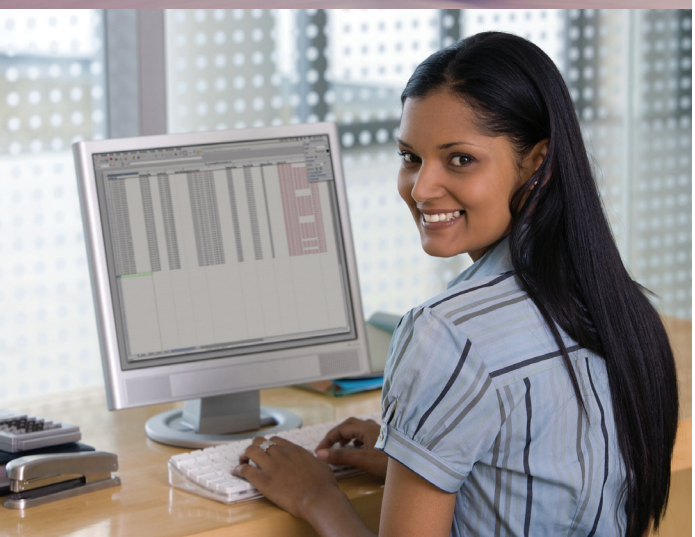

Trapeze™

Navigating the Implementation of a Transit ITS Solution

www.trapezegroup.com

The decision to implement an Intelligent Transportation System (ITS) solution is a significant step for transit agencies. It represents not only a need to evolve transit operations, but a method of reducing costs, improving management controls, and ultimately, being able to provide the best service possible to your riders.

ITS is composed of sophisticated technologies designed to improve your transit operations. Whether your fleet consists of five vehicles or five thousand vehicles, implementing advanced technologies is complex.

The key to successfully integrating ITS technologies is creating a well-defined multi-phased implementation process and a change management plan. The benefit of this approach is that it makes sure the project stays on track in terms of time and scope, ensures accountability from all parties involved, and secures buy-in from all levels of the organization. Exceptional project management and frequent communication between the technology provider and the transit agency are essential to a smooth implementation.

Project implementation can be broken down into a series of phases:

1. **Kickoff**
2. **Design review**
3. **Software integration**
4. **Functionality acceptance test**
5. **Pilot**
6. **Rollout**
7. **Long-Term Support**

1. Project Kickoff

During this initial phase, the roles and responsibilities of each party are defined. The ITS solution provider designates a Project Manager to guide the project from Kickoff through to client acceptance. The Project Manager meets with the client to outline the details of their existing system, learn why they want an ITS solution, and help decide on the right technologies for their needs. A project schedule and implementation plan is developed to keep the client informed at every stage of the installation.

2. Design Review Phase

The Project Manager and the client will formally go through the Request for Proposal (RFP), and clarify the client's expectations of the new system. At the conclusion of the meeting, all parties will have a clear picture of what will be provided. As information is collected about the solution being implemented, specifications and requirements are defined, and software is developed.

3. Software implementation Phase

This phase begins with the installation and testing of the required backend software. All required computer equipment is installed and configured. As the software component is being introduced, it is an ideal time to train System Administrators and educate them in advance of user training during the Pilot Phase. Any additional software customization is dentified in this phase, and the Project Manager will oversee a plan for development.

4. Functionality Acceptance Test Phase

The Functionality Acceptance Test (FAT) verifies that the ITS solution meets the documented project requirements. This test is carried out in a controlled, non-live environment, and includes verification of software and hardware interfaces and functionality. There will be an on-site visit by the Project Manager and their technical team to demonstrate how the system meets the Design Review requirements. Following completion of the test, identified issues or system deficiencies will be documented, and resolution plans defined for each party. This phase ensures that everyone involved is confident that the solution meets the project's requirements.

5. Pilot Phase

The Pilot is a live system test using a subset of the entire fleet. The purpose of the Pilot is to complete end-to- end testing of the system under real-life conditions so that any remaining issues may be identified and addressed. Limiting the number of vehicles used in the Pilot simplifies troubleshooting and ensures the mobile data hardware and software is operating as expected, before the entire fleet is mobilized. A resolution plan will be developed to investigate and resolve any remaining issues. The training of dispatchers, supervisors and driver trainers occurs during this phase.

