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ABSTRACT

Despite several high-profile examples of software implementation failures, it is common today for organizations to fall into the same mindless traps that have plagued those prominent failures. The goal of this research is to examine how organizations avoid these traps and what efforts, if any, are made to ensure that they do not fall victim to them again in the future. A case study approach involving a series of in-depth interviews was conducted to explore this phenomenon. The findings of this study reveal several rich insights that may be useful to both practitioners and researchers.

KEYWORDS

Organizational Mindfulness, Project Management, Decision-making, Case Study, Portal

INTRODUCTION

Many software implementation failures are among the starkest examples of failures in society today, and with good reason. Implementation failures, regardless how they are measured (Procaccino et al. 2006), easily account for billions of dollars overall lost each year and can endanger the livelihood of any organization that face them (Charette 2005). Despite several prominent and high-profile examples of implementation failures, which highlight the high costs and risks of adopting new software, organizations adopting software still commonly fall into mindless traps (Swanson & Ramiller 2004). One example is that of the enterprise resource planning (ERP) system adoptions of the mid-1990s. For several organizations that implemented these ERP systems, they only had minimal reasoning to do so beyond the fact that other organizations had implemented ERP systems already, in what is described as a bandwagon phenomena (Abrahamson 1991; Abrahamson & Rosenkopf 1997; Abrahamson & Fairchild 1999). In contrast to this behavior, there are organizations that actively seek out external knowledge and resources to facilitate a rational and managed approach to software implementation.

The goal of this research is to examine how organizations seize opportunities, by exploiting their community ties and information accessible to them, to create situations for rich and context-specific learning. This approach is different from canned or prepackaged approaches and involves the active

pursuit of knowledge to capture best practices and create continuous learning opportunities. Researchers have recently identified the need to perform this type of research (Swanson & Ramiller 2004). This research attempts to accomplish its goal by examining the efforts organizations make to glean knowledge from external resources and partners. Further, this research also seeks to identify what, if any, processes are set in place to capture this knowledge and how to package it so that it may be applied again later on. A series of in-depth interviews were conducted with a variety of individuals from a single organization that is in the process of implementing a new software system—a university portal system.

LITERATURE REVIEW

Mindfulness

Mindfulness is the behavior of actively pursing novel differences in the environment, no matter how trivial they may be, which keeps a person more acutely aware of their surroundings (Langer & Moldoveanu 2000). Although the concept of mindfulness is an individual phenomenon, it has recently been extended to organizations (Weick et al. 1999; Weick & Sutcliffe 2001) and has been further adapted to information technology (IT) innovations (Swanson & Ramiller 2004). Consequently, this paper builds upon this research by examining the mindfulness of an organization that is in the process of implementing a software system.

Despite the ideal that organizations act mindfully, the actual conduct commonly departs from this (Swanson & Ramiller 2004). There are a number of influences that organizations face that may contribute towards mindless behavior, including attention deferral (human cognitive limitations force organizational members to pursue a subset of available opportunities), contextual insensitivity (organization makes assumptions about their circumstances), and institutional preemption (external pressures influence behavior) (Swanson & Ramiller 2004).

One attribute of organizational mindfulness is the reliance on expertise over organizational norms and formal structure (Weick et al. 1999; Weick & Sutcliffe 2001). This expertise is heterogeneous and dispersed (Swanson & Ramiller 2004) and typically found in the external environment. As such, boundary-spanning activities (Adams 1976; Aldrich & Herker 1977) are instrumental in building expertise by finding more information about a software system as an organization leverages its community ties (Swanson & Ramiller 2004). This can be done through a variety of rich and context-specific activities (Lave & Wenger 1991) such as demonstrations, site visits, and experimental prototyping.

