Where good ERP implementations go bad: a case for continuity

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Abstract
Purpose – The purpose of this paper is to identify and examine the concerns of administrative and clerical employees towards a web-based business system and associated training which were not identified either before or during an enterprise resource planning (ERP) implementation. Post-implementation analyses revealed that while an implementation can be deemed a success immediately following go-live dates, long-term planning is essential to maintain change management continuity for administrators and employees.

Design/methodology/approach – The stages of concern component of the concerns-based adoption model offered a method of analysis of the Dallas, Texas, Independent School District’s employees to identify the perceptions and levels of acceptance of the users in regards to the implementation of an ERP system in a public school district.

Findings – The findings for the research questions assisted in interpreting and categorizing the responses to the open-ended portion of the stages of concern questionnaire; and providing recommended guidelines for future ERP implementations in similar environments.

Practical implications – The paper shows how leaders in an organization must understand the employees’ perceptions of the changes taking place in an ERP implementation and post-implementation. Based on the findings, a summary, conclusion, and recommendations for further research are provided to assist K-12 districts in planning for ERP implementations.

Originality/value – The significance of this study encompasses the impact of the integration of new technology with various associated people, processes, and systems. Understanding the impact of such potentially significant change by measuring a user community’s overall perception and level of acceptance is a key component in providing guidance for future implementations in similar organizational and institutional environments.

Keywords Resource management, Change management, Technology-led strategy

Paper type Research paper

The implementation of a large-scale enterprise resource planning (ERP) system involves considerable process analysis and redesign, new work procedures, and employee retraining. Introducing new technology often requires departments and users to change their business processes. The Dallas Independent School District (DISD) undertook this type of dramatic change when it migrated from legacy business systems to an Oracle financial and HR ERP system. The magnitude of the change was significant, encompassing such transformations as organizational restructuring and the introduction of new procedures and technologies.

The DISD administration mandated this change, and thus had an interest in the successful implementation of the system. To improve the chances for its success, training and communications initiatives accompanied the change process. These interventions were based on the users’ knowledge of and concerns about the implementation, based on pre-implementation user surveys.
However, the concerns of the DISD administrative and clerical employees regarding the Oracle ERP system and associated training after the initial go-live dates had not been identified. The researcher determined that the concerns-based adoption model (CBAM) Stages of Concern Questionnaire (SoCQ) offered an appropriate method of identifying ongoing employee concerns two years post-implementation (Hall et al., 1973). The administrative and clerical employees of the DISD were anticipated to have various concerns about the merits of the system, post-implementation, and its associated organizational processes. These concerns were different for each individual, based on the individual's role in the organization, experience, attitude, and personal perceptions.

Background
An initiative to replace the computer systems for financial, procurement, and HR processes had been underway in the DISD since the fall of 1999. Using appropriate state and institutional criteria to identify qualified providers, the DISD replaced its legacy systems with an Oracle ERP solution. IBM was chosen to provide consulting services to implement Oracle's financials, procurement, human resources, and payroll applications.

During the project implementation, the goal was migration from outdated legacy systems technology to a web-accessible database and application software technology. Changing the district's business technology was at the center of the project's mission (Frantz et al., 2002). Thus, for the participants in the initial stages of the implementation, understanding and describing the old technology was as important as embracing and learning the new technology. Although the technological tools were at the core of the transition, the entire business culture of the district changed, as well (Hamel, 2000).

During the 17-month HR/finance ERP system implementation, the union of goals for the K-12 school and for the financial, HR, technology and administrative staff proved difficult because academic departments and more business-oriented entities typically work with different operational goals. School business operations have the bottom line as their goal (i.e. reducing costs in order to balance the annual budget), while the educational mission centers on insuring that all students will attend and graduate from school (Picus and Blair, 2004). Although different at a superficial level, the similarities are significant when the idea of return-on-investment is included. The continued monitoring of the expenditure of budgeted funds creates a need for accountability at every level of an educational institution (Bushweller, 2000). The implementation of the Oracle HR/finance system was seen by the district's administration as a major objective in the goal of improving fiscal accountability and greater operational efficiency.

The changes in business practices and culture of the DISD were significant. The change management, communication, and training components of the ERP system's implementation plan would provide numerous challenges (Paré, 2001). The complexity and depth were epitomized by the necessity of training more than 1,200 employees to use a web-based system. According to user survey responses just prior to the implementation, only 60 percent of the DISD employees dedicated to business system tasks responded that they regularly used the internet. Meeting the implementation timetable for financial systems and the HR and payroll applications also presented opportunities in overcoming numerous hurdles.

