizational mindfulness, has more to do with being strategic and selective about what future changes are meaningful for us
O	4b-8.	Our institutional mission is sufficiently well-known that it can, and does, drive what our departments do
O	4b-9.	it's brief, clear, well-publicized and widely understood
O	4b-10.	The institution is also willing to try things and adapt to what works
T	4b-1.	The institutional mission is complex and involves many aspects of educating students and working with the community
T	4b-3.	mission relies on everyone having a shared understanding of our values, and their role in supporting those values
T	4b-4.	this mission relies on being steadfast in our values, even as the world changes around us
T	4b-7.	When we don't operate with organizational mindfulness, we are at risk of perpetually reinventing the wheel, operating as a bunch of individuals rather than as a collective, and suffering the burden of organizational disfunction

Note: S=strength; W=weakness; O=opportunity; T=threat

mindful organizing can have a positive impact on supporting the institutional mission. By giving information technology an external guide to form its actions, IT has a basis to make decisions that will support and advance the institution as a whole.

Conclusions

The stated purpose of this study was to examine organizational mindfulness and mindful organizing in the context of higher education information technology departments in aligning the department's organizational goals with the broader college/university institutional mission. This examination was through the use of a Delphi methodology to answer the five research questions. All panelists in this study were chosen based on their expertise in the higher education information technology field. And although their knowledge on organizational mindfulness and mindful organizing was limited, their responses suggested that as information technology services become more central to both operational and strategic missions of colleges/universities,

they rate this tool highly as an avenue to more closely align the organizational mission with the institutional mission

In the analysis phase, several different themes were found. One overall them stood out. Higher education IT departments are becoming more central to the operational and strategic framework in colleges and universities, in fact have been categorized as another basic utility on the order of electricity and water. This study showed higher education IT people are willing to coordinate their efforts to best support the mission of their organization but lack sufficient tools to accomplish that fully. Some people have not been exposed to organizational mindfulness, but see it, as a useful tool to overcome these obstacles, resembling a continuous improvement cycle. Through this, the dichotomous struggle of organizational mission versus institution mission can be mitigated and begin to become a more mutually supportive relationship.

In the versus coding, more than one person mentioned the friction between the operational and strategic outcomes, even mentioning the attitude of leaders perceiving IT as a "burdensome and annoying financial sink". In the values coding, an attitude was seen of a disconnect between the organization and institution, but there was a desire to align them. "Operationally, it will be a key piece of academic infrastructure, without which the mission can't go forward. Strategically, leaders would be wise to realize this," pointing to an instructional opportunity.

One respondent gave a summary saying, "We are precisely as nimble as we need to be. When we don't operate with organizational mindfulness, I think we are at risk of perpetually reinventing the wheel, operating as a bunch of individuals rather than as a collective, suffering the burden of organizational dysfunction." The importance of this study lies in the idea that strategic business-IT alignment is not living up to its full potential and it needs to evolve. The

perceived opinion of IT professionals is that organizational mindfulness and mindful organizing may provide one method of overcoming drawbacks seen in business-IT alignment. With this in mind and looking to the future, this study infers that with the growing central role IT plays in all aspects of the institution, it would be valuable to IT organizations in higher education to instill the ideas of organizational mindfulness and mindful organizing in their culture in order to support their institutions better.

The results found varying degrees of awareness of the attributes of organizational mindfulness and mindful organizing. Thus, this study would indicate a need for a focused and conscientious introduction and training of organizational mindfulness and mindful organizing in higher education information technology organizations.

Limitations

One limitation of this study was the number of participants. With a larger number, it may have been able to receive more diverse opinions. Further, with a larger number, there may have been an opportunity to separate the panels into more than one panel for comparing opinions of different job functions.

Another limitation to this study was the incomplete understanding of organizational mindfulness on the part of the participants. A fuller understanding would have given the researcher an opportunity to study the use of the tool in more depth.

A final limitation of this study lies in the introduction of bias based on how the phase one qualitative questions were asked. According to Patton (1990, p. 353), “how a question is worded and asked affects how the interviewee responds.” Since any exploratory sequential mixed methods study grows from these initial qualitative questions and the responses to them, the entire study was subject to that initial unintentional bias.

Recommendations for future research

Recommendations for future research include, repeating the Delphi process, but with a larger population so that it is possible to have separate panels for different job functions.

Also, this methodology gave some insight into information technology in higher education. It would be interesting to use this methodology to move beyond IT to other departments in higher education.

Furthermore, it would be interesting to use this methodology and move beyond higher education, to other educational institutions.

In addition, further interpretation of the definition/inference of organizational mindfulness and mindful organizing through a parallel inquiry is indicated.

Finally, although this was an entry-level study, it highlighted the importance of organizational mindfulness and mindful organizing in higher education information technology organizations. Further study may be able to highlight how to most effectively introduce it within those organizations, possibly the broader institution as well.

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Appendix A: Informed Consent & Demographics

Researcher: Karen R. McArthur, karen.mcarthur@snhu.edu
Southern New Hampshire University, School of Education

Organizational Mindfulness in Higher Education Information Technology: A Delphi Study

This participant survey is a query for information services professionals in the higher education community who would be willing to participate in research titled, "Organizational Mindfulness in Higher Education Information Technology: A Delphi Study". Before you decide whether or not you would like to take part, it is important for you to consider why the research is being done and what it will involve. Please read this information carefully.

What is a Delphi study?

A Delphi study seeks to obtain consensus on the opinions of experts, termed panel members, through a series of structured questionnaires. As part of the process, the responses from each round are fed back in summarized form to the participants who are then given an opportunity to respond again to the emerging data. The Delphi is therefore an iterative multi-stage process designed to combine opinion into group consensus.

What is the purpose of the study?

The aim of the study is to examine if organizational mindfulness facilitates IT-Business alignment in the wider organization.

Why was I asked?

To be valid, the Delphi technique requires opinions of topic experts. Members of CLAC are known as knowledgeable and experienced with information technology issues in higher education. Experience in the field and an ability to communicate your experiences will be key to this study's success.

What will I be asked to do if I take part?

Delphi panel members are asked to complete a series of brief questionnaires. Each is envisaged to take approximately 15 minutes. After analyzing all responses, you will subsequently receive a reminder of your replies, a summary of the group's responses and a further online questionnaire to re-rate the original list. This process would continue until a group consensus is achieved or a total of six questionnaires have been completed, whichever comes first. In order to allow timely conclusion of the study we would respectfully request a response time of 1 week for completion of each questionnaire. Once the final results have been completed, they will be available for all participants to review.

Confidentiality

Your personal information will be held strictly confidential by the researcher. Survey responses will be collated anonymously using an identifying number. The link between your personal information and your identifying number will be known only to the researcher and stored in an encrypted file on secure media, utilized only for facilitating communication in the Delphi process. All responses received in the study will be strictly confidential, and your identity will not be divulged. Direct quotes to free-text answers may be used as part of the study report or later Delphi iterations, but all identifying information will be removed and will not be traceable back to you or your institution.

Data protection

Survey responses will be collected online using the survey tool, Qualtrics, utilizing a secure internet connection. Results will be downloaded to an encrypted computer to allow analysis by the researcher. Data will be stored for the duration of the research project and then deleted.

Research ethics

The proposed Delphi study abides by the ethical requirements of Southern New Hampshire University in the conduct of the research project. A copy of Southern New Hampshire University's ethics committee application and decision letter is available on request. All participants will be asked to complete and return a consent form. Participation in this study is voluntary and there will be no consequences for refusing to participate or for withdrawing.

What do I do now?

Thank you for reading this information sheet and for considering taking part in this research. Please let me know whether or not you would like to take part by answering yes/no below.

If you have any questions or concerns, please do not hesitate to contact the researcher:
Karen R. McArthur, karen.mcarthur@snhu.edu.

Do you wish to participate?
Yes
No

Condition: No Is Selected. Skip To: End of Survey.

Into which of these 3 broad categories would you classify your job?
Top Level Administration (CIO, VP, etc.)
Middle Management (Director, Manager of others, etc.)
Front-Line Employee (Technical, Service, etc.)

What is your job title?

_____

Generally speaking, what are your job duties?

How long have you been in your current position?
0-2 years
3-5 years
more than 5 years

Would you be willing to participate in this study if invited?
Yes
No

Condition: No Is Selected. Skip To: End of Survey.

Please provide your email address. This will not be shared and will be kept strictly confidential. It is only requested to facilitate further communication between you and the survey moderator.

End of Survey

Appendix B: Study Invitation Letter

Dear <<Name>>,

Thank you for your initial response to my request for participants in my study.

I am writing to invite you to participate. To reiterate, the aim of the study is to look at organizational mindfulness in higher education information technology departments. As an established expert in this field we would like to gain your views to construct an 'expert consensus'.

Specifically, this study will ask through online questionnaires your opinion on different facets of organizational mindfulness in your organization. It is believed that this should take up to 15 minutes to complete for each round. After collecting initial responses, I, as moderator, will reduce this list and statistically calculate consensus through a series of questionnaires, comparing responses from across the panel.

I have attached the link to the first questionnaire. It will stay open for 1 week. And, again, thank you for your willingness to participate.

Please do not hesitate to contact me if you require further information.

Yours Sincerely,

Karen R. McArthur, ABD, Doctoral Candidate
School of Education
Southern New Hampshire University
karen.mcarthur@snhu.edu

Appendix C: Phase 1 - Brainstorming

Following is a printout of the first questionnaire produced in snhu.qualtrics.com which was sent to all participants in the Brainstorming phase of the Delphi study. Its purpose was to produce responses to the open-ended research questions.

Thank you for your willingness to participate. As described in your invitation, the purpose of this study is to examine the importance of organizational mindfulness and mindful organizing in higher education information technology departments in aligning the department's organizational goals with the wider college/university institutional mission.

We will do this through an interactive process where we will first brainstorm ideas, and then narrow down and prioritize those ideas in a series of questionnaires. This process is known as the Delphi Technique.