Portal systems

A web portal is a special internet (or intranet) site designed to act as a gateway to give access to other sites and data (Tatnall 2005). A portal is different from a Website in that a visitor identifies himself to the portal and the portal uses the institutional knowledge about this person to gather and display relevant information. In higher education, a portal is a one-stop student, faculty, and staff-oriented Website that personalizes the portal's tools and information to their specific needs and characteristics. For example, some university portals allow faculty and staff members to include in their views private information such as available leave, 401K, and pay stubs to be displayed with public information, such as university announcements and the local weather forecast. At many universities, however, information about individuals (e.g., student, employee, course, alumni, library, parking, schedule, etc.) can be stored in many different and disparate databases. Consequently, portals can enable universities to update legacy mainframe systems to online systems through a web browser front-end, making them ubiquitous and providing a more user-friendly graphical interface.

This research examines the decision-making process of a university implementing a portal system, which is particularly useful to examine with respect to mindfulness given that over ninety percent of colleges and universities today have implemented some type of a portal system. Consequently, there are likely strong external pressures for universities to implement these systems. Despite the widespread usage of these systems, however, there have been several instances of glitches that have occurred during implementation that range from financial aid disbursement problems to anecdotal evidence of non-usage by the intended end-users.

An example of a portal system implementation failure by a university is Cleveland State University's (CSU) implementation of a portal system in the latter 1990s. The software vendor that CSU had chosen was among the most popular portal vendors available, but there were some publicized problems with their software. Once CSU's portal was implemented, the university experienced problems with processing financial aid, enrolling transfer students, and recording grades (Stedman 1999). As a result, CSU took legal action against the software vendor and claimed that they had been sold virtually unusable software and lost millions of dollars in revenue because it could not collect accounts receivable. This scenario, unfortunately, was hardly unique (Wailgum 2005). In another example, the provosts and vice-presidents of seven Big Ten universities wrote a letter of complaint to the same software vendor regarding similar issues that CSU faced, such as poor system performance, too many bugs and patches breaking other parts of the system, and inadequate documentation. These problems with the Big Ten universities occurred three years after the CSU portal problems. Given that these same glitches and other similar problems continue to persist with recent portal implementations, this research seeks to examine the mindful or mindless behavior of a single university in the process of a portal system implementation.

METHODOLOGY

Research design

It was important in this research to gain an understanding of what actions a university took as it was in the process of implementing a portal system. A goal was to elicit detailed descriptions of mindful and perhaps mindless behaviors, therefore, we decided to use a single case study design rather than focusing on multiple cases. A single case design allows the researchers to gain familiarity and exclusive insight from the evidence gathered (Eisenhardt 1989).

Case and participant selection

We chose to examine a single university in the southeastern United States that is in the process of implementing a portal system. This particular university made the decision to implement the portal system in 2005 and it was expected to be fully implemented by the fall of 2007. We took this approach since examining a university that was in the process of implementing a system would eliminate the degenerating effect of recall from retrospective accounts that could occur if we were to examine a university that had already implemented a portal system (Golden 1992; Miller et al. 1997). Further, we chose to examine the implementation of a university portal system since, with over ninety percent of colleges and universities today having implemented some type of a portal system, there would likely be significant external pressures to implement a similar system and ample information available to assist with an implementation.

Individual, in-depth interviews were performed with members of the portal implementation team, including the project director, technical support personnel, and portal trainers at this university. Multiple

members were interviewed so that we were able to gain access to possible contrasting perspectives while minimizing common methods variance (Campbell & Fiske 1959). In total, five individuals were interviewed during the fall of 2006.

Data collection and analysis

The interviews lasted on average 45 minutes and were each conducted face-to-face. The interview process was guided by a semi-structured interview guide. This guide contained eleven open-ended questions and was used by the interviewer to ensure that all relevant areas of interest were consistently addressed in the interviews. The questions elicited the university's organizational and portal initiative background, the perspective and involvement of the interviewee, mindful behaviors regarding their portal implementation, as well as key lessons learned during their portal implementation. Each interview was recorded and transcribed. Several interesting influences (e.g., attention deferral, contextual insensitivity, institutional preemption, etc.) were identified prior to the analysis based on the literature review. Some of the key findings from this case study are consolidated and presented in the subsequent section.

