

Fare Collection 102 - Planning for Incremental Improvement

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Fare Payment Systems






Planning for Incremental Improvement

You want to update your fare payment system...

- WHY?!?

1. Your General Manager or Board Chairman attended a conference and heard someone speak about the latest form of payment technology
 2. Your Senator just earmarked \$200 million in Stimulus Funding for your transit agency
 3. Tired of the local newspapers talking about your fare system being able to accept Chuck E. Cheese tokens but not the new \$10s or \$20s
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Planning for Incremental Improvement

Assess the current fare system.



What works, what doesn't, and why?



Examine Existing Fare Policy & Collection

Are there goals and objectives?



What is important to the Agency?



Identify Agency Objectives & Priorities

What is available?



Technologies/Functionality, What is there; does it work?



Examine Current Technologies & Approaches

Examine Existing
Fare Policy &
Collection

Identify Agency
Objectives &
Priorities

Examine Current
Technologies &
Approaches

Define
Evaluation
Criteria

Identify System
Alternatives &
Options

Evaluate
Alternatives

Select
Preferred
Alternative



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Examine Existing Fare Policy & Collection

Seek a Thorough Understanding of Your System

Equipment Condition

Age, Capabilities, Functionality
Reliability & Maintainability
Refurbish? Modify? Replace? Outsource?

Fare Policy

On-Board, Off-Vehicle, Off-Site
1-Ride, Multi-Ride, Period/Calendar Passes
Open Payments/NFC

Annual O&M Costs

Rider Characteristics

Type of Rider: Urban, Suburban
Frequency of Ride: Commuter, Occasional
Type of Trip: One Seat, Linked Ride

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Identify Agency Objectives & Priorities

Objectives to Consider; Establish Priorities

Increase Revenue

Generate more revenue

Remove payment barriers
Enable fare policy flexibility
Facilitate employer sponsors

Collect more revenue

Enable Open Payments
Support collection of correct fare
Minimize missed fares
Automate media reload process

Decrease revenue theft

Increased process oversight
Support electronic transactions
Automatic media validation
Consolidated report generation

Increase Ridership

Decrease Costs

....Seek Stakeholder Input

Identify Agency Objectives & Priorities

Objectives to Consider; Establish Priorities

Increase Revenue

Increase Ridership

Improve service value

{ Fares reflect service value

Improve service quality

{ Speed boarding times
Special event surges
Improve ridership data

Improve ease-of-use

{ Simplify purchase, payment

Open new markets

{ Support open payments
Facilitate employer benefits
School/University partnerships
Interagency transfers

Decrease Costs

....Seek Stakeholder Input

Identify Agency Objectives & Priorities

Objectives to Consider; Establish Priorities

Increase Revenue

Increase Ridership

Decrease Costs

Reduce capital cost

What is your available capital budget?
Consideration of overhaul/upgrade of items
Reduced dwell time = less equipment
Increased throughput = less equipment
Minimize equipment by outsourcing

Reduce operating cost

Facilitate open payments
Provide ability to re-use media
Employ customer-friendly technology
Consider outsourcing of activities

....Seek Stakeholder Input

Identify Agency Objectives & Priorities

Seek a Thorough Understanding of Your Stakeholders

Internal Stakeholder Input

Revenue; Operations;
Maintenance; Security;
Planning; Information Systems;
Customer Service; Finance/Accounting;
Marketing; Engineering.

External Stakeholder Input

Customers; Regular, Occasional, and their payment trends outside of transportation
Regional Planning Organizations
Transit Benefit Providers
Partner Organizations – Universities, schools, etc.
Adjoining Transit Agencies

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Examine Current Technologies & Approaches

Understanding Technology and Lessons Learned

Perform Survey of Available Fare Systems Technology

Assess Deployment Approaches

Review Existing & Pending Standards

Examine Current Technologies & Approaches

Elements of Technology and Application

Perform Survey of Available Payment Technology

Traditional

Utilizes Magnetic and/or Smart Media
Requires extensive deployment of hardware
Typically deployed as a vendor-specific proprietary system

Open Payment

Utilizes all types of Media
Requires limited deployment of hardware
Needs excellent wireless and wired network
Typically deployed as a non-proprietary system

Hybrid/Layered

Utilizes all types of Media
Requires medium deployment of hardware
Conservative deployment approach
Typically deployed as a non-proprietary system