Anticipated Challenges

It is important to realize that there will be issues and obstacles to overcome during the Pilot phase. Understanding where challenges typically arise will better prepare you and help make this phase more manageable.

There often can be technical challenges related to communication issues with your wireless network provider, as well as Firewall security problems. To help resolve these issues as effortlessly as possible, it is important to have dedicated resources available throughout the project, such as knowledgeable IT staff for support, technical support personnel from the wireless network, and vehicles readily available for use in the Pilot.

Meeting development and installation timelines might also become an obstacle during the Pilot. Maintaining continual communication with your Project Manager is essential in keeping the implementation on track and on time. The Pilot is also the phase where you might encounter acceptance issues from your employees. Securing employee buy-in is critical during the Pilot phase. To improve the chances of the new system being accepted, engage all stakeholders—from administrators, to drivers and dispatchers—as early as possible. Keeping employees aware of what is happening during the implementation, and reinforcing the technology's benefits will result in a more successful training process.

6. Rollout Phase

The remainder of the onboard equipment is provided, and the Project Manager facilitates installation and activation of the equipment. Drivers are trained on the equipment during this phase. The Project Completion period begins once all the vehicles are rolled out, and lasts for 30 to 60 days. Any new issues should be reported at this time. The Project Completion period concludes with System Acceptance, and then the project transitions into the Long-Term Support phase.

Anticipated Challenges

During Rollout, vehicle installation issues might occur due to variances in vehicle model types and model years. It is important to maintain direct communication with your Project Manager so that problems are easier to troubleshoot and resolve.

7. Long-Term Support Phase

Following the completion of the project, support for the wireless system is provided according to the terms of the Long-Term Support Agreement outlined in the RFP.

In many cases, the project will enter the Long-Term Support phase three to six months after Kickoff; however there can be exceptions to this. Depending on the nature of your transit operations, the fleet size, and the extent of approved customization required, implementation may

take longer to complete. These variables must be taken into account in order to set a realistic time line.

Managing the Transition

The implementation of a complex ITS solution sends transit organizations into continuous streams of action and reaction. Change management helps the transit organization make this transition. Managing the middle state of an organization in flux is key. If handled well, implementing the new system will be a positive experience. There are a number of strategies you can adopt that will minimize the negative impact on your employees, and allow you to effectively introduce ITS technology into the workplace.

1. Prepare Employees

Possibly the most important step you can take to ensure widespread acceptance of the new technological system is to prepare your employees for change in advance in order to normalizes surprises. By consistently engaging staff around the realities of implementing new technology, transit agencies can minimize resistance and help their employees effectively deal with change.

Communication is vitally important to a smooth implementation and transitioning process. Strategies to maintain this communication with your employees may include holding staff meetings to explain the system overhaul, where you describe the benefits that the new technology will provide, and give employees a realistic picture of what issues they may encounter so that they can focus their attention on problem solving. As well, launching internal communication campaigns is an effective way to prepare employees, and helps them feel connected and up-to-date on the implementation process

Strategies in Action

The Kerr Area Transportation Authority (KARTS), completed an ITS implementation early in 2009, and used valuable communication strategies to ease employee concerns. “KARTS held numerous staff meetings in advance of the implementation. We came in to demo aspects of the system to their employees. This allowed them to view the technology as an improvement opportunity, and they can see first-hand how the technology will make their lives easier,” explains Shubh.

In another example, Metro Bus St. Cloud, recruited four of its lead drivers to test the in-vehicle mobile computing component of their ITS solution in the Pilot phase. These were experienced drivers within the organization. The lead drivers became comfortable with the new technology and provided valuable feedback to St. Cloud about its reliability. This early involvement of Metro Bus employees helped to increase acceptance of the system by the other drivers. Says Tony: “We conditioned [the drivers] to expect a few basic problems in this initial phase. We do that with all our technologies.” Tony also believes that by reinforcing the benefits of the invehicle mobile computers, the drivers could stay focused on their riders and driving.

