A Framework for a Mobile Payment Pilot Implementation

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Coming up:

- What is Mobile Ticketing? Why now?
- Industry Scan of Mobile Fare Technology
- Case Examples: Lessons Learned from interviews with 5 agencies
- A Framework for a Mobile Payment Pilot Implementation
  - Concept of Operations
    - Customer-facing Mobile Ticketing Application
    - Additional Features of Mobile Ticketing App
    - Fare Inspector Application
    - Reporting and Backend System
    - Financial Processing
  - Estimated Project Timeline
  - Roles and Responsibilities

Mobile Fare Payments (1 of 2)

- Visually verified electronic “ticket” on phone
- Machine-readable two-dimensional Quick Response (QR) Code
- Both #1 and #2
Mobile Fare Payments  (2 of 2)

Near Field Communication (NFC) – contactless, tap and go

Photos taken by Nevine at an Access-IS Demo at the 2016 APTA Fare Conference

Why Mobile Fare Technology?

“Technologies in fare systems have far exceeded our current system. We want to make sure we are entering into a system that will allow us the maximum flexibility in fare collection and provide convenience to our patrons.”

*Respondent to a fare collection survey of Florida transit agencies
Industry Scan of Mobile Fare Technology (1 of 3)

- Bytemark, New York, NY
  - New York Waterway (NYPP app);
  - Capital Metro in Austin, Texas (CapMetro app);
  - Northern Indiana and Chicago (South Shore Line);
  - Massachusetts DOT (BusPLus+); and
  - Toronto, Ontario (TTCconnect).

- CooCoo, New York, NY
  - Capital District Transportation Authority in Albany (iRide);
  - North County Transit Service in San Diego (mTicket)
  - Metropolitan Transportation Authority, New York, Metro-North Commuter Railroad

Industry Scan of Mobile Fare Technology (2 of 3)

- GlobeSherpa, Portland, OR
  - TriMet in Portland (TriMet Tickets);
  - Virginia Railway Express (VRE Mobile);
  - Los Angeles DOT (LA Mobile);
  - Planned with SFMTA;
  - CTA Ventra App in Chicago
  - Dallas Area Rapid Transit (DART) with Fort Worth (The T) and Denton County Transportation Authority (GoPass)
  - Metropolitan Transit Authority of Harris County, Texas
Industry Scan of Mobile Fare Technology (3 of 3)

- Passport, Charlotte, NC
  - Columbia, SC Comet Bus (Catch the Comet)
  - Jacksonville Transportation Authority (MyJTA), FL
- Masabi, London, UK (US HQ in NY, NY)
  - Boston’s MBTA (mTicket);
  - San Diego’s MTS and CrossCountry Trains (mTicket);
  - NICE Bus on Long Island (go Mobile);
  - Under contract with New York’s MTA for Metro-North and Long Island Railroad
- Xerox, Norwalk, CT
  - NJ TRANSIT (MyTix)
  - SunRail in Central Florida

Case Examples: Interviews

- DART (Unwire)*: Lawrence Sutton, PMP (previously DART’s Mobile Fare PM), PM – Technology Services, Transit and Rail, CH2M
- NICE (Masabi): Omar Alvarado, Senior Planning Analyst
- COMET (Passport): Samuel Scheib, Transit planner and manager
- CTA (GlobeSherpa): Michael Gwinn, Director, Revenue and Fare Systems
- NJ Transit (Xerox): Frank Gorman, Manager, Point of Sale & Fare Collection Systems

* New Contract with GlobeSherpa
Lessons Learned from Case Examples (1 of 3)

- Significant planning and technical expertise is necessary – use lessons learned
- Build redundancy in back office functions /servers in case of interruptions in communications
- Carefully evaluate the desired data (e.g. utilization by route and stop) and reporting needs when defining technology - should be factored into procurement

Lessons Learned from Case Examples (2 of 3)

- Mobile ticketing requires extensive marketing activities to be successful
- Agencies should build customer outreach activities into their planning activities and deployment budgets
- Engage all levels of transit agency employees in the planning process in preparation for deployment.
- Employees involved in beta testing have valuable insight.
Lessons Learned from Case Examples (3 of 3)

- Have a good dashboard system to track sales trends and system performance
- Beta Test - represent a good cross section of transit service area demographics of users of the specific modes where mobile payments can be used, also solicit input during and after pilot

A Point to Ponder . . .