Organizational mindfulness, as defined by Weick and Sutcliffe (2001), is an ongoing evolution in an organization's strategic processes based on expectations and experiences, which allow it and its people to improve its ability to react to future events and enhance current functioning.

Mindful organizing, as defined by Vogus and Sutcliffe (2012), is focused on the application of collected organizational knowledge and resultant operational outcomes, especially on the front line. With these definitions in mind, please answer these 5 questions.

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Vogus, T. J., & Sutcliffe, K. M. (2012). Organizational Mindfulness and Mindful Organizing: A Reconciliation and Path Forward. Academy of Management Learning & Education, 11(4), 722–735. https://doi.org/10.5465/amle.2011.0002

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End of Block: Information Block

Start of Block: Question Block

Q1 What will be the role of information technology in the operational and strategic framework in colleges and universities in the near future (five years)?

_____

_____

_____

Q2 What is the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (five years)?

_____

_____

_____

Q3 How are organizational mindfulness and mindful organizing currently demonstrated in your organization?

_____

_____

_____

Q4a What is organizational mindfulness' and mindful organizing's impact on your organizational mission?

_____

_____

_____

Q4b What is organizational mindfulness' and mindful organizing's impact on your institutional mission?

_____

_____

_____

End of Block: Question Block

Appendix D: Phase 2 – Narrowing-Down

Following is a printout of the second questionnaire produced in snhu.qualtrics.com which was sent to all participants in the Narrowing-Down phase of the Delphi study. Its purpose was to select the ten most important codes from each question's responses.

Below, you will find the collected results from your panel's brainstorming. For each question, please select the 10 items which, in your opinion, are the most important (in no particular order and with no judgements on positive or negative meanings).

Q1 What will be the role of information technology in the operational and strategic framework in colleges and universities in the near future (five years)?

- ☐ 1. fundamental (32)
- ☐ 2. we will talk less about information technology as a standalone thing and more about managing the intersection of processes, data, and people in a digital platform (33)
- ☐ 3. a significant and growing role (34)
- ☐ 4. Expansion of digital business and the digital workplace make it critical to have IT partnered with all operational units and in strategic planning efforts (35)
- ☐ 5. key (36)
- ☐ 6. solutions are numerous (37)
- ☐ 7. integration and security are paramount (38)
- ☐ 8. Primarily as integrators of disparate systems and protectors of the data (39)
- ☐ 9. IT designs quality experiences at the intersection of mission, people, location, and technology (40)
- ☐ 10. it is essential for the university as another "utility" such as electricity or water (41)

☐ 11. providing a mechanism for improving efficiency and leading innovation (42)

☐ 12. both the utilitarian and innovation components of IT work closely with the operational and strategic plans to enhance them (43)

☐ 13. not just to pursue IT enhancements because they are available (44)

☐ 14. IT will continue to have a utilitarian function (45)

☐ 15. facilitating operations and communications throughout institutions, for all manner of academic, administrative, and management functions (46)

☐ 16. IT will also have transformative impact on academic and administrative activities (47)

☐ 17. Scholarship in many disciplines will be expanded and transformed by access to new types of data, resources, and methods (48)

☐ 18. new forms of data analysis and communication will impact our business operations (49)

☐ 19. Some positions may get streamlined out of existence (50)

☐ 20. some institutions will no doubt succumb to new competitive pressures. (51)

☐ 21. Operationally, it will be a key piece of academic infrastructure (52)

☐ 22. without [IT infrastructure] the mission can't go forward (53)

☐ 23. Strategically, leaders would be wise to realize this and treat it as an opportunity, not a burdensome and annoying financial sink (54)

☐ 24. Supporting (55)

☐ 25. Central role (56)

☐ 26. Most people fully understand its operational role, since when the network goes down, no one knows how to continue working (57)

☐ 27. The challenge is for leadership to grasp how central IT is strategically as well (58)

☐ 28. Partner (59)

☐ 29. Enabler (60)

☐ 30. Facilitator (61)

☐ 31. asset (62)

Q1a If you believe something is missing from the list, please enter it here.

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Q2 What is the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (five years)?

☐ 1. In five years the operational and strategic paradigm for information technology will be different (30)

☐ 2. Intentional evaluation of the role technology plays (31)

- [ ] 3. how the organization has to evolve to meet the expected demands (32)
- [ ] 4. be able to be ahead of demand (33)
- [ ] 5. a continuous focus (34)
- [ ] 6. Campus constituents need to be active players in helping define the priorities (35)
- [ ] 7. IT must facilitate the conversations (36)
- [ ] 8. make sure they are getting the full needs of the offices before delivery of a solution (37)
- [ ] 9. as our environment becomes more inundated with distractions, very relevant, particularly in the communications realm. (38)
- [ ] 10. IT must understand the institutional mission and the various activities that achieve that mission (39)
- [ ] 11. IT must understand the people and culture of the institution (40)
- [ ] 12. Any IT direction must fit within the financial constraints or opportunities of the institution. (41)
- [ ] 13. seek "quality" experiences, where quality is defined as meeting expectations (42)
- [ ] 14. understand current experiences and expectations to understand what change is needed (or not needed) (43)
- [ ] 15. take into consideration past experiences and knowledge (44)
- [ ] 16. consider new and current expectations (45)

☐ 17. the concepts [of organizational mindfulness or mindful organizing] are a key component of IT (46)

☐ 18. hugely relevant as institutions face ever-more pressure to streamline operations, and reduce costs without reducing services (47)

☐ 19. Organizational mindfulness seems to be at the heart of organizational agility, which will only grow in importance (48)

☐ 20. organizations also need to be strategic and thoughtful about which information technology innovations server their needs (49)

☐ 21. a role for deep organizational knowledge (50)

☐ 22. 'mindfulness' implies thinking ahead, considering alternatives and trying to remain flexible. (51)

☐ 23. IT staff have got to remain mindful if we want to succeed (52)

☐ 24. Medium (53)

☐ 25. How IT can move their organization forward within the institution (54)

☐ 26. Central IT organization needs to be thinking about how they are organized to support the needs of the groups around campus (55)

☐ 27. understand the central role communication plays (56)

☐ 28. as an institution we need to make changes in concert (57)

☐ 29. A good IT department has to deeply understand the organization they serve (58)

Q2a If you believe something is missing from the list, please enter it here.

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Q3 How are organizational mindfulness and mindful organizing currently demonstrated in your organization?

☐ 1. We have been adjusting roles/job descriptions/organizational structure/services to catch up as well as evolve with current college strategies (25)

☐ 2. evaluated current services against college functional expectations, maturity and efficacy of the offered services (26)

☐ 3. in the process of introducing a new governance structure (27)

☐ 4. changing the way we do business (28)

☐ 5. consider if the work that we are doing makes us happy. If not, why not? (29)

☐ 6. philosophy that we should be doing work that is rewarding is starting to filter throughout the institution (30)

☐ 7. strive to enable members to act when they observe errors or unexpected events to correct or adjust to them (31)

☐ 8. employees are expected to build upon their current knowledge base by learning from others as needed to meet the expectations for the projects they are involved in (32)

☐ 9. strive to always operate with a strong, and shared, understanding of our larger institutional mission (33)

☐ 10. strive to be nimble in both integrating IT innovations and in responding to IT problems (34)

☐ 11. to do so in a way that helps us develop shared expectations and methods (35)

☐ 12. rely heavily on fast, and broad communication amongst our staff, and on sharing and documenting best practices (36)

☐ 13. aim to balance having established procedures but not being too rigid in responding to technological or community needs (37)

☐ 14. Transparent advance budget planning (38)

☐ 15. regular feedback on new job descriptions and hiring searches (39)

☐ 16. willingness to listen carefully (40)

☐ 17. exploring new options for ongoing needs (41)

☐ 18. employing more technology in the class room (42)

☐ 19. more interactive learning (43)

☐ 20. looking very carefully at how we are organized and where we are successfully supporting our community and where we are less successful (44)

☐ 21. taking a very mindful approach in determining where changes to the organization are [needed] (45)

☐ 22. In the short-term, this is more operational, but once the operation is working more efficiently, we will be able to expand more strategically (46)

☐ 23. It closely resembles continuous improvement cycles (47)

☐ 24. We do well when we are reflective of our services and processes and iterate to improve them (48)

Q3a If you believe something is missing from the list, please enter it here.

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Q4 What is organizational mindfulness' and mindful organizing's impact on your organizational mission?

- [ ] 1. Better teamwork (21)
- [ ] 2. more questioning of the "way we have done it" (22)
- [ ] 3. sensitivity to responsiveness (23)
- [ ] 4. improved service feedback from customers (24)
- [ ] 5. more agile/less silo (25)
- [ ] 6. make the organizational mission clearer for the department (26)
- [ ] 7. It won't necessarily make the work any easier (27)
- [ ] 8. It will hopefully make the department more agile (28)
- [ ] 9. a positive impact on the hearts and minds of the employees and students (29)
- [ ] 10. a negative impact on productivity as compared to the current work ethic that is valued within the institution...that of 70 hours weeks are what is required (30)
- [ ] 11. The mission of IT is to provide and support the information technology needs of the university so it can complete its mission (31)

☐ 12. IT must be willing and able to improve processes and be able to react to future events through organizational mindfulness (32)

☐ 13. based on providing service to our community and being responsive to their needs (33)

☐ 14. our ability to collectively understand and respond to community needs is critical (34)

☐ 15. Sometimes innovation takes a back seat to more immediate, utilitarian IT and communication needs (35)

☐ 16. I can't speak to this directly (36)

☐ 17. Medium (37)

☐ 18. One of the tenets of our mission is to try things (38)

☐ 19. We will experiment and have some things fail, but over time the changes will be impactful and appropriate (39)

☐ 20. Our mission does not change often, so the mission is the guide star which we use to improve our organization (40)

Q4a If you believe something is missing from the list, please enter it here.

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Q5 What is organizational mindfulness' and mindful organizing's impact on your institutional mission?