Assess Deployment Approaches

Review Existing & Pending Standards

Examine Current Technologies & Approaches

Elements of Technology and Application

Perform Survey of Available Technology

Assess Deployment Approaches

Media Distribution

Agency Personnel Interaction
Automated Devices in Field
Web/Call Center Services
Third Party Retailers / Co-branding

Media Utilization

On-Board – Manual w/farebox, card readers
Off-Board - Automated w/ fare gates, TVMs
Proof of Payment – Manual validation w/HHDs

Outsourcing

Leased Equipment in Field
Maintenance Services
Revenue Services
Transaction Processing Center

Review Existing & Pending Standards

Examine Current Technologies & Approaches

Elements of Technology and Application

Perform Survey of Available Technology

Assess Deployment Approaches

Review Existing & Pending Standards

Media

Magnetic Standards
Smart Media Standards
NFC Standards

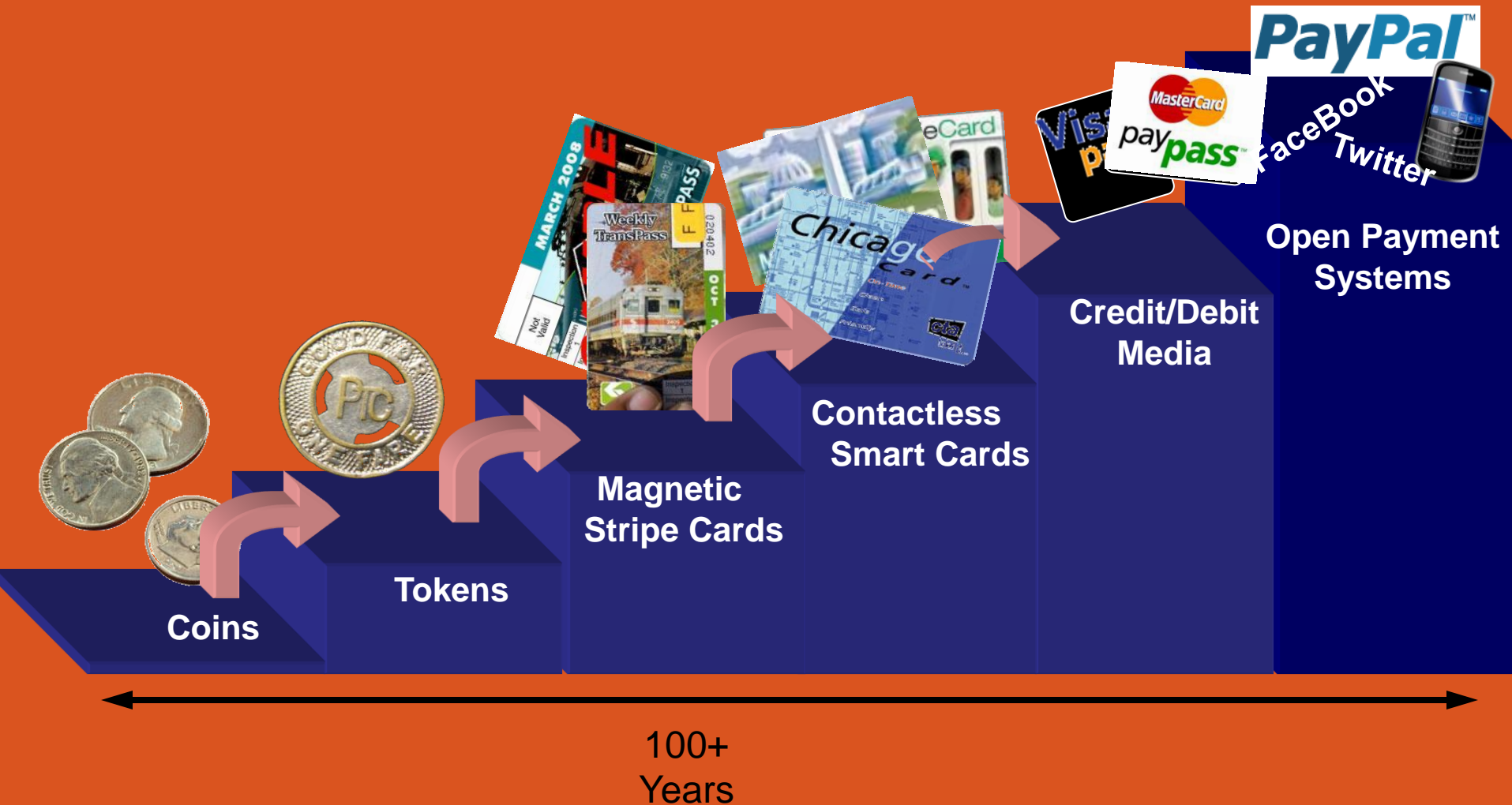
Equipment

Engineering Codes
Building Codes
Fire Safety Codes

Payment Security

PCI-DSS
Network
Wireless
EMV

Evolution of Transit Fare Payment Systems



Open Payment Solutions

- Many available forms of Open Payment:
 - Magnetic stripe bank cards
 - Contactless bank cards
 - Compatible authorized media (ISO/IEC 14443) such as:
 - Building Access ID Cards
 - Drivers Licenses
 - Near Field Communications (NFC) cell phones
 - Social Networks (PayPal, Twitter, Facebook)
- Open Payment media can be used as credentials to augment or supplant existing payment methodologies



facebook®

Open Payment Solutions

- Open Payments solutions must balance competing goals:
 - Minimize transaction times in fixed and mobile environment
 - Minimize revenue losses due to fraud
 - Minimize operating costs
 - Transaction fees
 - Communication costs
 - Minimize capital expenditures
 - Minimize fare media distribution costs

Layered Payment Solution

Open Payments

Agency Specific Media



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Identify System Alternatives & Options

Key Factors Influencing Alternatives

Fare structure

Flat or zoned; mileage-based
Service-based: local, express

Ridership characteristics,
Service & facilities

Service type, service frequency;
Trip characteristics (1 vs. 2+veh's)
Open or closed facilities

Customer demographics

Urban, Suburban
Banked, Underbanked, Unbanked

Desired methodology

On-board; in-station;
back-office; regional

Agency culture

Strength of internal staff
Capital vs operating budget balance
