



Contactless Smart Cards

I-95 Corridor Coalition 2007 EPS Summit



Federal Reserve Bank of Boston
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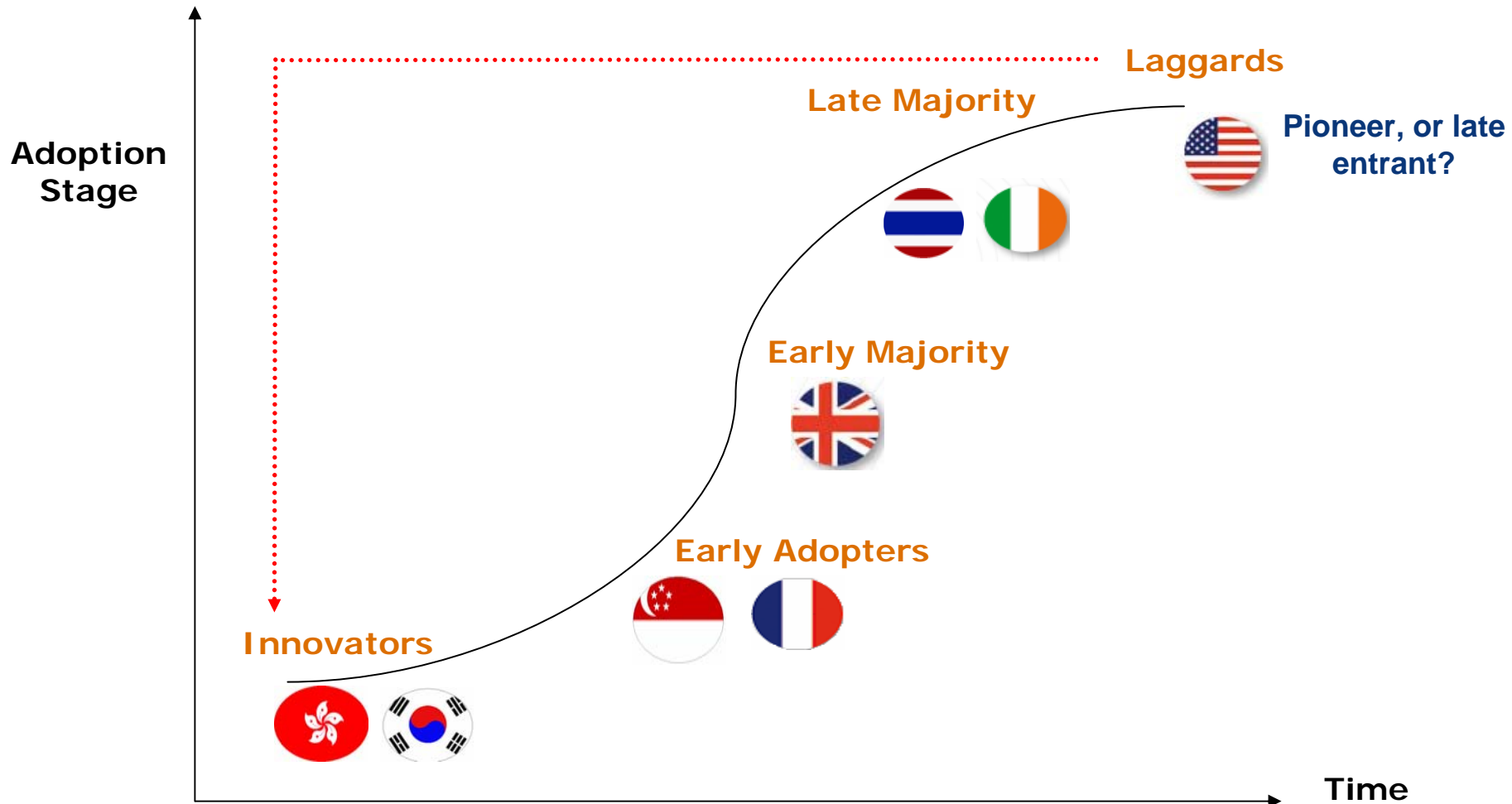
Today's Road Map