2. Train System Users

Training is not only an essential step in the implementation process, but it is also a means of creating trust around the new system. The most effective training methods involve creating a highly skilled user group within your organization. These ‘Super Users’ can then be relied on to help train and transfer knowledge to other employees. According to Angela Beer, Systems Engineering Project Manager at Trapeze: “It helps to frame the technology in the context of real-life situations, and how it will help the employee perform their job. It is important to invest in Super Users and backup trainers from within the agency who can be relied on once the implementation has been completed.”

For employees, such as drivers, whose jobs are performed outside of the office, extending technology training to the vehicle environment helps minimize anxiety towards the technology. Spending one-onone time with drivers and performing ride-along sessions helps to familiarize them with the technology a lot quicker than in a training room

Strategies in Action

Blacksburg Transit (BT) in Virginia realized the importance of training drivers in their native setting. Gregory explains: "Early on we set up a demo invehicle unit so the drivers could interact with it, and get accustomed to using the technology." "I have employees who were very engaged," says Tim Whitten, Special Projects Manager at BT. "When you have an organization with a more senior driver pool, you often have to overcome the trepidation they might have toward electronic devices. Having the computer on the bus for an extra two or three months before going live with the full system, probably helped us a lot."

Another example of training's role can be seen at River Bend Transit in Iowa where they have been using their ITS solution for three years. Naomi, who worked on this implementation, explains: "During the training process, the underlying message to convey to the users is that they already know how to do their job. The technology is a new tool to be used and it does not change the work they are experts at doing. Reinforce that the new system will change how they communicate information, but in terms of service provided, it stays the same for the most part."

"It wasn't easy keeping our staff motivated when the implementation wasn't going as smoothly as we had expected," says Nikki Soto, Director of Operations at River Bend Transit. "Now that the technology is in place, we have noticed an increase in driver satisfaction because they don't have to write everything down like they did when we used manual processes. There was a glitch just the other week and drivers had to go back to their manual processes. They were not happy boys."

Life After Implementation

Once the ITS solution is in place, and your employees have all been trained to use the technology, there is still more change to manage. New technology affects not only the work processes of the employees, but modifies roles and responsibilities. Increased efficiency might translate into fewer people doing the same job. However, if employees are involved throughout the implementation process, and allowed to provide feedback, this can become a time of learning and development. During the transition, people with particular skills may have more opportunity to play important roles and demonstrate abilities in new valuable areas.

For drivers and dispatchers, they see the benefit of ITS technologies in their day-to-day operations. Drivers no longer rely on paper manifests, and invehicle mobile computing keeps them running their routes closer to schedule. Dispatchers can view and track all the vehicles in their fleet at a glance, and less radio traffic means they don't have to call drivers to find out where they are located.

A significant organizational transformation that occurs is increased accountability. With a system featuring CAD/AVL and mobile computing technologies, drivers are more responsive to both their passengers and the agency. The new system means drivers are made constantly aware of their early or late status, and excessive fuel usage behaviors, such as idling and speeding, can be monitored.

With their everyday tasks streamlined and automated, dispatchers will be increasingly concerned with event management and issue resolution. An ITS solution allows a transit organization to focus their energy on their clients.

"ITS technology enhances what is working well for the organization. For instance, with the technology in place, good drivers become even better drivers," says Gregory.

According to Shubh: "One thing transit agencies should be prepared for is how quickly they will come to be dependent on the technology. The technology is a tool, and you can get as much out of it as you want. In the end, it is about using technology to improve your operations."

Summary

A successful ITS implementation is the result of a well-built relationship between a technology provider and their client. It cannot be achieved without commitments from both parties involved. Effective project management is concerned with building a relationship with the client. The Project Manager must be flexible, adapting to their client's requirements and concerns, and fully involve the client in every phase of implementation. The client is responsible for being dedicated to the implementation at every phase. This includes engaging employees early on in the implementation process, and constantly looking ahead to anticipate challenges.

Communication is an essential element in a smooth implementation. Project Managers use communication as a means for keeping the client well-informed and updated on the project's status; clients use it as a tool to reduce employee anxiety towards the new system.