Despite these challenges, the DISD Oracle HR/finance system was fully implemented on schedule and was considered by the district administration at the
time to be a milestone for technical system and business environment change processes. Yet, many ongoing issues, as evident from post-implementation survey responses and results, still exist. While change initiatives can be imposed by the administration in a public school district, such change will not necessarily be accepted or instituted by those most affected or most responsible for the overall success of the implementation (Senge et al., 1999).

According to the analysis of the post-implementation concerns questionnaire results, the DISD employees expressed specific concerns about a lack of information regarding the post-implementation business continuity processes and the functionality of the system itself. By gaining additional insight and a better understanding of the concerns of DISD employees in relation to the Oracle system’s ongoing use, district administration should use the information to assist in developing and applying appropriate continuity planning and intervention where and when required (Drucker, 1999).

**Employees’ concerns questionnaire responses**

To address the DISD employees’ post-implementation and system use concerns, the following question summarized the researcher’s goal: what other issues or concerns are seen as significant to the selected DISD administrative and clerical employees, as determined by the responses to the open-ended question section of the SoCQ?

For this analysis, the researcher compiled the responses to the “Additional Comments” criteria voluntarily provided by participants on the last section of the SoCQ. The researcher compared responses for similarities and trends, then compiled a frequency of responses table for each identified criteria and performed a comparative analysis.

Responses to the open-ended Additional Comments section of the SoCQ provide a subjective qualitative assessment of employees’ concerns. Responses were sorted and categorized as falling into one of the following five areas of concern: system, application, training, time, and expression of generalized negativity and dissatisfaction towards the system. This qualitative analysis and subsequent interpretation of the responses overall provided an opportunity for the researcher to further comprehend other quantitative SoCQ data derived.

According to SoCQ guidelines (Hall et al., 1998), a section labeled “Additional Comments” was incorporated in the survey to obtain voluntary, open-ended responses. For this section, the following statement was intended to solicit personal concerns and issues from the subjects other than those identified in the standard SoCQ questions:

*Please take this opportunity to voice any additional comments. Your comments may refer to any item on the questionnaire or any other issue or concern you may have regarding the DISD Financial and HR system and its implementation.*

A total of 68 of the total survey respondents provided responses to this section of the SoCQ. Since categorization by location or job responsibility was not a key demographic component for these responses, all contributed comments were considered. Overall, the survey responses indicated that respondents had significant concerns regardless of location or job category, and that most of the concerns or issues stated indicated problems directly related to the system and its processes, and not to unrelated work environment issues.

Some subjects provided multiple comments, and all responses were included in answering this research question. The comments were organized into five categories:
system issues (23); application issues (20); training issues (11); time issues (7); and generally negative comments, with no specific issue mentioned (7). Table I provides a summary of responses to the open-ended opportunity for comments, grouped by the identified categories.

**System issues**
The largest percentage of concerns was in the system issues category (34 percent). Approximately, half of these concerns were about the slow response or lack of responsiveness of the HR/finance ERP system. Seven respondents stated the Oracle ERP system was inadequate for daily management of business. One respondent mentioned Southwest Airlines’ successful implementation of Oracle’s system, comparing it with the DISD’s implementation. Five respondents stated the system was the result of administrative decisions made in a vacuum, without appropriate end-user input. The system’s frequent “hiccups,” wherein data were lost or corrupted due to technical problems, were identified as another concern in this category. A total of 12 employees had additional questions and reservations about how these issues might be resolved.

**Application issues**
A total of 20 of the 68 responses (30 percent) to the open-ended section were in the application issues category; the largest group of answers (13) focused on the need for more specific trouble-shooting information and appropriate training. This was especially evident with regard to the payroll system, particularly the biometric timekeeping devices, the relationship with work-time accountability, and the payroll information input. Nine specific references were made to biometric timekeeping devices that had been added to the system shortly before the survey. Other responses focused on the inability to print specific forms or other system-generated documents and the apparent lack of synchronization between the financial and HR components, which are nominally combined in the system.