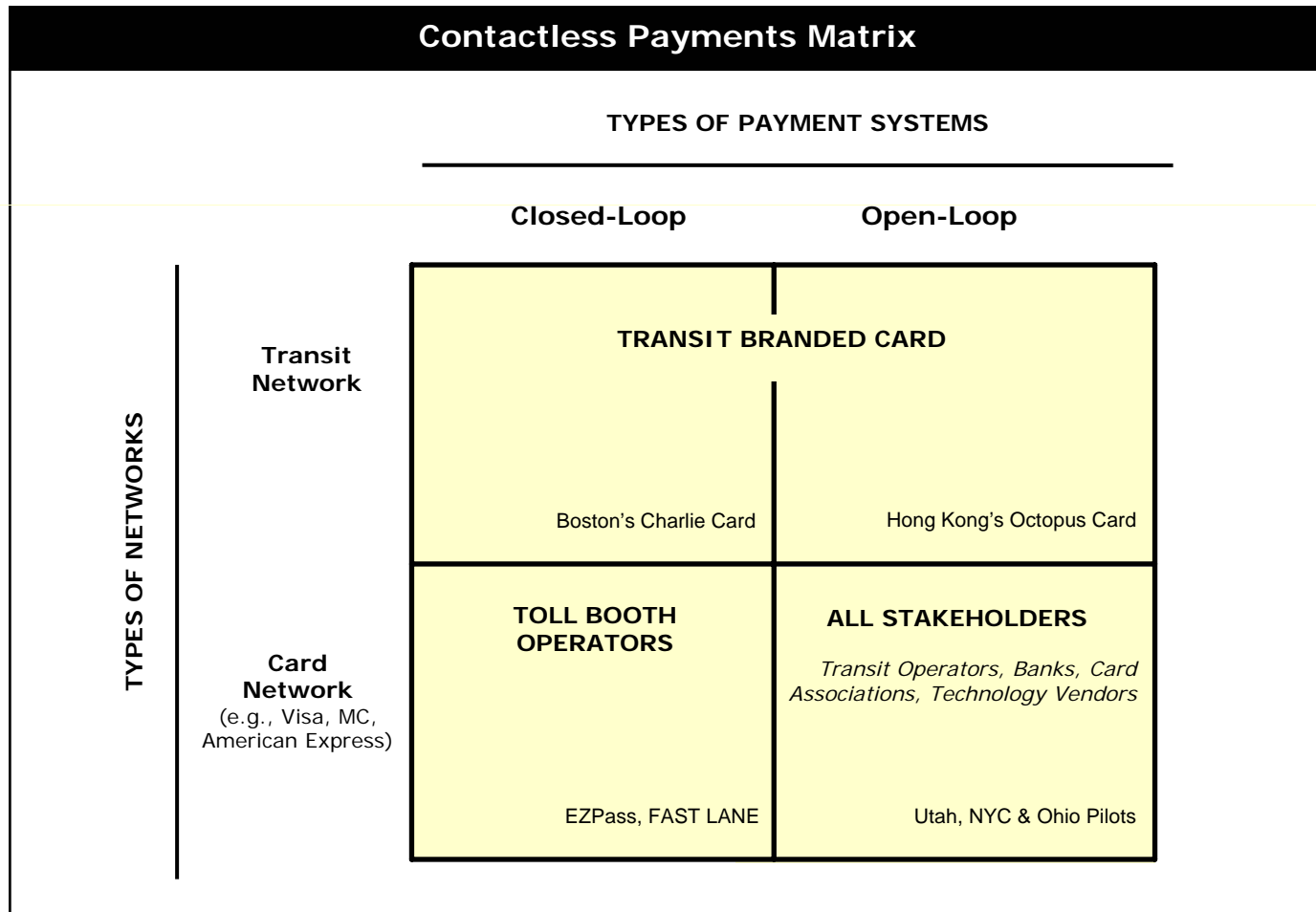
- Smart Card Adoption
- Transit Payment Business Models
- U.S. Transit Market
- Merchant Perspective - Barriers & Benefits
- Consumer Perspective - Barriers & Benefits
- Fare Media Evaluation

Smart Card Adoption

Smart Card Adoption Payment Business Models U. S. Transit Market Merchant Consumer Fare Media Evaluation