☐ 1. a period of assessing [my institution's] place in the 4-year liberal arts environment and have adjusted departments, size of departments, leadership required for departments, fundraising priorities, and academic foci. (18)

☐ 2. Other areas deemed less essential to that organizational strategy are languishing in attention to their current structure/staffing/processes (19)

☐ 3. The institutional mission should be clearer (20)

☐ 4. I'm not really sure how the organizational mission and the institutional mission are different. (21)

☐ 5. The institutional mission is complex and involves many aspects of educating students and working with the community. (22)

☐ 6. Using an organizational mindfulness approach of building on what has been successful to meet expectations of students, parents, board members, employees and other key stakeholders is vital (23)

☐ 7. Our institutional mission is highly idealistic and aspirational (24)

☐ 8. mission relies on everyone having a shared understanding of our values, and their role in supporting those values. (25)

☐ 9. this mission relies on being steadfast in our values, even as the world changes around us (26)

☐ 10. Organizational mindfulness, has more to do with being strategic and selective about what future changes are meaningful for us (27)

☐ 11. When we do that [organizational mindfulness] well, we are resilient and flexible, but never lose sight of our identity (28)

☐ 12. We are precisely as nimble as we need to be (29)

☐ 13. When we don't operate with organizational mindfulness, we are at risk of perpetually reinventing the wheel, operating as a bunch of individuals rather than as a collective, and suffering the burden of organizational disfunction (30)

☐ 14. Our institutional mission is sufficiently well-known that it can, and does, drive what our departments do (31)

☐ 15. it's brief, clear, well-publicized and widely understood (32)

☐ 16. The institution is also willing to try things and adapt to what works (33)

Q5a If you believe something is missing from the list, please enter it here.

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End of Block: Default Question Block

Appendix E: Phase 3 – Ranking

Following is a printout of the third questionnaire produced in snhu.qualtrics.com which was sent to all participants in the Ranking phase of the Delphi study. Its purpose was to obtain the opinion of the participants on the rank the coded responses according to importance.

Thank you for your input on the brainstorming and narrowing-down rounds. Now together let's begin to build consensus for these opinions. In your opinion, for each item, please rank its importance.

Q1 What will be the role of information technology in the operational and strategic framework in colleges and universities in the near future (five years)?

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
1. fundamental (1)	○	○	○	○	○
2. we will talk less about information technology as a standalone thing and more about managing the intersection of processes, data, and people in a digital platform (2)	○	○	○	○	○
3. Expansion of digital business and the digital workplace make it critical to have IT partnered with all operational units and in strategic planning efforts (3)	○	○	○	○	○
4. integration and security are paramount (4)	○	○	○	○	○
5. providing a mechanism for improving efficiency and leading innovation (5)	○	○	○	○	○
6. both the utilitarian and innovation components of IT work closely with the operational and strategic plans to enhance them (6)	○	○	○	○	○
7. facilitating operations and communications throughout institutions, for all manner of academic, administrative, and management functions (7)	○	○	○	○	○

8. Scholarship in many disciplines will be expanded and transformed by access to new types of data, resources, and methods (8)	○	○	○	○	○
9. new forms of data analysis and communication will impact our business operations (9)	○	○	○	○	○
10. Strategically, leaders would be wise to realize this and treat it as an opportunity, not a burdensome and annoying financial sink (10)	○	○	○	○	○
11. The challenge is for leadership to grasp how central IT is strategically as well (11)	○	○	○	○	○
12. Partner (12)	○	○	○	○	○
13. Enabler (13)	○	○	○	○	○
14. Facilitator (14)	○	○	○	○	○

Q2 What is the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (five years)?

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
1. Campus constituents need to be active players in helping define the priorities (1)	○	○	○	○	○
2. make sure they are getting the full needs of the offices before delivery of a solution (2)	○	○	○	○	○
3. IT must understand the institutional mission and the various activities that achieve that mission (3)	○	○	○	○	○

4. IT must understand the people and culture of the institution (4)	○	○	○	○	○
5. understand current experiences and expectations to understand what change is needed (or not needed) (5)	○	○	○	○	○
6. consider new and current expectation (6)	○	○	○	○	○
7. hugely relevant as institutions face ever-more pressure to streamline operations, and reduce costs without reducing services (7)	○	○	○	○	○
8. Organizational mindfulness seems to be at the heart of organizational agility, which will only grow in importance (8)	○	○	○	○	○
9. organizations also need to be strategic and thoughtful about which information technology innovations server their needs (9)	○	○	○	○	○
10. 'mindfulness' implies thinking ahead, considering alternatives and trying to remain flexible. (10)	○	○	○	○	○
11. understand the central role communication plays (11)	○	○	○	○	○
12. A good IT department has to deeply understand the organization they serve (12)	○	○	○	○	○

Q3 How are organizational mindfulness and mindful organizing currently demonstrated in your organization?

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
1. We have been adjusting roles / job descriptions / organizational structure / services to catch up as well as	○	○	○	○	○

evolve with current college strategies (1)					
2. strive to enable members to act when they observe errors or unexpected events to correct or adjust to them (2)	○	○	○	○	○
3. strive to always operate with a strong, and shared, understanding of our larger institutional mission (3)	○	○	○	○	○
4. strive to be nimble in both integrating IT innovations and in responding to IT problems (4)	○	○	○	○	○
5. to do so in a way that helps us develop shared expectations and methods (5)	○	○	○	○	○
6. aim to balance having established procedures but not being too rigid in responding to technological or community needs (6)	○	○	○	○	○
7. Transparent advance budget planning (7)	○	○	○	○	○
8. willingness to listen carefully (8)	○	○	○	○	○
9. looking very carefully at how we are organized and where we are successfully supporting our community and where we are less successful (9)	○	○	○	○	○
10. taking a very mindful approach in determining where changes to the organization are [needed] (10)	○	○	○	○	○
11. It closely resembles continuous improvement cycles (11)	○	○	○	○	○
12. We do well when we are reflective of our services and processes and iterate to improve them (12)	○	○	○	○	○

Q4a What is organizational mindfulness' and mindful organizing's impact on your organizational mission?

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
1. Better teamwork (1)	○	○	○	○	○
2. more questioning of the "way we have done it" (2)	○	○	○	○	○
3. sensitivity to responsiveness (3)	○	○	○	○	○
4. more agile/less silo (4)	○	○	○	○	○
5. It will hopefully make the department more agile (5)	○	○	○	○	○
6. a positive impact on the hearts and minds of the employees and students (6)	○	○	○	○	○
7. IT must be willing and able to improve processes and be able to react to future events through organizational mindfulness (7)	○	○	○	○	○
8. our ability to collectively understand and respond to community needs is critical (8)	○	○	○	○	○
9. We will experiment and have some things fail, but over time the changes will be impactful and appropriate (9)	○	○	○	○	○
10. Our mission does not change often, so the mission is the guide star which we use to improve our organization (10)	○	○	○	○	○

Q4b What is organizational mindfulness' and mindful organizing's impact on your institutional mission?

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
1. The institutional mission is complex and involves many aspects of educating students	○	○	○	○	○

and working with the community (1)					
2. Using an organizational mindfulness approach of building on what has been successful to meet expectations of students, parents, board members, employees and other key stakeholders is vital (2)	○	○	○	○	○
3. mission relies on everyone having a shared understanding of our values, and their role in supporting those values (3)	○	○	○	○	○
4. this mission relies on being steadfast in our values, even as the world changes around us (4)	○	○	○	○	○
5. Organizational mindfulness, has more to do with being strategic and selective about what future changes are meaningful for us (5)	○	○	○	○	○
6. When we do that [organizational mindfulness] well, we are resilient and flexible, but never lose sight of our identity (6)	○	○	○	○	○
7. When we don't operate with organizational mindfulness, we are at risk of perpetually reinventing the wheel, operating as a bunch of individuals rather than as a collective, and suffering the burden of organizational disfunction (7)	○	○	○	○	○
8. Our institutional mission is sufficiently well-known that it can, and does, drive what our departments do (8)	○	○	○	○	○
9. it's brief, clear, well-publicized and widely understood (9)	○	○	○	○	○

10. The institution is also willing to try things and adapt to what works (10)	○	○	○	○	○

End of Block: Default Question Block

Appendix F: Phase 3 - Raw Data

Simple

Last Modified: 2018-06-04 09:40:24 EDT

Q1 - What will be the role of information technology in the operational and strategic framework in colleges and universities in the near future (five years)?

#	Question	Extremely important		Very important		Moderately important		Slightly important		Not at all important		Total	Flipped mean
1	1. fundamen	63.64%	7	36.36%	4	0.00%	0	0.00%	0	0.00%	0	11	4.64
2	2. we will ta	45.45%	5	36.36%	4	18.18%	2	0.00%	0	0.00%	0	11	4.27
3	3. Expansion	36.36%	4	54.55%	6	9.09%	1	0.00%	0	0.00%	0	11	4.27
4	4. integratio	72.73%	8	18.18%	2	9.09%	1	0.00%	0	0.00%	0	11	4.64
5	5. providing ;	9.09%	1	72.73%	8	18.18%	2	0.00%	0	0.00%	0	11	3.91
6	6. both the u	9.09%	1	81.82%	9	9.09%	1	0.00%	0	0.00%	0	11	4.00
7	7. facilitating	18.18%	2	54.55%	6	27.27%	3	0.00%	0	0.00%	0	11	3.91
8	8. Scholarshi	9.09%	1	45.45%	5	45.45%	5	0.00%	0	0.00%	0	11	3.64
9	9. new form:	18.18%	2	45.45%	5	36.36%	4	0.00%	0	0.00%	0	11	3.82
10	10. Strategic	54.55%	6	36.36%	4	9.09%	1	0.00%	0	0.00%	0	11	4.45
11	11. The chall	63.64%	7	18.18%	2	18.18%	2	0.00%	0	0.00%	0	11	4.45
12	12. Partner	72.73%	8	27.27%	3	0.00%	0	0.00%	0	0.00%	0	11	4.73
13	13. Enabler	54.55%	6	45.45%	5	0.00%	0	0.00%	0	0.00%	0	11	4.55
14	14. Facilitatc	36.36%	4	45.45%	5	18.18%	2	0.00%	0	0.00%	0	11	4.18

Raw Data

												Quartile 1	Quartile 3	IQR	Median
1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	1
2	1	1	1	1	1	2	2	2	2	3	3	1	2	1	2
3	1	1	1	1	2	2	2	2	2	2	3	1	2	1	2
4	1	1	1	1	1	1	1	1	2	2	3	1	1.5	0.5	1
5	1	2	2	2	2	2	2	2	2	3	3	2	2	0	2
6	1	2	2	2	2	2	2	2	2	2	3	2	2	0	2
7	1	1	2	2	2	2	2	2	3	3	3	2	2.5	0.5	2
8	1	2	2	2	2	2	3	3	3	3	3	2	3	1	2
9	1	1	2	2	2	2	2	3	3	3	3	2	3	1	2
10	1	1	1	1	1	1	2	2	2	2	3	1	2	1	1
11	1	1	1	1	1	1	1	2	2	3	3	1	2	1	1
12	1	1	1	1	1	1	1	1	2	2	2	1	1.5	0.5	1
13	1	1	1	1	1	1	2	2	2	2	2	1	2	1	1
14	1	1	1	1	2	2	2	2	2	3	3	1	2	1	2

Simple

Last Modified: 2018-06-04 09:41:02 EDT

Q2 - What are the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (five years)?

