LESSONS LEARNED FOR TECHNOLOGY IMPLEMENTATION: $40 MILLION FRUSTRATIONS AT THE DMV

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ABSTRACT

The South Carolina Division of Motor Vehicles recently replaced its 22-year-old computer system with a new $40 million system in an effort to resolve longstanding problems and improve service. The implementation of the new system, however, was plagued with difficulties. This article examines the implementation and suggests ways to prepare managers, employees, and other stakeholders before new technology is implemented.

Keywords: technology implementation, project management, project failures, legacy systems conversion.

INTRODUCTION

The South Carolina Division of Motor Vehicles (DMV) debuted its $40 million "Project Phoenix" computer system in July 2002. This replaced a system that had been in place for 22 years. The implementation throughout the 67 branch offices did not go smoothly. During the first two weeks after Project Phoenix was introduced, customers waited as long as six hours in DMV lines. Newspapers widely reported the problems and quoted people who dealt with the DMV who were extremely upset. One newspaper, for example, dubbed the new system "Project Turkey" [1].

Many of the problems were caused by conversion errors in many of the 110 million records that were transferred to the new database. Typical conversion errors included incorrect addresses, wrong names on vehicle titles, and incorrect county codes. In addition, tax records were lost, creating substantial extra work for the county auditors who are responsible for mailing bills and collecting the state's personal property tax on automobiles. People whose records were affected by conversion errors were often forced to wait in long lines at the DMV to correct the problem. DMV employees spent a lot of time on the telephone to the main office attempting to fix the errors.

The purpose of this paper is to describe some of the lessons learned from the implementation of the Project Phoenix system. Our information is taken from in-depth interviews with four officials at the Division of Motor Vehicles. These included a media relations director, a high-level administrator, a regional manager and a branch manager. In addition, we reviewed 28 articles about the system that were published in South Carolina's major newspapers from May 2001 to February 2003. What follows are descriptions of what was done well and what could have been done to improve the implementation of the new system.

THE PHOENIX PROJECT

Computer Problems Stress Resources and Exacerbate Other Problems

The implementation problems at the DMV demonstrate the importance of readying the entire organization for the introduction of major new technology. Technology problems and glitches often occur when implementing a new system and dealing with them puts a tremendous strain on the organization's resources [2]. It is important to get the organization in peak condition before adding the stress of implementing a new information system, just as athletes condition themselves before competitions. Preparation should include resolving any weaknesses in the organization that can be fixed prior to the implementation so that the organization can better handle the challenges of the system implementation.

The implementation of the new Phoenix system exacerbated serious and longstanding problems at the DMV. Customers often waited in lines for two hours at DMV offices before Project Phoenix was implemented [3]. In part this is because over the years, the DMV had gradually assumed responsibility for more functions, such as registering people for voting, organ donation, and the selective service. These additional responsibilities did not usually come with additional resources. In addition, population increases in South Carolina have increased the number of people needing DMV's services.

Another weakness in the DMV is employee turnover, which is as much as 25% per year. This is a serious problem because clerks must know how to process 448 transactions, and as a result, it takes up to two years for new hires to become fully competent. New employees are slower and must ask more experienced employees for help, which slows down the coworker as well. DMV employees are poorly paid, earning $9.58 an hour compared with the $12.05 average pay for an entry-level state worker. A third of the employees hold second jobs to make ends meet. The low pay attracts applicants with fewer skills, many of whom seek better-paying jobs after they gain experience and new skills working at the DMV.

Understaffing due to budget constraints is also a problem. DMV argues that 1300 clerks are needed but the state only provides funds for 950. Even the DMV buildings are too small and uncomfortable for customers, having been built to handle much lower capacity than is now required. All of these problems in the DMV that were unrelated to the computer system made the conversion to the Project Phoenix system more difficult for staff and customers.

DMV's conversion plan itself created an additional stress on the system by closing all DMV offices for one to two weeks during the conversion (offices were re-opened on a staggered basis). This created a backlog of customers needing services at the exact time when the DMV's ability to serve their requests was most hampered by conversion errors and learning curves associated with the new system.