**Training issues**
Nine concerns mentioned in the training issues category were based on a lack of appropriate training. One respondent who had been recently hired reported not receiving any training, yet also reported being expected to use the system for job responsibilities and tasks. Almost 50 percent of the training concerns specifically

<table>
<thead>
<tr>
<th>System</th>
<th>Applications</th>
<th>Training</th>
<th>Time</th>
<th>Gen. negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slow response time (7)</td>
<td>Specific issues: time-keeping, payroll, HR, etc. (13)</td>
<td>Better training needed (5)</td>
<td>Too time-consuming (7)</td>
<td>Do not understand why system was implemented (4)</td>
</tr>
<tr>
<td>System unavailability (6)</td>
<td>Lack of interoperability (4)</td>
<td>Need ongoing refresher courses (4)</td>
<td>Poor decision/investment/implementation (3)</td>
<td></td>
</tr>
<tr>
<td>System implementation (5)</td>
<td>Application implementation (3)</td>
<td>Never received training (2)</td>
<td></td>
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<tr>
<td>General system “glitchiness” (5)</td>
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Table I. Responses to SoCQ request for additional comments
identified inadequate training as an issue (i.e. not enough time provided or lack of in-depth specificity).

**Time issues**
Seven respondents were extremely critical of the impact of the time issues encountered when required to use the system while attending to other, typically campus-based, duties. Three responses in this category noted the excessive time commitments required for knowledge and implementation of this system.

**Generally negative**
In the generally negative category, a primary concern expressed by subjects (four of seven) reflected great skepticism about the district administration’s ability to manage the HR/finance system. Three respondents stated the DISD had unrealistic expectations and ignored input from the employees using the system. A total of 17 subjects, responding to other issues, added that they were unclear about their specific roles in using the system or about why the system had been implemented in the first place.

**Findings**

*RQ1.* What other issues or concerns are seen as significant to the selected DISD administrative and clerical employees, as determined by the responses to the open-ended question section of the SoCQ?

The findings for the *RQ1* is summarized as follows:

- A total of 68 of the total survey respondents contributed to the open-ended section of the SoCQ.
- Responses were organized into five categories: system issues; application issues; training issues; time issues; and generally negative comments, with no specific issue mentioned.
- A total of 23 of the 68 (34 percent) responses to the open-ended section indicated that the greatest concerns were in the system issues category.
- A total of 20 of the 68 (30 percent) responses focused on application issues.
- Nine respondents indicated concerns about training received or not received during and after the implementation (13 percent).
- Seven respondents (10 percent) were critical of the time required to use the system.
- Seven respondents’ (10 percent) primary concern reflected skepticism about the district management’s ability to manage the HR/finance system.

A total of 43 of the 68 comments indicated the user was concerned with a lack of understanding or appropriate information in regards to the system or its use. The 11 responses indicating training or a lack of training as a primary concern also reveal a need for information and better understanding. The remaining 14 of the 68 comments focusing on the impact of the systems’ implementation on the individual’s time or generally negative responses indicate a level of concern with personal issues.

The common threads running through the 68 open-ended comments received from the employees’ surveyed were that a lack of information contributed to the employees'
reluctance to embrace the use of this system and attitudes towards the system and its implementation were generally negative in regards to its value and potential benefits. Frequent concerns expressed in the comments centered on system availability and that individual employees at the campuses and departments would ultimately be held responsible for the tasks and processes made more difficult by system glitches and downtime, regardless of the system’s operability in accomplishing their assigned tasks. Concerns in the comments also focused on what the individuals’ considered to be a lack of responsiveness to user difficulties by the business systems’ staff. Employees generally expressed what they perceived as a lack of support on behalf of district management in assisting their understanding and implementation of the system.

In the subjective interpretation of the open-ended comment component of the SoCQ, DISD employees indicated a certain amount of resistance to the acceptance and use of the district’s HR/finance system due to the perceived failure of the district administration to adequately inform and train them on the system’s use after the system’s initial implementation.

Conclusions

Based on the findings, the following conclusions were drawn:

(1) The SoCQ profiles generated categorized DISD ERP system users/employees as a nonuser group with a pervasive negative opinion and a tendency of resistance towards the ongoing HR/finance system implementation. It is therefore imperative that the DISD administration take steps to increase communication between the departments responsible for the implementation, actively seek input from system users on an ongoing basis, and provide opportunities such as training and informational Q&A sessions to improve the availability of information to system users.

(2) Since the DISD did not have a post-implementation plan, efforts to understand and maximize the system’s capabilities were fragmented and had no formal support from district administration. Instead, each department or individual employee worked independently to increase the effectiveness of business processes through use of the system’s technology. Employees surveyed did not fully understand the changes, threatening the long-range success of the system. The DISD administration should immediately undertake the development of a comprehensive post-implementation plan for the HR/finance system, in collaboration with all system users and stakeholders’ input.