FINDINGS

There were several indications that the university examined acted mindfully, which was revealed during the analysis of the collected data. First and foremost, the university was mindful of the constraints it faced implementing their portal system. There were limitations with respect to cost and available resources, which they incorporated within their selection criteria, and available expertise, which they attempted to mitigate through external information and knowledge. The university also established a clear objective for its portal initiative, to create a "Unified Digital Campus," which was also incorporated within its selection criteria. The portal implementation team also actively pursued information about a number of different vendors regarding the history of their portal software. During these efforts, the team revealed problems and challenges that other universities faced with the implementation of a specific vendor's portal software. This exposed potential unresolved problems with the software and also developed a negative perception about the portal vendor. Consequently, the university added as additional selection criteria to not consider portal software that could emerge as a liability once it was implemented. In addition to this learning, the portal implementation team was able to create scenarios for rich and context-specific learning by working hands-on with portal demonstration software.

Another mindful behavior performed by the university was its active pursuit of external expertise by exploiting informal relations that members of the portal implementation team had with other universities. Through such exchanges, particularly with individuals of a neighboring university that had recently implemented a portal system, they were guided towards a similar portal system which they ultimately selected to implement. Leveraging these informal relations, the implementation team was able to identify potential issues to avoid during implementation. For example, the neighboring university's servers crashed after their portal system was implemented due to too many processes running on the system. On the first day of enrollment, thousands of the university's 23,000 students used the system to enroll in class, pay tuition, and buy parking passes, among other transactions. When the students finished with a task and entered the submit button, there was a delay in processing due to the heavy volume of transactions. Instead of waiting patiently for the transaction to complete, most students repeatedly hit the submit button, which caused the university's servers to crash.

A final indication of organizational mindfulness was that the university adopted many of the lessons that it learned from external sources. An obvious adaptation to their implementation that was made which was distinct from the neighboring university was that additional criteria were established for the selection of a server to accompany the portal system. An additional adaptation was to implement the portal system in a

phased approach, beginning with the financial system and then only the incoming students at the university. This approach is much less risky than a direct cutover or "big bang" implementation by limiting the potential impact that a failure of the system would have and it also allowed the university to make changes to the portal system before it was scheduled to be fully implemented. The portal implementation team also held weekly training sessions to help users adapt to the new system and made online training accessible to the university body through its Website. In addition, the university president has stated his support for the system publicly to the university body on numerous occasions and highlighted its importance for the goals and objectives of the university. The training sessions as well as public support from university leadership are a deliberate attempt to improve end-user acceptance of the portal system and address the anecdotal evidence of challenges that other universities have faced.

Despite the mindful behaviors that were done by the university, there have been minor issues that have occurred during the portal implementation. For example, when the financial system was in the process of being implemented, two members of the university's finance department chose to retire instead of adjusting to the new system. Although this did not have a substantial impact on the implementation of the portal, such issues could be an indication of the perceived complexity of the new system or of a resistance to change among employees and may be a harbinger of future problems.

Another more substantial issue was that it was not evident that the portal implementation team was documenting any of the decisions or knowledge gleaned throughout the life of the project. Such information can be extremely valuable to store so that the lessons learned and documents utilized could be used, if applicable to the context, in future system implementations throughout the university and even with its external partners. The mindful behavior exhibited by the portal implementation team should not be taken for granted, given that mindful behavior, in general, is not practiced in the majority of system implementations today.

A final issue with the university portal implementation was that there were no formal linkages that existed with entities external to the portal implementation team. The portal team was able to mitigate the impact that this had by exploiting their own personal, informal linkages. Without addressing this or establishing a formal means to communicate with counterparts from disparate universities and organizations, such mindful behavior might not have existed.