#	Question	Extremely important		Very important		Moderately important		Slightly important		Not at all important		Total		Flipped mean	
1	1. Campus c	27.27%	3	72.73%	8	0.00%	0	0.00%	0	0.00%	0	11		4.27	
2	2. make sure	63.64%	7	18.18%	2	18.18%	2	0.00%	0	0.00%	0	11		4.45	
3	3. IT must ur	81.82%	9	18.18%	2	0.00%	0	0.00%	0	0.00%	0	11		4.82	
4	4. IT must ur	63.64%	7	36.36%	4	0.00%	0	0.00%	0	0.00%	0	11		4.64	
5	5. understan	45.45%	5	45.45%	5	9.09%	1	0.00%	0	0.00%	0	11		4.36	
6	6. consider n	27.27%	3	45.45%	5	27.27%	3	0.00%	0	0.00%	0	11		4.00	
7	7. hugely rel	27.27%	3	63.64%	7	9.09%	1	0.00%	0	0.00%	0	11		4.18	
8	8. Organizati	0.00%	0	54.55%	6	45.45%	5	0.00%	0	0.00%	0	11		3.55	
9	9. organizati	27.27%	3	54.55%	6	18.18%	2	0.00%	0	0.00%	0	11		4.09	
10	10. 'mindfuln	45.45%	5	36.36%	4	18.18%	2	0.00%	0	0.00%	0	11		4.27	
11	11. understa	45.45%	5	27.27%	3	27.27%	3	0.00%	0	0.00%	0	11		4.18	
12	12. A good IT	54.55%	6	36.36%	4	9.09%	1	0.00%	0	0.00%	0	11		4.45	

Raw Data												Quartile 1	Quartile 3	IQR	Median
1	1	1	1	2	2	2	2	2	2	2	2	1.5	2	0.5	2
2	1	1	1	1	1	1	1	2	2	3	3	1	2	1	1
3	1	1	1	1	1	1	1	1	1	2	2	1	1	0	1
4	1	1	1	1	1	1	1	2	2	2	2	1	2	1	1
5	1	1	1	1	1	2	2	2	2	2	3	1	2	1	2
6	1	1	1	2	2	2	2	2	3	3	3	1.5	2.5	1	2
7	1	1	1	2	2	2	2	2	2	2	3	1.5	2	0.5	2
8	2	2	2	2	2	2	3	3	3	3	3	2	3	1	2
9	1	1	1	2	2	2	2	2	2	3	3	1.5	2	0.5	2
10	1	1	1	1	1	2	2	2	2	3	3	1	2	1	2
11	1	1	1	1	1	2	2	2	3	3	3	1	2.5	1.5	2
12	1	1	1	1	1	1	2	2	2	2	3	1	2	1	1

Simple

Last Modified: 2018-06-04 09:41:34 EDT

Q3 - How are organizational mindfulness and mindful organizing currently demonstrated in your organization?

#	Question	Extremely important		Very important		Moderately important		Slightly important		Not at all important		Total		Flipped mean
1	1. We have t	36.36%	4	45.45%	5	9.09%	1	9.09%	1	0.00%	0	11		4.09
2	2. strive to e	36.36%	4	45.45%	5	18.18%	2	0.00%	0	0.00%	0	11		4.18
3	3. strive to a	54.55%	6	36.36%	4	9.09%	1	0.00%	0	0.00%	0	11		4.45
4	4. strive to b	27.27%	3	54.55%	6	18.18%	2	0.00%	0	0.00%	0	11		4.09
5	5. to do so in	9.09%	1	63.64%	7	27.27%	3	0.00%	0	0.00%	0	11		3.82
6	6. aim to bal	36.36%	4	45.45%	5	18.18%	2	0.00%	0	0.00%	0	11		4.18
7	7. Transpare	36.36%	4	27.27%	3	27.27%	3	9.09%	1	0.00%	0	11		3.91
8	8. willingnes	63.64%	7	27.27%	3	9.09%	1	0.00%	0	0.00%	0	11		4.55
9	9. looking ve	27.27%	3	36.36%	4	36.36%	4	0.00%	0	0.00%	0	11		3.91
10	10. taking a	27.27%	3	36.36%	4	18.18%	2	18.18%	2	0.00%	0	11		3.73
11	11. It closely	9.09%	1	54.55%	6	36.36%	4	0.00%	0	0.00%	0	11		3.73
12	12. We do w	36.36%	4	54.55%	6	9.09%	1	0.00%	0	0.00%	0	11		4.27

Raw Data												Quartile 1	Quartile 3	IQR	Median
1	1	1	1	1	2	2	2	2	2	3	4	1	2	1	2
2	1	1	1	1	2	2	2	2	2	3	3	1	2	1	2
3	1	1	1	1	1	1	2	2	2	2	3	1	2	1	1
4	1	1	1	2	2	2	2	2	2	3	3	1.5	2	0.5	2
5	1	2	2	2	2	2	2	2	3	3	3	2	2.5	0.5	2
6	1	1	1	1	2	2	2	2	2	3	3	1	2	1	2
7	1	1	1	1	2	2	2	3	3	3	4	1	3	2	2
8	1	1	1	1	1	1	1	4	4	4	3	1	3.5	2.5	1
9	1	1	1	2	2	2	2	3	3	3	3	1.5	3	1.5	2
10	1	1	1	2	2	2	2	3	3	4	4	1.5	3	1.5	2
11	1	2	2	2	2	2	2	3	3	3	3	2	3	1	2
12	1	1	1	1	2	2	2	2	2	2	3	1	2	1	2

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Q4a - What is organizational mindfulness' and mindful organizing's impact on your organizational mission?

#	Question	Extremely important		Very important		Moderately important		Slightly important		Not at all important		Total		Flipped mean
1	1. Better tea	27.27%	3	63.64%	7	9.09%	1	0.00%	0	0.00%	0		11	4.18
2	2. more ques	27.27%	3	63.64%	7	9.09%	1	0.00%	0	0.00%	0		11	4.18
3	3. sensitivity	18.18%	2	54.55%	6	27.27%	3	0.00%	0	0.00%	0		11	3.91
4	4. more agile	36.36%	4	36.36%	4	27.27%	3	0.00%	0	0.00%	0		11	4.09
5	5. It will hop	27.27%	3	45.45%	5	27.27%	3	0.00%	0	0.00%	0		11	4.00
6	6. a positive	36.36%	4	27.27%	3	36.36%	4	0.00%	0	0.00%	0		11	4.00
7	7. IT must be	36.36%	4	45.45%	5	18.18%	2	0.00%	0	0.00%	0		11	4.18
8	8. our ability	45.45%	5	36.36%	4	18.18%	2	0.00%	0	0.00%	0		11	4.27
9	9. We will ex	18.18%	2	72.73%	8	9.09%	1	0.00%	0	0.00%	0		11	4.09
10	10. Our miss	45.45%	5	45.45%	5	9.09%	1	0.00%	0	0.00%	0		11	4.36

Raw Data												Quartile 1	Quartile 3	IQR	Median
1	1	1	1	2	2	2	2	2	2	2	3	1.5	2	0.5	2
2	1	1	1	2	2	2	2	2	2	2	3	1.5	2	0.5	2
3	1	1	2	2	2	2	2	2	3	3	3	2	2.5	0.5	2
4	1	1	1	1	2	2	2	2	3	3	3	1	2.5	1.5	2
5	1	1	1	2	2	2	2	2	3	3	3	1.5	2.5	1	2
6	1	1	1	1	2	2	2	3	3	3	3	1	3	2	2
7	1	1	1	1	2	2	2	2	2	3	3	1	2	1	2
8	1	1	1	1	1	2	2	2	2	3	3	1	2	1	2
9	1	1	2	2	2	2	2	2	2	2	3	2	2	0	2
10	1	1	1	1	1	2	2	2	2	2	3	1	2	1	2

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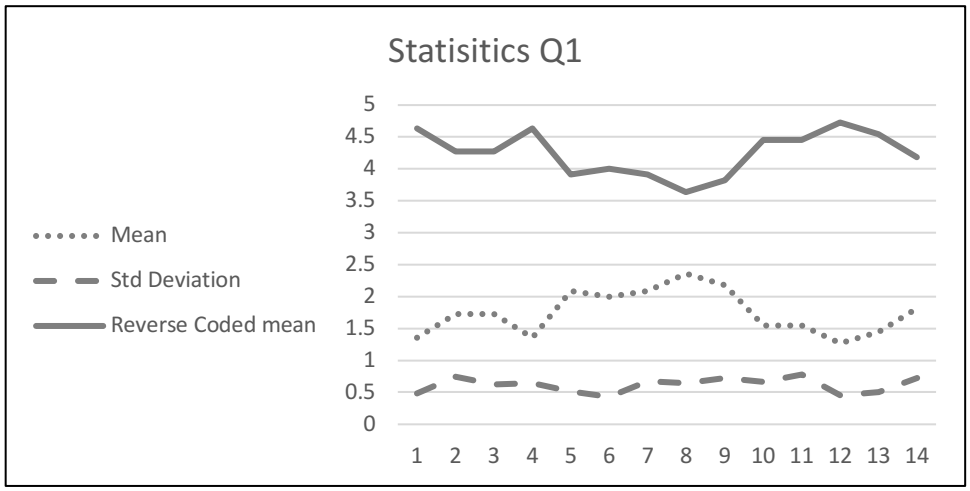
Q4b - What is organizational mindfulness' and mindful organizing's impact on your institutional mission?