(3) Multiple factors in the DISD contributed to the generally negative attitudes and perceptions of DISD core user employees toward the implementation of the Oracle HR/finance system. These factors were identified as:
  • A lack of appropriate information and training in preparing employees for the system and process changes after the system’s deployment.
  • The perceived instability and uncertainty in regards to employees’ job responsibilities associated with the system implementation.
  • A lack of trust in the district administration’s commitment to adequately support the employees during the implementation.
Based on these conclusions, the DISD administration should develop a multi-faceted approach to disseminating information about the Oracle HR/finance system and its implementation in a timely manner; provide opportunities and resources for training; and create a blueprint for the ongoing implementation of the system, including employees’ specific roles and responsibilities in the system’s processes and workflow, with identified support resources at all levels.

Recommendations
The following recommendations consist of prescribed activities or actions intended to result in desirable outcomes, based on the research findings presented. The primary objective of these recommendations is to enhance the ongoing implementation of the Oracle financial and HR System in the DISD. In order to achieve this objective, three general recommendations are made to the administration at the DISD. These recommendations were determined by an analysis of the data from the SoCQ and by a review of best practices regarding the implementation of ERP systems, change management theories, and CBAM interventions in various environments.

Based on the results of the study, the recommended guidelines were developed in the areas of:

- communication;
- training; and
- implementation management.

Recommendation 1: communication
The first recommendation for the DISD addresses the concerns and issues of its employees toward the HR/finance system, as discovered from the SoCQ. The data showed that employees had a lack of thorough understanding about the HR/finance system. Additional information about the purpose of the system is required.

As shown in the results of the SoCQ, use of applications and system functionalities need to be specific and clear, indicated in the study by the uncertainty regarding the DISD administration’s support for the Oracle HR/finance system. The administrative and clerical employees of the DISD had various concerns about the merits of the implementation and its associated organizational processes. Employees’ concerns indicated that many employees have relatively little knowledge about the system or its applications. Other concerns reflected respondents’ preoccupation with the impact of the system’s implementation at an individual level, and the system may therefore represent a form of threat either personally or professionally.

The district should make an effort to improve communications in disseminating information about the implementation more appropriately to the employees. To meet the needs identified by the SoCQ results, the following guidelines and recommendations are suggested.

To improve communications in order to meet the needs identified by the SoCQ results, six guidelines and recommendations are specified:

1. The DISD administration should work with the finance and HR staff to develop strategies, such as hosting a series of workshops about the ongoing system implementation.
To improve employees’ capabilities to understand the system, the DISD management should consider fully supporting and promoting a previously established entity, the DISD Oracle Users Group (DOUG). The DOUG is comprised of representatives from each campus and department and forms a community of practitioners’ relationship in regards to the system.

The DOUG should receive additional training on the HR/finance system. DOUG members should also be given additional time to develop expertise in the HR/finance system, which can be accomplished by changing some of their responsibilities in other areas.

The DOUG could set up peer training sessions with other DISD employees.

Department and campus administrators should consider reallocation of workload within each department to allow for the additional time required for DOUG members to learn the new processes and to work with other system users.

The DISD administration should consider maintaining a training lab reflective of the actual system environment, and upgraded accordingly, to be used for training and course development with full-time staff for technical assistance.

Recommendation 2: training
Based on the results showing employees’ need for additional system training, the second recommended guideline is to provide employees with training to encourage and sustain the use of the HR/finance system. To implement this recommendation, DISD leadership should consider taking four specific actions:

(1) The DISD administration should provide opportunities for employees to make recommendations and assist in the development of training for the DISD Oracle financial and HR system, based on their own perceived specific needs. When employees assist in developing system-based courses, a strong sense of ownership in the system is created. An opportunity that could readily serve this purpose could be an addition to the existing DOUG web site forum, where a specific location could be created for the sole purpose of soliciting employee recommendations and justifications for specific types of HR/finance system training. The business systems training staff could then collect employee data to determine the areas of most urgent need and develop or enhance appropriate training based on the recommendations, crediting the employees who provided the suggestions.

(2) The DISD administration should officially recognize, support, and promote the services and staff participating in the DOUG and increase their interaction in support and assistance of the system training initiatives.

(3) The DISD administration should insure that members of the DOUG have access to the HR/finance system training lab and staff for training support as needed, which would allow the team to work more productively and efficiently at their locations. As the system’s functionality is increasingly assimilated by other employees and use of the HR/finance system becomes more normative, the DOUG’s purpose may change. Use of the HR/finance system may become “business as usual.” More employees could eventually become involved in
recommending training, developing courses, and even assisting in the training as facilitators.