DISCUSSION

There were several examples of mindful behavior exhibited by the university examined in this research despite the strong external pressures to implement, given the widespread adoption of portal systems in universities today. Such behavior cannot be taken for granted, however, and a conscious effort must be made to ensure that mindful behavior persists in future system implementations. First, formal linkages of communication should be established so that they can be leveraged during times of uncertainty. The external advice that the university we examined pursued was from an informal contact that members of the portal implementation team had. If this relationship had not been pursued, the university portal implementation team would likely have been prone to making mindless decisions since they had no additional connections. Deference to expertise is a major tenant of organizational mindfulness (Swanson & Ramiller 2004). Without the ability or resources to access expertise and requisite external knowledge, mindlessness will likely occur. Formal linkages can be established and maintained through participation in professional networks, such as industry consortiums, trade associations, and conferences. Further, organizations should have well-established linkages with their peers and other external stakeholders. Peers and stakeholders have an interest in the successful implementation of a focal firm's software systems and likely have the requisite expertise to help facilitate mindful decisions. Each of these types of formal associations can generate a support structure where organizations can share, disseminate, and utilize case examples to help identify the value and potential challenges of a software system.

A tool, such as a knowledge repository, can be another means to help ensure mindful behavior persists in future system implementations. Organizational mindfulness is dependent in part on the continuous learning that organizational members can help foster in one another (Swanson & Ramiller 2004). Any means that are established which facilitate the capture of external expertise and also support the utilization of that knowledge can facilitate the continuous learning necessary for true organizational mindfulness. Further, the knowledge that is captured should be made available across the firm so that all organizational members have the same opportunities for continuous learning.

There are additional opportunities available to a firm that documents knowledge throughout the life of projects. For example, that knowledge can be shared with external stakeholders. This can act as a means to strengthen those relationships and also create an opportunity where those external stakeholders are able to contribute and collaboratively maintain the knowledge base. In addition, organizational knowledge as well as the processes in place to capture and utilize that knowledge are assets which can perhaps lead to competitive advantage amongst competing firms (Matusik & Hill 1998). Consequently, there are several possibilities where the external expertise that is captured can be leveraged to the advantage of the organization.

One final means that can be addressed to help facilitate mindful behavior is the shaping of an organization's culture to one that is supportive of mindfulness. For example, in instances where organizational culture are not well-suited to the sharing of knowledge (e.g., an organization where miscommunication is common and mistrust is prevalent), the implementation of systems can be rife with struggles and efforts towards mindfulness will likely be problematic (Ruppel & Harrington 2001). Without addressing the potential cultural mismatches to organizational mindfulness or attempting to modify the existing organizational culture to encourage mindful behavior, the impact on the organization could be disastrous. There are a variety of dimensions of organizational culture that exist (Hofstede et al. 1990; O'Reilly III et al. 1991; Schein 1996). Among these dimensions, some have been classified which would likely facilitate organizational mindfulness, such as an environment that promotes innovative or entrepreneurial pursuits (Hofstede 1990). This type of culture is one that is characterized by employees that embrace appropriate risk, are comfortable in unknown situations, and are likely to more quickly exploit any opportunity that a technology may offer. Consequently, promoting an organizational culture that favors such practices and behaviors should encourage organizational mindfulness.

CONCLUSION

In conclusion, this research examined how a university created and seized opportunities, by leveraging its community ties and information accessible to them, to create situations for rich and context-specific learning. This type of mindful behavior is not common in organizations today, as evidenced in many of the portal system implementations by universities. Consequently, this research provides insight to practitioners on actions to take that can help them to achieve mindful behavior and recommends several processes that can ensure mindful behavior in subsequent system implementations. This study is of value to researchers because a limited amount of research to date has examined organizational mindfulness, and, in addition, there has been a call from the literature for this kind of research.

It is important to note that the findings of this study only reflect the experiences of a single organization. As with most case studies, the ability to generalize the findings is limited. In particular, the significance of the type of mindful behavior exhibited by the university that was examined may diminish for different organizations, for different contexts, and over time. Further research should examine different contexts where additional actions that firms take to achieve organizational mindfulness may be revealed. Future research should also examine the processes that a firm initiates to ensure that organizational mindfulness

continues in addition to those processes that disseminate knowledge and expertise both within and external to the organization.

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