#	Question	Extremely important		Very important		Moderately important		Slightly important		Not at all important		Total		Flipped mean	
1	1. The institu	36.36%	4	18.18%	2	36.36%	4	0.00%	0	9.09%	1	11		3.73	
2	2. Using an c	18.18%	2	63.64%	7	18.18%	2	0.00%	0	0.00%	0	11		4.00	
3	3. mission re	45.45%	5	36.36%	4	18.18%	2	0.00%	0	0.00%	0	11		4.27	
4	4. this missic	27.27%	3	36.36%	4	36.36%	4	0.00%	0	0.00%	0	11		3.91	
5	5. Organizati	0.00%	0	72.73%	8	27.27%	3	0.00%	0	0.00%	0	11		3.73	
6	6. When we	27.27%	3	54.55%	6	18.18%	2	0.00%	0	0.00%	0	11		4.09	
7	7. When we	54.55%	6	45.45%	5	0.00%	0	0.00%	0	0.00%	0	11		4.55	
8	8. Our institu	18.18%	2	54.55%	6	27.27%	3	0.00%	0	0.00%	0	11		3.91	
9	9. it's brief, c	18.18%	2	36.36%	4	45.45%	5	0.00%	0	0.00%	0	11		3.73	
10	10. The instit	27.27%	3	45.45%	5	18.18%	2	9.09%	1	0.00%	0	11		3.91	

Raw Data												Quartile 1	Quartile 3	IQR	Median
1	1	1	1	1	2	2	3	3	3	3	5	1	3	2	2
2	1	1	2	2	2	2	2	2	2	3	3	2	2	0	2
3	1	1	1	1	1	2	2	2	2	3	3	1	2	1	2
4	1	1	1	2	2	2	2	3	3	3	3	1.5	3	1.5	2
5	2	2	2	2	2	2	2	2	3	3	3	2	2.5	0.5	2
6	1	1	1	2	2	2	2	2	2	3	3	1.5	2	0.5	2
7	1	1	1	1	1	1	2	2	2	2	2	1	2	1	1
8	1	1	2	2	2	2	2	2	3	3	3	2	2.5	0.5	2
9	1	1	2	2	2	2	3	3	3	3	3	2	3	1	2
10	1	1	1	2	2	2	2	2	3	3	4	1.5	2.5	1	2

Appendix G: Phase 3 - Statistical Calculations



Statistics													
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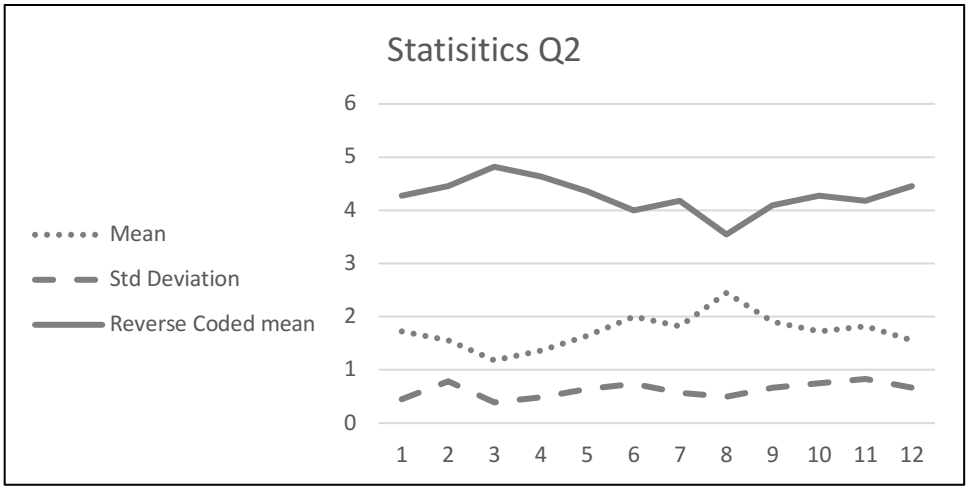
Q2 - What are the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (five years)?													
#	Minimum	Maximum	Mean	Std Deviation	Variance	Count	Quartile 1	Quartile 3	IQR	Likert 1 or 2	L1,2 Percent	Reverse Coded mean	Median
1	1	2	1.73	0.45	0.2	11	1.5	2	0.5	11	100%	4.27	2
2	1	3	1.55	0.78	0.61	11	1	2	1	9	82%	4.45	1
3	1	2	1.18	0.39	0.15	11	1	1	0	11	100%	4.82	1
4	1	2	1.36	0.48	0.23	11	1	2	1	11	100%	4.64	1
5	1	3	1.64	0.64	0.41	11	1	2	1	10	91%	4.36	2
6	1	3	2	0.74	0.55	11	1.5	2.5	1	8	73%	4.00	2
7	1	3	1.82	0.57	0.33	11	1.5	2	0.5	10	91%	4.18	2
8	2	3	2.45	0.5	0.25	11	2	3	1	6	55%	3.55	2
9	1	3	1.91	0.67	0.45	11	1.5	2	0.5	9	82%	4.09	2
10	1	3	1.73	0.75	0.56	11	1	2	1	9	82%	4.27	2
11	1	3	1.82	0.83	0.69	11	1	2.5	1.5	8	73%	4.18	2
12	1	3	1.55	0.66	0.43	11	1	2	1	10	91%	4.45	1
Consensus				SD <=1.5					IQR <= 1		% >=50	4.27	Average
												4.82	Maximum
												3.55	Minimum
												1.27	Range



Statistics													
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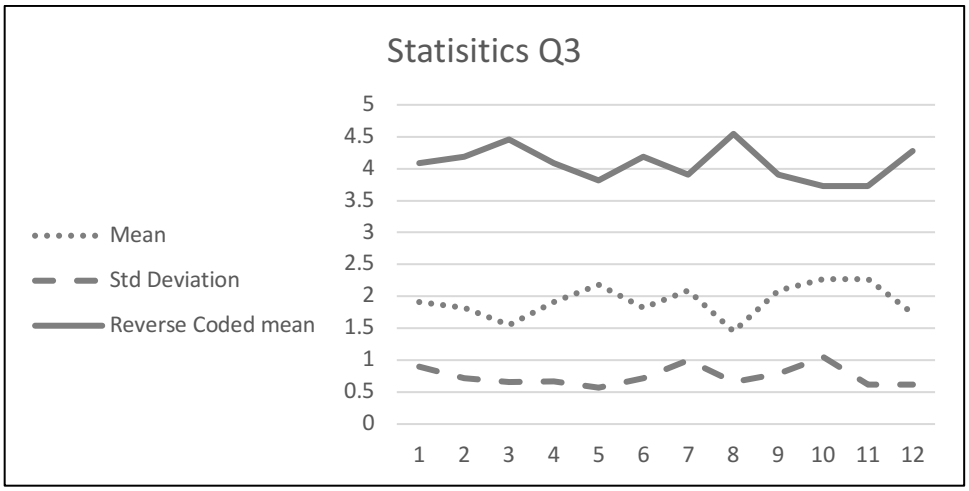
Q3 - How are organizational mindfulness and mindful organizing currently demonstrated in your organization?													
#	Minimum	Maximum	Mean	Std Deviation	Variance	Count	Quartile 1	Quartile 3	IQR	Likert 1 or 2	L1,2 Percent	Reverse Coded mean	Median
1	1	4	1.91	0.9	0.81	11	1	2	1	9	82%	4.09	2
2	1	3	1.82	0.72	0.51	11	1	2	1	9	82%	4.18	2
3	1	3	1.55	0.66	0.43	11	1	2	1	10	91%	4.45	1
4	1	3	1.91	0.67	0.45	11	1.5	2	0.5	9	82%	4.09	2
5	1	3	2.18	0.57	0.33	11	2	2.5	0.5	8	73%	3.82	2
6	1	3	1.82	0.72	0.51	11	1	2	1	9	82%	4.18	2
7	1	4	2.09	1	0.99	11	1	3	2	7	64%	3.91	2
8	1	3	1.45	0.66	0.43	11	1	3.5	2.5	10	91%	4.55	1
9	1	3	2.09	0.79	0.63	11	1.5	3	1.5	7	64%	3.91	2
10	1	4	2.27	1.05	1.11	11	1.5	3	1.5	7	64%	3.73	2
11	1	3	2.27	0.62	0.38	11	2	3	1	7	64%	3.73	2
12	1	3	1.73	0.62	0.38	11	1	2	1	10	91%	4.27	2
Consensus				SD <=1.5					IQR <= 1		% >=50	4.08	Average
												4.55	Maximum
												3.73	Minimum
												0.82	Range



Statistics

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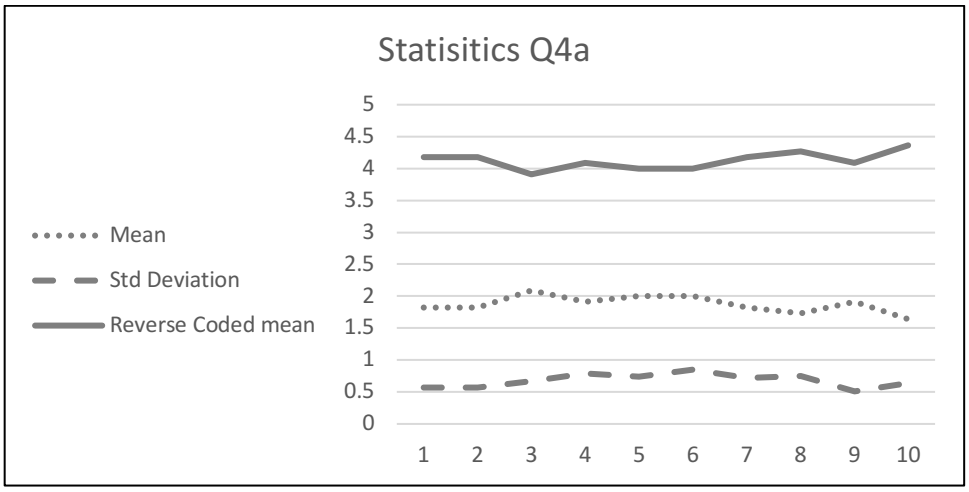
Q4a - What is organizational mindfulness' and mindful organizing's impact on your organizational mission?