Preparing Customers, Public, And Other External Stakeholders

When Project Phoenix was announced to the public in 1999, the governor said that it would be a huge step toward making trips to the DMV "more productive, efficient and pleasant." [3]. The firm that was paid to install the software issued a press release saying that the system would bring the DMV "robust new capabilities" while "setting the pace for modern motor vehicle systems" [3]. Statements such as these helped to create expectations that the system would do more to reduce waiting lines and increase service than the system is capable of delivering. The public and those who have frequent dealings with the DMV also had high expectations that the new system would bring major improvements to the DMV service because it was so expensive. The $40 million cost of the new system was widely publicized in South Carolina newspapers.

Officials attempted to manage public expectations of the Project Phoenix system. For example, before the system was implemented, DMV leaders met with newspaper editors to talk about what the public should expect from Project Phoenix. They "tried to warn people that it wasn't a cure-all" and would not solve all of the DMV's problems. However, in hindsight DMV officials feel that they should have done more to prepare those who would be affected by the new technology and to help them to understand what the new system would and would not be able to do. One DMV official said that three things should have been made crystal clear - "This is what's coming. Don't expect miracles. There will be problems." These communications should have stressed the purpose of the new system and explained that it would not substantially decrease waiting times.

Although it is important not to set unrealistic expectations, organizations should communicate the value of the new system to those who feel that they are paying for it, such as taxpayers for the DMV and stockholders for business corporations. In addition, organizations should communicate the benefits for important stakeholders who will be directly affected by the new technology. For example, Project Phoenix will incorporate all of the DMV records for each customer onto one customer record and will keep customers' pictures on file. This will make it much easier to replace lost or stolen driver's licenses.

Future enhancements to the system will allow the DMV to accept credit cards. When the system is complete, automobile dealers will be able to sell tags directly to consumers. Insurance agents will benefit when insurance information is added to the system. These improvements will benefit auto dealers and insurance agents, who are important stakeholders for the DMV. They will also reduce the number of people who need to be served in DMV offices, helping to reduce waiting times in the future.

Preparing Managers and Employees for Change

Implementing any new computer system is a major change for managers and employees. In the case of Project Phoenix, the change was enormous. The 22 year-old system had been in place for so long almost none of the employees had ever experienced a significant change in the way that they processed the work. The organization did not do an adequate job of helping employees to have realistic expectations about what converting to the new system would involve. DMV officials said that they should have done a better job of preparing managers and employees for a massive institutional change before any training on the new system began. They suggested that the organization should have first worked to change the culture, to help employees understand what changes were coming, why those changes were needed, and the benefits of the changes.

Another factor that could have helped the process was to train the managers how to effectively communicate information to their employees in three areas. First, managers should assure employees that their jobs are safe. Second, they should champion the benefits of the technology [4]. Finally, they should provide direction on appropriate and inappropriate uses of the technology (i.e., it is okay to look up certain records but not to investigate friends for entertainment) [5].

It is important for the organization's communication to managers and employees to set realistic expectations. However, the communication should also stress the advantages of the new system so that the staff will be more willing to work through the transition problems with a positive attitude. For example, the Project Phoenix system will make it easier for the clerks to balance their drawers, remind them to collect payments, and allow them to process transactions on-line that used to require time-consuming telephone calls. Learning the new system will also help employees to build computer skills that are useful to them personally.

Training

One thing that was done well in the implementation of Project Phoenix was training. Each employee received over 100 hours of training before the system went live, spending 8 full days in classroom training and then logging at least 37 hours of practice transactions on a computer that was installed in the back office of every branch. A lead user in each branch received even more extensive training. When the system went live all lead users carried cell phones and any employee who had a problem could call one. In addition, the new equipment (hardware) was installed in the offices 6-10 months before the software. This was important because many of the clerks had never turned on a personal computer or used a mouse. Installing the hardware early also enabled the clerks to become comfortable with the security features of the computer before learning to process the transactions.

Anticipating Problems and Having a Back-Up Plan

Problems will occur with any major system conversion and the organization needs to anticipate the types of errors that could occur and have a back-up plan for dealing with them. Ideally, the old and new systems run parallel for a period of time [6]. The DMV decided not to maintain the old system because estimates suggested that this would cost an additional $3.5 million and add a year to the time required to implement the system.

Managers responsible for implementing new technology should remember that the focus of any service organization should be on the customer and not on the computer system. Conversion problems prevented employees from completing transactions for many of the customers who came into DMV offices after the new system was installed. The DMV's implementation plan did not include temporary documents, which employees could have used to satisfy customers until the conversion errors were corrected. The customers resisted any solution that involved leaving their paperwork or documents with employees of the DMV because they didn't trust the DMV to mail them back in a timely fashion. Customers were also very concerned that they would be pulled over by police or subject to fines due to expired tags and other problems that a temporary extension might have solved.