(4) The DISD administration should increase the role of the services business systems training department in the district's post-implementation efforts. Since a need for training or additional training was indicated in the open-ended comments section of the SoCQ, the primary responsibilities of the business systems training department should be increased to include coordination of training activities within the DISD core user departments, the recommendation of system training strategies to the DISD leadership, supervision of the HR/finance system training lab, and management of training and professional development for the DOUG.

Recommendation 3: implementation management
The results of the open-ended question study indicate that DISD employees’ negative opinions about the use of the Oracle financial and HR system stem from issues that are not solely technical in nature. These issues include system training, system management, and time constraints.

Four recommendations for addressing these issues are as follows:

(1) Implement a change management/change control policy for the Oracle financial and HR system. Such a policy should be jointly created by a group of key stakeholders, including end-users, and would constitute a set of standardized procedures to address implementation issues. The policy should include the establishment of a disciplined, prescribed approach to managing changes to protocols and system configuration procedures, as well as the assignment of specific individual roles and responsibilities.

(2) Once the change management/change control policy for the HR/finance system has been approved and disseminated, a newly revised post-implementation deployment plan should quickly follow.

(3) The DISD should develop a comprehensive post-implementation deployment plan for the HR/finance system soliciting and using end-user buy-in and commitment.

(4) At the time of the study, no post-implementation plan (i.e. an ongoing plan to address issues after the initial set up of the Oracle database and after the applications had been successfully implemented) existed within the original schedule. This plan should not be produced in relative isolation by district administration, but in a collaborative and openly communicative environment, based on an actual needs assessment. The critical nature of the post-implementation plan requires stakeholder consideration in the developmental process.

Summary of recommendations
The recommended guidelines are summarized as follows:

Recommendation 1: communications
To increase employees’ awareness and to improve employees’ capabilities to understand the system, the DISD administration should work with the finance and HR
staff to develop strategies (e.g. hosting a series of workshops about the ongoing system implementation and supporting the system’s user group).

_Recommended guideline 2: training_

To provide employees with the training to encourage and sustain the use of the HR/finance system, the DISD leadership should consider taking four specific actions:

1. Provide opportunities for employees to make recommendations and assist in the development of training for the DISD Oracle financial and HR system based on perceived needs.
2. Officially recognize, support, and promote the services and staff participating in the DOUG.
3. Increase the interaction of the DOUG with the system training initiatives to support and assist business system support staff.
4. Increase the role and responsibilities of the business systems training department to support post-implementation strategies.

_Recommended guideline 3: implementation management_

To achieve maximum employee/user buy-in and system effectiveness, the DISD should develop a comprehensive post-implementation plan for the HR/finance system, developed collaboratively with input from all stakeholders.

**Summary**

This research indicates that the DISD employees’ negative bias about the use of the Oracle HR/finance system does not stem from localized and administrative issues but, rather, mostly on technical and non-technical issues regarding the implementation and post-implementation factors. As of this study, the district had yet to develop a viable change control policy for the ongoing development of the HR/finance system, which continuously requires upgrades and technical “patching,” often altering what the user sees and does. Since many of the HR/finance system applications are used by more than one department, the policy should come from the DISD administrative leadership and should be developed in a collaborative environment with active participation from all departments and campuses, i.e. the stakeholders in the system’s effective use.

Such a policy, and its consistent application, is critical to the success of the ongoing implementation and deployment, and may well shape the future of not only the technology and business departments, who are directly responsible for implementing any changes to the system, but also associated user training in the district. In addition to the general alignment of appropriate responsibilities and roles, the policy should include the establishment of a disciplined, prescribed approach to managing changes to protocols and system configuration procedures.

Once the change control policy for the HR/finance system is approved and disseminated, a newly revised implementation/deployment plan should quickly follow, consisting of a flexible, frequently reviewed plan to address issues regarding changes to the Oracle database and applications. In addition to the district’s business and technology departments, key stakeholders in the process, the school campuses and other end-user departments, should routinely provide input regarding ongoing training needs and user concerns in adopting changes to the system. To achieve maximum user buy-in and effectiveness, the DISD post-implementation plan for the business systems
should not be produced in relative isolation, but in a collaborative and openly communicative environment, based on an actual needs assessment. The critical nature of the implementation plan requires stakeholder consideration in the developmental process.

Therefore, understanding the impact of such potentially significant change by measuring a user community’s overall perception and level of use is a key component in facilitating the DISD’s proactive monitoring of users’ progress. Introducing appropriate intervention strategies based on this understanding will enhance the ongoing deployment of the district’s HR/finance system, and can also provide guidance for future implementations in similar organizational and institutional environments.

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