#	Minimum	Maximum	Mean	Std Deviation	Variance	Count	Quartile 1	Quartile 3	IQR	Likert 1 or 2	L1,2 Percent	Reverse Coded mean	Median
1	1	3	1.82	0.57	0.33	11	1.5	2	0.5	10	91%	4.18	2
2	1	3	1.82	0.57	0.33	11	1.5	2	0.5	10	91%	4.18	2
3	1	3	2.09	0.67	0.45	11	2	2.5	0.5	8	73%	3.91	2
4	1	3	1.91	0.79	0.63	11	1	2.5	1.5	8	73%	4.09	2
5	1	3	2	0.74	0.55	11	1.5	2.5	1	8	73%	4.00	2
6	1	3	2	0.85	0.73	11	1	3	2	7	64%	4.00	2
7	1	3	1.82	0.72	0.51	11	1	2	1	9	82%	4.18	2
8	1	3	1.73	0.75	0.56	11	1	2	1	9	82%	4.27	2
9	1	3	1.91	0.51	0.26	11	2	2	0	10	91%	4.09	2
10	1	3	1.64	0.64	0.41	11	1	2	1	10	91%	4.36	2
Consensus				SD <=1.5					IQR <= 1		% >=50	4.13	Average
												4.36	Maximum
												3.91	Minimum
												0.45	Range



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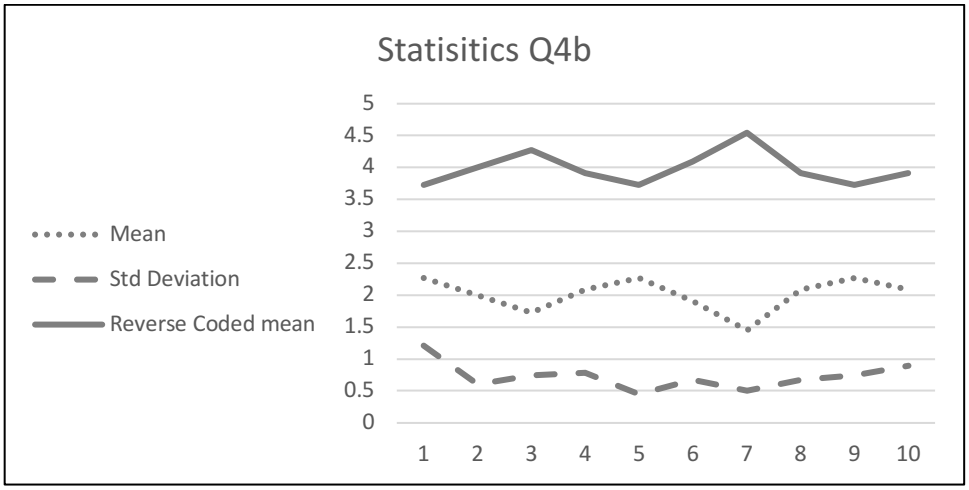
Q4b - What is organizational mindfulness' and mindful organizing's impact on your institutional mission?

#	Minimum	Maximum	Mean	Std Deviation	Variance	Count	Quartile 1	Quartile 3	IQR	Likert 1 or 2	L1,2 Percent	Reverse Coded mean	Median
1	1	5	2.27	1.21	1.47	11	1	3	2	6	55%	3.73	2
2	1	3	2	0.6	0.36	11	2	2	0	9	82%	4.00	2
3	1	3	1.73	0.75	0.56	11	1	2	1	9	82%	4.27	2
4	1	3	2.09	0.79	0.63	11	1.5	3	1.5	7	64%	3.91	2
5	2	3	2.27	0.45	0.2	11	2	2.5	0.5	8	73%	3.73	2
6	1	3	1.91	0.67	0.45	11	1.5	2	0.5	9	82%	4.09	2
7	1	2	1.45	0.5	0.25	11	1	2	1	11	100%	4.55	1
8	1	3	2.09	0.67	0.45	11	2	2.5	0.5	8	73%	3.91	2
9	1	3	2.27	0.75	0.56	11	2	3	1	6	55%	3.73	2
10	1	4	2.09	0.9	0.81	11	1.5	2.5	1	8	73%	3.91	2
Consensus				SD <=1.5					IQR <= 1		% >=50	3.98	Average
												4.55	Maximum
												3.73	Minimum
												0.82	Range



Appendix H: SWOT Categorizations

Int/Ext	Fav/Unfav	SWOT	Mean	Field	Text
i	f	S	4.64	1-1.	fundamental
e	f	O	4.27	1-2.	we will talk less about information technology as a standalone thing and more about managing the intersection of processes, data, and people in a digital platform
e	u	T	4.27	1-3.	Expansion of digital business and the digital workplace make it critical to have IT partnered with all operational units and in strategic planning efforts
i	f	S	4.64	1-4.	integration and security are paramount
e	f	O	3.91	1-5.	providing a mechanism for improving efficiency and leading innovation
i	f	S	4.00	1-6.	both the utilitarian and innovation components of IT work closely with the operational and strategic plans to enhance them
e	f	O	3.91	1-7.	facilitating operations and communications throughout institutions, for all manner of academic, administrative, and management functions
e	f	O	3.64	1-8.	Scholarship in many disciplines will be expanded and transformed by access to new types of data, resources, and methods
e	u	T	3.82	1-9.	new forms of data analysis and communication will impact our business operations
e	u	T	4.45	1-10.	Strategically, leaders would be wise to realize this and treat it as an opportunity, not a burdensome and annoying financial sink
e	u	T	4.45	1-11.	The challenge is for leadership to grasp how central IT is strategically as well
e	f	O	4.73	1-12.	Partner
e	f	O	4.55	1-13.	Enabler
e	f	O	4.18	1-14.	Facilitator
e	u	T	4.27	2-1.	Campus constituents need to be active players in helping define the priorities
i	u	W	4.45	2-2.	make sure they are getting the full needs of the offices before delivery of a solution
i	u	W	4.82	2-3.	IT must understand the institutional mission and the various activities that achieve that mission

i	u	W	4.64	2-4.	IT must understand the people and culture of the institution
i	f	S	4.36	2-5.	understand current experiences and expectations to understand what change is needed (or not needed)
i	u	W	4.00	2-6.	consider new and current expectation
e	u	T	4.18	2-7.	hugely relevant as institutions face ever-more pressure to streamline operations, and reduce costs without reducing services
i	f	S	3.55	2-8.	Organizational mindfulness seems to be at the heart of organizational agility, which will only grow in importance
i	u	W	4.09	2-9.	organizations also need to be strategic and thoughtful about which information technology innovations server their needs
i	f	S	4.27	2-10.	'mindfulness' implies thinking ahead, considering alternatives and trying to remain flexible.
e	f	O	4.18	2-11.	understand the central role communication plays
e	f	O	4.45	2-12.	A good IT department has to deeply understand the organization they serve
e	f	O	4.09	3-1.	We have been adjusting roles / job descriptions / organizational structure / services to catch up as well as evolve with current college strategies
i	f	S	4.18	3-2.	strive to enable members to act when they observe errors or unexpected events to correct or adjust to them
e	f	O	4.45	3-3.	strive to always operate with a strong, and shared, understanding of our larger institutional mission
i	f	S	4.09	3-4.	strive to be nimble in both integrating IT innovations and in responding to IT problems
i	f	S	3.82	3-5.	to do so in a way that helps us develop shared expectations and methods
e	f	O	4.18	3-6.	aim to balance having established procedures but not being too rigid in responding to technological or community needs
i	f	S	3.91	3-7.	Transparent advance budget planning
e	f	O	4.55	3-8.	willingness to listen carefully
e	u	T	3.91	3-9.	looking very carefully at how we are organized and where we are successfully supporting our community and where we are less successful

i	u	W	3.73	3-10.	taking a very mindful approach in determining where changes to the organization are [needed]
i	f	S	3.73	3-11.	It closely resembles continuous improvement cycles
e	f	O	4.27	3-12.	We do well when we are reflective of our services and processes and iterate to improve them
i	u	W	4.18	4a-1.	Better teamwork
i	u	W	4.18	4a-2.	more questioning of the "way we have done it"
i	f	S	3.91	4a-3.	sensitivity to responsiveness
i	f	S	4.09	4a-4.	more agile/less silo
i	u	W	4.00	4a-5.	It will hopefully make the department more agile
i	f	S	4.00	4a-6.	a positive impact on the hearts and minds of the employees and students
i	f	S	4.18	4a-7.	IT must be willing and able to improve processes and be able to react to future events through organizational mindfulness
i	f	S	4.27	4a-8.	our ability to collectively understand and respond to community needs is critical
i	u	W	4.09	4a-9.	We will experiment and have some things fail, but over time the changes will be impactful and appropriate
i	f	S	4.36	4a-10.	Our mission does not change often, so the mission is the guide star which we use to improve our organization
e	u	T	3.73	4b-1.	The institutional mission is complex and involves many aspects of educating students and working with the community
e	f	O	4.00	4b-2.	Using an organizational mindfulness approach of building on what has been successful to meet expectations of students, parents, board members, employees and other key stakeholders is vital
e	u	T	4.27	4b-3.	mission relies on everyone having a shared understanding of our values, and their role in supporting those values
e	u	T	3.91	4b-4.	this mission relies on being steadfast in our values, even as the world changes around us
e	f	O	3.73	4b-5.	Organizational mindfulness, has more to do with being strategic and selective about what future changes are meaningful for us

i	f	S	4.09	4b-6.	When we do that [organizational mindfulness] well, we are resilient and flexible, but never lose sight of our identity
e	u	T	4.55	4b-7.	When we don't operate with organizational mindfulness, we are at risk of perpetually reinventing the wheel, operating as a bunch of individuals rather than as a collective, and suffering the burden of organizational disfunction
e	f	O	3.91	4b-8.	Our institutional mission is sufficiently well-known that it can, and does, drive what our departments do
e	f	O	3.73	4b-9.	it's brief, clear, well-publicized and widely understood
e	f	O	3.91	4b-10.	The institution is also willing to try things and adapt to what works

