Statewide Smartcard Infrastructure

The Caltrans research project **"Developing a Policy Framework for a Statewide Transit Smart Card Infrastructure"** looked at the advisability and feasibility of implementing California policy to foster the deployment and use of interoperable smart card electronic fare collection (EFC) systems on a statewide basis. The guiding vision for the research was that the investment of public funds should lead to substantive improvements in transit system efficiency and enhanced passenger service levels if these "cashless" systems were seamlessly interoperable in all regions and areas of the state.

Smart cards are well on their way to becoming ubiquitous tools in executing financial transactions worldwide and are increasingly being considered for public transportation fee collection. From a data collection standpoint, their improved data storage and faster processing capabilities make them superior to any previous generation of magnetic stripe cards that are being used. In public transit applications, smart cards have the potential to make fare payment more secure and convenient, minimize boarding times for users, eliminate the need to collect cash at the fare box and allow agencies to collect superior operations data.

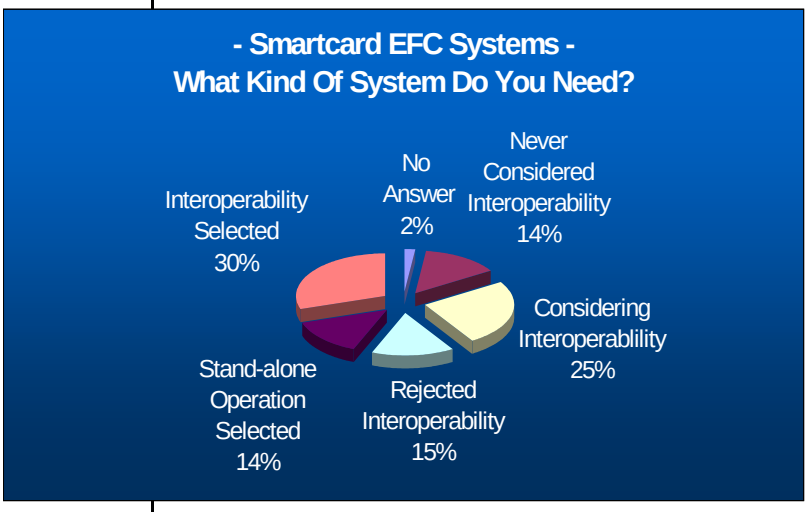
Many transit agencies are in the process of adopting smart card EFC systems and a few already have fully deployed systems. Some agencies have embraced smart cards on their own, while others have adopted smart cards jointly with neighboring transit operators and still others have eschewed smart cards altogether. Since the level of adoption and implementation varies widely among agencies, transit agency decisions regarding the use of smart cards as transit fare media are often made in highly complex environments, influenced by the agency operating conditions, prevailing political climate, presence of legislated mandates, unique local history, and perceived role that transit plays in the surrounding area.

What Was Done

The University of California, Los Angles (UCLA) research team took a detailed, methodical approach to the use of smart cards in the transit fare collection environment. This approach included:

- A literature search on smart card systems
- A survey of transit operators
- Interviews with transit operators
- A cost-benefit analysis of smart card EFC

The results were collected, analyzed and summarized to determine if the original vision of an interoperable, statewide smart card infrastructure would be an effective way of increasing the return on investment for public funds invested in transit EFC systems.



Results

Survey results showed that while there is considerable interest in smart card EFC systems, the support base for interoperable systems on a statewide basis is simply not strong enough to warrant development of policy encouraging or requiring it as a condition for investment of public funds.

Given the inherent risk of moving to a new, advanced system of fare collection, the dearth of scientific cost-benefit analyses is surprising.

Other findings relevant to interoperable systems indicate that:

⇒ Individual agency motivation is a key factor in adoption.

⇒ Regional partnerships facilitate interoperable systems.

⇒ Availability of funding is essential.

⇒ Expansion and upgrade periods favor new deployments.

⇒ Seamless travel must be viewed as a need in the region.

⇒ Self-image as a "Regional Player" is important.

Conclusions

Transit smart card systems hold tremendous promise in bringing speed, flexibility, and greater information to fare payment systems, but at substantial time, effort, and monetary costs. Whether the benefits are worth the costs is an important question in an agency's final decision to implement these systems.

Typically, carefully constructed and executed cost-benefit analysis is an important way of answering these questions. But, only a handful of government agencies have attempted this kind of analysis and the ones that do exist are by no means comprehensive. In fact, the findings of three cost-benefit analyses were reviewed and while each is informative, none is comprehensive or generally applicable on an industry wide basis. More study is clearly needed in this area.

The study recommends that the State of California ***not pursue*** statewide or regional interoperability standards because:

- American Public Transit Association (APTA) is releasing technological standards
- Federal Transit Administration (FTA) is considering funding focused on standards use
- Many current smart card EFC systems in California are mature
- Significant questions remain about the appropriate scale of interoperability

The study ***does recommend*** Caltrans consider:

- Funding additional research to determine the costs and benefits of smart card EFC systems in the public transportation environment.
- Coordinating and assisting FTA and APTA in their efforts to provide funding that supports the use of industry-wide standards for EFC systems.

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