Impact on Managers and Employees

Major changes in technology can negatively impact managers and employees in the short-term. It is important to anticipate employee resistance to change and develop plans to help the staff through the short-term difficulties associated with the new technology.

The short-term stresses on the DMV managers and clerks were severe due to the long hours and the

challenges of dealing with very unhappy customers while learning the new system. Some employees cried or threatened to quit during the first few weeks after the conversion. Many employees felt panic and were afraid that they would do something incorrectly. They also felt exhausted. For two to three weeks clerks worked until 8:00 or 8:30 in the evening to serve all of the customers who were waiting in line at 5:00 p.m.. They then had to balance their drawers and be back to work before 8:00 the next morning. This was especially difficult for the many employees who had children or worked second jobs.

Employees were also frustrated because the new system impeded their ability to serve the customers. Clerks, who under the old system could solve certain problems, such as a wrong tag number or an incorrect expiration date, were now forced to rely on someone in the main office to fix the problem. This was more time consuming and was "very aggravating" for the clerks. Clerks also felt a lot of pressure because of the combination of being uncomfortable with the new technology and having long lines of customers looking at them. Clerks became especially upset because of the long lines when they made mistakes using the new system.

DMV clerks also had to deal with customers who were more tired, frustrated, and angry than usual as a result of the excessively long lines. Some of the customers were very rude to the clerks and suggested that the clerks were incompetent or stupid rather than understanding that the conversion errors were creating many of the problems. The clerks experienced a lot of fear that the customers would be angry when they could not complete a transaction due to a system problem or a procedural change. One manager told us "You get a message [on the computer screen] that says you can't wait on the customer because of conversion. Clerks felt bad to tell the customer. You know, they've waited five hours." Many DMV workers were upset that customers treated them disrespectfully. In addition, newspaper stories reported the long lines and wrote stories that DMV staff felt portrayed them as unskilled and unintelligent. This was very frustrating for them, especially because they were working harder and longer hours than they had ever worked.

Management must give employees a safe and appropriate way to communicate their frustrations, concerns and fears. This could be done through brief meetings where managers listened to all employees together or in one-on-one meetings between managers and their staff members. It is also important that employees know that someone higher in the organization is working to resolve the problems, not just giving them empty reassurance. DMV management found that employees sometimes complained in front of the customers, which is not beneficial for the customers or the organization. When imple-

menting new systems increases the stress on employees, managers might consider giving employees refreshments or other tokens of appreciation to boost morale. Giving employees recognition or small rewards after the implementation phase has been completed could help to restore employees' energy.

New technology can also have a negative long-term impact for some managers and employees. New technology sometimes requires a different set of skills than are possessed by current employees. New technology can also reveal performance problems that were not as apparent under the old system. It is important for organizations to retrain, reassign, or replace employees or managers who are unable to perform competently in the new technological environment.

The Project Phoenix system collects data and creates reports that have increased individual accountability for DMV managers and clerks. For example, the system tracks transactions per clerk and average customer wait times in each office. This allows senior management to evaluate the performance of branch managers and to allocate resources based on the services that branches provide to their customers. One DMV official said that some managers were unhappy about Project Phoenix because the system reduced branch managers' ability to "portray themselves as hard working and get by with impression management." It also makes it possible for managers to compare the performance of all of the clerks and quickly identify those who are slow or make excessive errors.

CONCLUSION

Although the Project Phoenix system met the DMV technical requirements, its implementation was not very successful due to conversion errors, existing organizational problems and inadequate communication with key stakeholders. Low employee morale, insufficient support from the legislature and an aging physical infrastructure limited managers' ability to retain employees and provide quality service to customers. Prior to Project Phoenix, customers had to endure long waits in uncomfortable facilities for service. With the introduction of the new information system, customers' frustrations were exacerbated by unrealized expectations of faster service and errors in the central database. Coverage of the "long lines" stories in the media and complaints from constituents elicited involvement from state legislators and officials from the governor's office.

In addition to the actual performance of the information system, judgments of Project Phoenix's ultimate success or failure will depend on how managers

resolve continuing organizational challenges and resolve differences between customers' expectations and the system's capabilities.

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