SWOT	
if	S
iu	W
ef	O
eu	T

Appendix I: Coding and Themes

Holistic	Intersection		
	Integrators and protectors		
	integration an security		
	intersection		
	Central Role, both operational and strategic		
	Operational and Strategic		
	operatiopnal and strategic		
	Facilitator and asset		
	Supporting		
	Utilitarian, transformative and operational		
	Utiliy and innovation		
Versus	IT stnadalone vs intesection		
	operational vs strategic		
	operational vs strategic		
	operational vs stategic		
	leadership vs operations		
	utilitarian vs trasformative		
	utility vs innovation		
	opportunity vs financial sink		
	positive impact vs streamlined out of exitence		
	enhance vs persue available		
Values	V: value	B: belief	A: attitude
	integrator	IT is a foci of ecperiences	IT is "essential"
	integator	integration and security are important	IT is at an intersection
	integration	processes are based in technology	IT is key
	partner	teaching & learning are based in technology	IT improves business
	enabler	IT is operational & strategic	central role
	partner	strategic planning requires IT input	supporting role
	protector	IT is key infrastructure	facilitatir
	security	utility	significant role
	facilitator	must work together (utility & innovation)	opportunitiies to leverage
	aset	transformative	IT may cause changes*
	utility	IT follows next shiny thing	burdensome & annoying financial sink
	grasp importance		fundamenal
	improved scholarship		
	improved communication		
	innovatin		

Q2	What are the relevance of organizational mindfulness and mindful organizing in reaching the intended operational and strategic paradigm for information technology in the near future (next five years)?		
Holistic	IT serves		
	Forethought and agility		
	agility and strategic		
	longetrm direction needs to be intentional		
	cooperation between community and IT		
	organizational knowledge; current expectaitons		
	culture and expectations		
	IT facilitates convesation to define dept. priorities		
	Medium		
Versus	IT vs flexibility		
	using IT vs thoughtful application of IT		
	past experiences vs new and current expectaitons		
	expectations vs IT changes		
	office priorities vs institutional priorities		
	IT vs organization		
	IT vs organization		
	IT vs institution		
	IT vs people and culture		
	IT vs campus constituents		
	reduce costs vs reduce services		
	IT vs financials		
	organization vs support		
Values	V: value	B: belief	A: attitude
	mindfulness equals success	IT serves	must remian mindful
	maintain service levels	OM is at the heart of organizational agility	agility is important
	communication	think of how IT can facilitate reorganization	decisions must include past & future perspectives
	meeting expectations	IT needs to support the campus	be active players
	facilitators	we need to work in concet	undewrstand the organization
	reduce costs	IT serves	organizational knowledge is important
	a good IT dept	people & culture important	IT must understand context
	medium relevance	environment inundated with distrations	central role
	planning for future	financial contraints & opportunities	help define priorities
	improving IT	don't know relevance	IT must predict
	intentional evaluation	OM/MO key to IT	org must evolve
		paradigm chaned in 5 years	

Q3	How are organizational mindfulness and mindful organizing currently demonstrated in an organization?		
Holistic	knowledge builing		
	empower people		
	new governance structure		
	continuous improvement cycle		
	increased IT usage		
	balance procedures with evolving needs		
	evolve with strategies		
	operational first; strategic second		
	concrete iusage		
	rewarding work		
Versus	operational vs strategic		
	process vs methodology		
	reflective vs improvements		
	established procedures vs fluid community needs		
	rigid vs fluid		
	organization vs support		
	organization vs institution		
Values	V: value	B: belief	A: attitude
	successfully support sommunity	short term changes - operational	must be reflective
	efficiency	long-term changes - strategic	understand wider organization
	listening	IT offers opportunities	team works toward solutions
	feedback	we respond to community needs	IT is key to change
	shared documentation	members observe	old way os not as good
	happiness	college strategies are guide	IT is behind - need to evolve/catch up
	efficency	do well when improving	organization is important
	effectiveness	improvement is possible	sharted knowledge is a key to success
	continuous improvement cycle	changes will be needed	work can make us happy
	expansion	group knowledge s important	
	new options	work should be rewqarding	
	nimble	a new structure will help	
	learning		
	communication		
	individual actions		

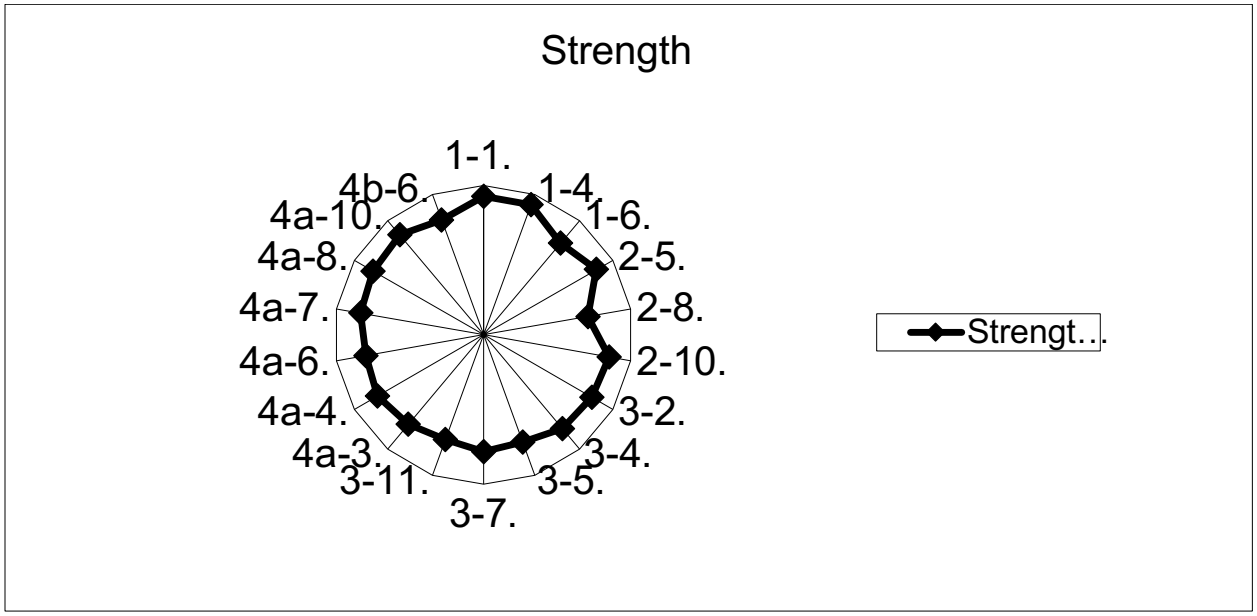
Q4a	What is organizational mindfulness' and mindful organizing's impact on **organizational** mission?		
Holistic	when at first you don't succeed …		
	improving customer service		
	guiding star		
	org mission is to support inst mission		
	org mission is to support inst mission		
	support - no matter the cost		
	do what is best for inst, not for yourself		
	medium		
	unknown		
Versus	hearts and minds vs work ethic		
	way we have done it vs responsive		
	innovation vsutilitarian		
	silo vs agile		
	easy vs agile		
Values	V: value	B: belief	A: attitude
	try new things	you can learn from failure	need to be responsive
	respoinsiveness	attitude is more important than production	work week too long
	hearts and minds	OM will lead to better teamwork	long hours are expected
	responsiveness	mission does not change	guiding star
	improved service	org mission based on service	a clear mission is desireable
	mission-driven	utilitarian may take precedence over innovation	failure is not bad - learn form it
	improvement	IT's role is to support	IT must improve
	communication	changes will have impact	IT must be agile
	productivity	has medium impact	OM will imporve service
	agility	unknown impact	
		OM may make mission clearer	

Q4b	What is organizational mindfulness' and mindful organizing's impact on **institutional** mission?		
Holistic	meet stakeholder expectations		
	mission can direct focus		
	OM allows us to be true to ourselves		
	should be clearer		
	unknown		
Versus	individuals vs collective		
	strategy vs operations		
	identity vs changes		
	steadfast vs change		
Values	V: value	B: belief	A: attitude
	understood mission	OM is strategic & selectiv e	mission drives actions
	collective actions	well known mission	mission is idealistic an aspirational
	community work	mission relies on shared understadig	meeting expections is vital
	place in the grand scheme of things	world changes around us	trying ne things is good
	improvement	organizational dysfunction can grow out of a lack ofmindfulness	change can be both positive and negative
	intellectual persuit	change needs tobemindful I order to be positive	inst mission is not fully clear
	breif mission	OM builds on successful methods	OM can be negative
	clear mission	reorganization has changed (detrimntally?)	unsure how missions (org and inst) re different
	steadfast alues	depts not seen as essential	
	educating students	mission does not change	
		medium impact	
		mission is complex	