Appetite for risk

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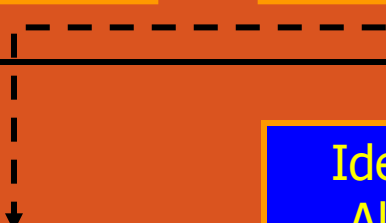
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Evaluate Alternatives

Base Your Criteria on Your Objectives

Capital Costs	Initial investment
O&M Costs	Life Cycle Costs
Fare Flexibility	Introduce and/or revise fares
Fare Enforcement	Deter evasion; Collect the right fare
Service Quality	Speed the trip
Revenue Security	Protect revenue in all phases
Convenience	Ease of use and administration
Data Quality	Rider travel and preferences
Versatility	System longevity and future growth

Systems Operating Costs

Evaluate Alternatives

Operations

In-station or dedicated on-board fare collection

Maintenance

Field; component; inventory

Fare media

Stock inventory, sales/refunds; transit benefits; distribution/control

Cash revenue

Collection & processing

Police / Security

Collection & processing security

Fare inspection

Inspection; processing/tracking; adjudication

Information Systems

Software & network maint/admin
Software licenses; End-user support

Systems Capital Costs

Evaluate Alternatives

System Development & Design

- Staff project support/mgt
- Professional services
- System requirements
- Specification preparation

Procurement Management

- Solicitation / evaluation / selection;
- Project management
- Design review
- Systems interfaces

Procurement Contractor

- Equipment; Media; Software;
- Engineering; Project mgt.;
- installation & testing;
- documentation; training program,
- warranty

Implementation

- Site Preparation,
- Recruitment; (re)training;
- procedures; public education;
- transition plan

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Select Preferred Alternative

Consider all objectives; give greater weight to priorities

Understand your operational needs by mode

“Future-proof” your system by use of open architecture design principles

Communicate: Be open about the process

Discuss impact on operating and capital budgets

Leverage your understanding of customer demographics by mode

After Selection:

Utilize rigorous project management techniques to maintain schedule and budget

Plan for iterative functionality releases and incremental successes

Resources

American Public Transportation Association

www.apta.com

Smart Card Alliance

www.smartcardalliance.org

Federal Reserve Bank of Philadelphia – Payment Card Center

www.philadelphiafed.org/payment-cards-center

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