- Agencies see visual validation / QR Code scanning as a low barrier to entry for mobile ticketing where the integration needs are not as intense, and therefore cheaper/quicker to implement. Examples:
  - The Comet and NICE, 6 months from concept to deployment
Concept of Operations & More

- Concept of operations
  - Customer-facing Mobile Ticketing Application
  - Additional Features of Mobile Ticketing App
  - Fare Inspector Application
  - Reporting and Backend System
  - Financial Processing

- Estimated Project Timeline
- Roles and Responsibilities

Customer-facing Mobile Ticketing App (1 of 7)

- Will allow customers to download and install a mobile application (mobile “app”) on their smartphone
- Create an account through a one-time setup process that prompts users for billing information (e.g., credit cards, debit cards or other electronic payment)
- Be able to login using an ID and password and be greeted with the home screen of the mobile app
On the home screen, the user will
- see the name of the transit agency,
- be directed to a page that allows them to purchase fare products,
- be able to purchase multiple fare products at once, and
- maintain multiple fare products attached to their account and accessible for use within the mobile app.

At the time of travel, customers will launch the mobile app, select the fare product they wish to use, and then activate the ticket
- Activation of the ticket should be able to occur in an offline mode (i.e., Internet/network access is not necessary to activate the ticket).
After activation, the mobile ticket will provide a visual indicator to show to the driver for a set period of time for which the ticket is valid.

An activated mobile ticket presented in two configurations: a) a visually validated ticket and b) a barcode / QR code.

- The visually validated ticket will have an interface that enables drivers to easily identify a valid ticket, AND should include anti-tampering features that would prevent users from fraudulently using images or videos of invalid tickets as a valid proof-of-payment.
- The barcode / QR code ticket can be validated by having the fare inspector scan it using a “fare inspector mobile application”.
All mobile tickets will include a high security image with anti-tampering features, a barcode / QR Code, transit agency logo, validity period, and the fare type.

After a set period, the activated mobile ticket will expire and will no longer be available
- Expired tickets should be easily visually distinguishable from valid tickets.
- The customer will be able to view a history of purchased and expired mobile tickets.

At any time during the use of the mobile app, the customer can access a “help” page with frequently asked questions (FAQs) about mobile ticketing.
Additional Features of App

- Trip planning functionality using transit schedule information;
- Real-time vehicle tracking and estimated vehicle arrival information;
- Ability to access ridehailing services (such as Uber or Lyft);
- Security reporting, such as “see something, say something” functionality to report suspicious behavior; and/or
- General feedback / non-emergency issue reporting (e.g., for broken benches or bus drivers compliments and/or complaints).

Fare Inspector App (validator)

App will automatically report to a backend system the following information about validated tickets:

- Date and time of validation;
- Date and time of ticket purchase;
- Date and time of ticket activation;
- Location;
- Inspector ID number;
- Fare type; and
- Customer account ID number.
Reporting and Backend System

The developer will provide a web-based tool for use by transit agency staff including:

- Access to records of all customer transactions using mobile ticketing, including all ticket purchases, validation, and activation, as well as the ability to export these records to a machine-readable data format such as Comma-Separated Values (CSV) files that could be viewed and analyzed in another application (e.g., Microsoft Excel);
- Electronic reports summarizing daily, weekly, and monthly sales;
- A mechanism for reimbursing customer mobile tickets; and
- A mechanism for receiving questions and comments from customers (i.e., “Contact Us”).

Financial Processing

The mobile ticketing system will have the following financial functionality:

- The system will accept MasterCard, Visa, debit cards and PayPal payments;
- The developer will be responsible for all back office functions;
- The developer will comply with the latest Payment Card Industry (PCI) data security standards, including all audit and compliance certification activities; and
- The developer will deposit fare revenues (minus applicable fees and taxes) into the transit agency bank account on a regular basis (with the specific dates / frequency to be agreed upon).
Estimated Timeline for Visual Validation

1. Preparation of solicitation documents
   › (1-3 Months)
2. Vendor selection and award process
   › (2-3 Months)
3. Design and development of software by vendor
   › (3-6 Months)
4. Pilot program phase 1: internal beta test
   › (3-6 Months)
5. Pilot program phase 2: public facing beta test
   › (3-6 Months)

Roles and Responsibilities

Transit agency staff would be responsible for these roles (provided that the agency has sufficient internal expertise for the given roles):

- Managing the pilot program
- Training drivers to understand how to identify active mobile tickets and answer customer questions
- Updating internal accounting and reporting procedures to include mobile ticketing transactions
- Marketing to educate riders and the public about the availability of mobile ticketing
- Information technology integration (if required)
Q&A

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Final report