Appendix J: SWOT Categories with Means

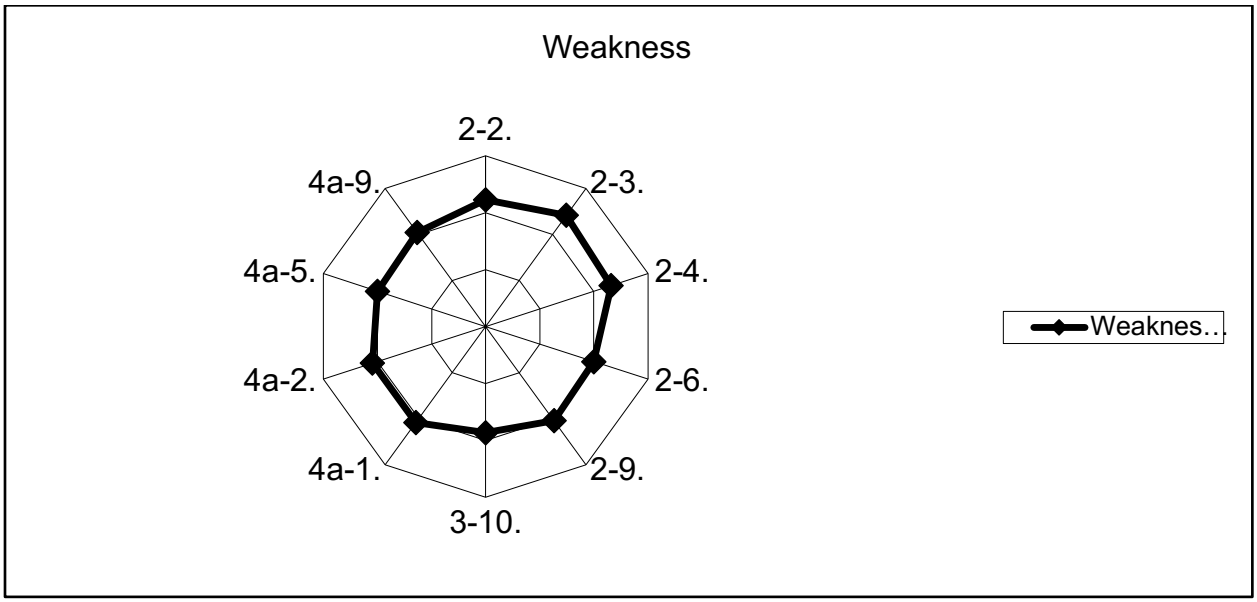
Strengths

	Question	Strength Mean
1-1.	fundamental	4.64
1-4.	integration and security are paramount	4.64
1-6.	both the utilitarian and innovation components of IT work closely with the operational and strategic plans to enhance them	4.00
2-5.	understand current experiences and expectations to understand what change is needed (or not needed)	4.36
2-8.	Organizational mindfulness seems to be at the heart of organizational agility, which will only grow in importance	3.55
2-10.	'mindfulness' implies thinking ahead, considering alternatives and trying to remain flexible.	4.27
3-2.	strive to enable members to act when they observe errors or unexpected events to correct or adjust to them	4.18
3-4.	strive to be nimble in both integrating IT innovations and in responding to IT problems	4.09
3-5.	to do so in a way that helps us develop shared expectations and methods	3.82
3-7.	Transparent advance budget planning	3.91
3-11.	It closely resembles continuous improvement cycles	3.73
4a-3.	sensitivity to responsiveness	3.91
4a-4.	more agile/less silo	4.09
4a-6.	a positive impact on the hearts and minds of the employees and students	4.00
4a-7.	IT must be willing and able to improve processes and be able to react to future events through organizational mindfulness	4.18
4a-8.	our ability to collectively understand and respond to community needs is critical	4.27
4a-10.	Our mission does not change often, so the mission is the guide star which we use to improve our organization	4.36
4b-6.	When we do that [organizational mindfulness] well, we are resilient and flexible, but never lose sight of our identity	4.09
		74.09
	Average Mean	4.12



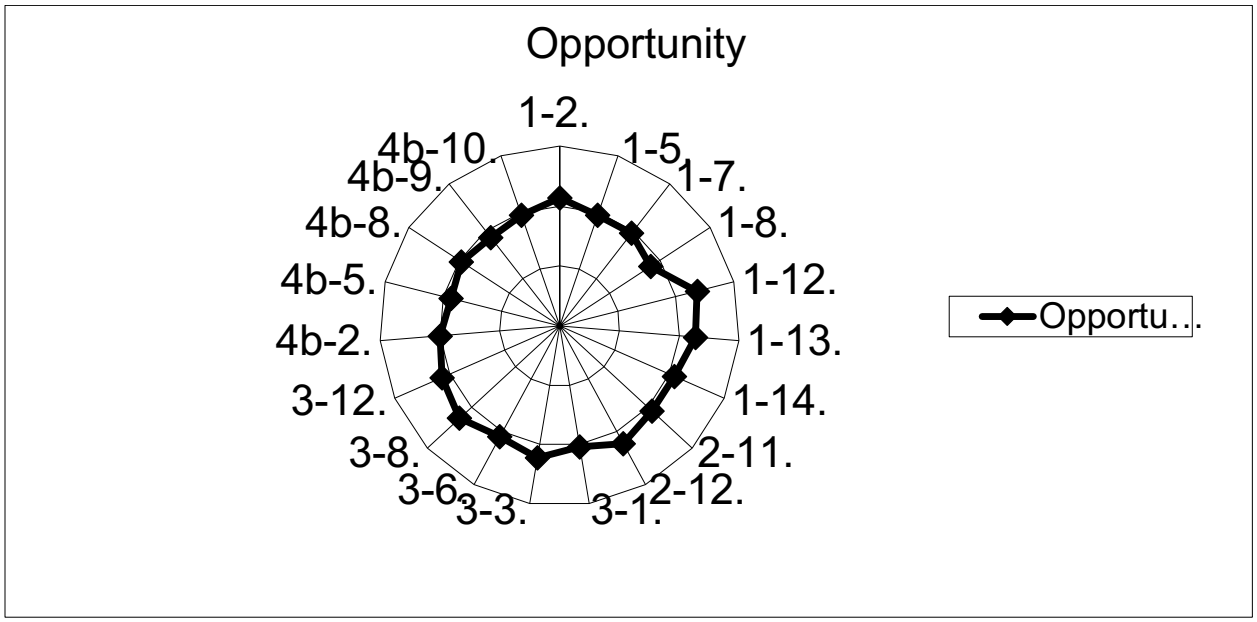
Weaknesses

	Question	Weakness Mean
2-2.	make sure they are getting the full needs of the offices before delivery of a solution	4.45
2-3.	IT must understand the institutional mission and the various activities that achieve that mission	4.82
2-4.	IT must understand the people and culture of the institution	4.64
2-6.	consider new and current expectation	4.00
2-9.	organizations also need to be strategic and thoughtful about which information technology innovations server their needs	4.09
3-10.	taking a very mindful approach in determining where changes to the organization are [needed]	3.73
4a-1.	Better teamwork	4.18
4a-2.	more questioning of the "way we have done it"	4.18
4a-5.	It will hopefully make the department more agile	4.00
4a-9.	We will experiment and have some things fail, but over time the changes will be impactful and appropriate	4.09
		42.18
	Average Mean	4.22



Opportunities

	Question	Opportunity Mean
1-2.	we will talk less about information technology as a standalone thing and more about managing the intersection of processes, data, and people in a digital platform	4.27
1-5.	providing a mechanism for improving efficiency and leading innovation	3.91
1-7.	facilitating operations and communications throughout institutions, for all manner of academic, administrative, and management functions	3.91
1-8.	Scholarship in many disciplines will be expanded and transformed by access to new types of data, resources, and methods	3.64
1-12.	Partner	4.73
1-13.	Enabler	4.55
1-14.	Facilitator	4.18
2-11.	understand the central role communication plays	4.18
2-12.	A good IT department has to deeply understand the organization they serve	4.45
3-1.	We have been adjusting roles / job descriptions / organizational structure / services to catch up as well as evolve with current college strategies	4.09
3-3.	strive to always operate with a strong, and shared, understanding of our larger institutional mission	4.45
3-6.	aim to balance having established procedures but not being too rigid in responding to technological or community needs	4.18
3-8.	willingness to listen carefully	4.55
3-12.	We do well when we are reflective of our services and processes and iterate to improve them	4.27
4b-2.	Using an organizational mindfulness approach of building on what has been successful to meet expectations of students, parents, board members, employees and other key stakeholders is vital	4.00
4b-5.	Organizational mindfulness, has more to do with being strategic and selective about what future changes are meaningful for us	3.73
4b-8.	Our institutional mission is sufficiently well-known that it can, and does, drive what our departments do	3.91
4b-9.	it's brief, clear, well-publicized and widely understood	3.73
4b-10.	The institution is also willing to try things and adapt to what works	3.91
		78.64
	Average Mean	4.14



Threats

	Question	Threat Mean
1-3.	Expansion of digital business and the digital workplace make it critical to have IT partnered with all operational units and in strategic planning efforts	4.27
1-9.	new forms of data analysis and communication will impact our business operations	3.82
1-10.	Strategically, leaders would be wise to realize this and treat it as an opportunity, not a burdensome and annoying financial sink	4.45
1-11.	The challenge is for leadership to grasp how central IT is strategically as well	4.45
2-1.	Campus constituents need to be active players in helping define the priorities	4.27
2-7.	hugely relevant as institutions face ever-more pressure to streamline operations, and reduce costs without reducing services	4.18
3-9.	looking very carefully at how we are organized and where we are successfully supporting our community and where we are less successful	3.91
4b-1.	The institutional mission is complex and involves many aspects of educating students and working with the community	3.73
4b-3.	mission relies on everyone having a shared understanding of our values, and their role in supporting those values	4.27
4b-4.	this mission relies on being steadfast in our values, even as the world changes around us	3.91
4b-7.	When we don't operate with organizational mindfulness, we are at risk of perpetually reinventing the wheel, operating as a bunch of individuals rather than as a collective, and suffering the burden of organizational disfunction	4.55
		45.82
	Average Mean	4.17