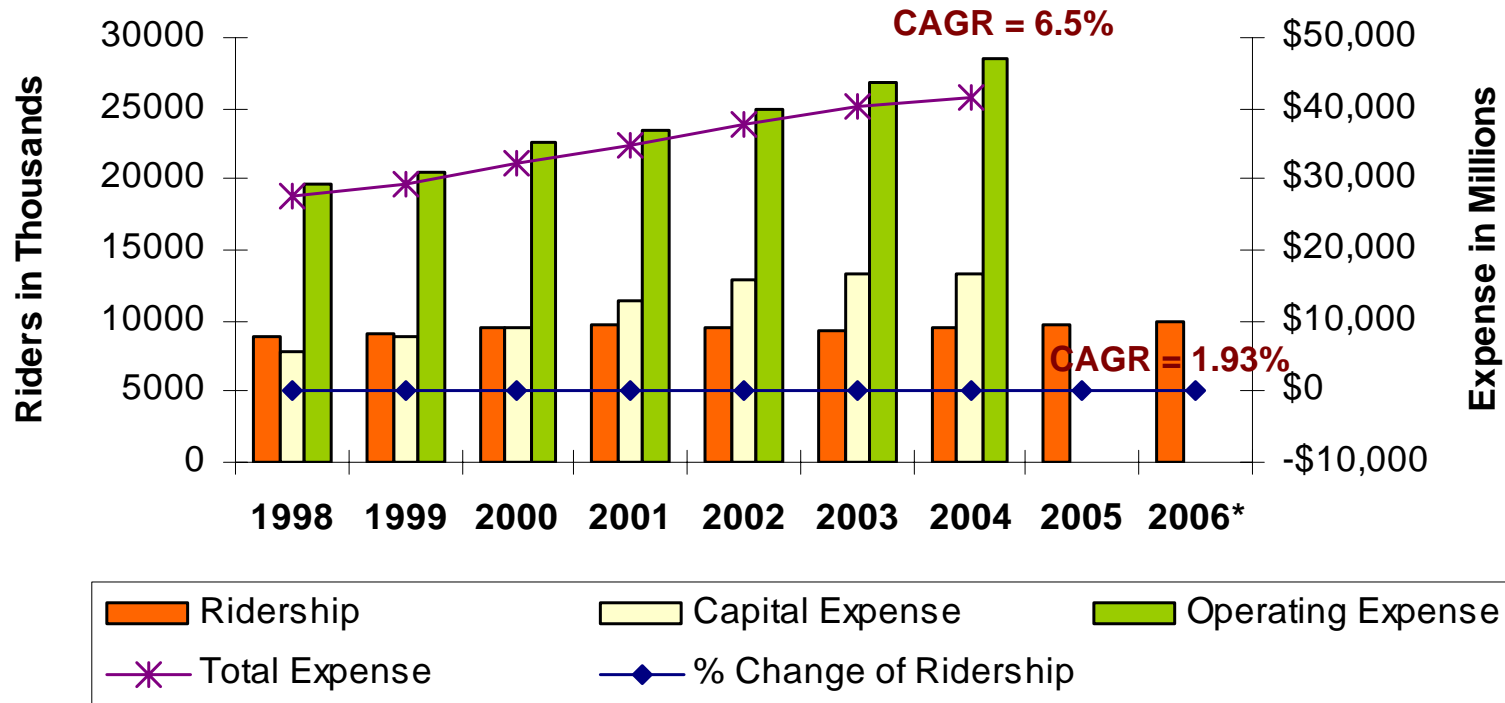


Transit Payment Business Models



U.S. Transit Market

U.S. Transit Metrics



* Projected based on six month ridership.
 SOURCE: Author's calculations based on APTA Transit Ridership Report.

Merchant Perspective – Barriers & Benefits

Smart Card Adoption Payment Business Models U. S. Transit Market **Merchant** Consumer Fare Media Evaluation

Barriers

Capital Investment & Card Costs

Capital expense (e.g., fare media equipment), production of fare media (closed-loop), interchange fees (open-loop)

Standards & Compatibility

Coordination of stakeholders (e.g., transit agencies, municipalities, Financial Institutions, technology suppliers) to work together

Speed

More people moving through the turnstiles translate to higher passenger throughput and increased operational efficiency

Lower Operating Costs

Less equipment maintenance and cash handling lead to lower operating costs

Reliability

More durable fare media and equipment lead to longer life of card and equipment

Fraud Management

Secure fare collection to mitigate card skimming, minimize free ridership, and other types of fraud

Customer Relationship Management

Passenger data can be used for traffic management, logistics, and developing loyalty

Improved Accountability

Higher degree of accuracy and accountability of revenue collection

Benefits

Consumer Perspective – Barriers & Benefits

Smart Card Adoption Payment Business Models U. S. Transit Market Merchant **Consumer** Fare Media Evaluation

Barriers

Inertia

Passengers may be reluctant to adopt a new payment type

Security Concerns

Consumers perceive a high level of risk of interception of contactless data

Privacy

Commuters are sensitive to data collection and use

Switching Costs

Initial deposits and higher expenditure with the contactless fare media are a concern for the unbanked and underbanked populations

Hidden Costs

Reducing staff may impact patronage (sense of less security), lead to vandalism, etc.

Speed

Save time with quicker transaction time through the turnstile

Benefits

Convenience

Carry less cash; travel seamlessly between regions and multiple modes of transportation

Flexibility

Supports flexible fare arrangement for riders such as automatic discounts and multiple types of fares

Security

Lower personal risk of theft (from carrying cash); open-loop cards have additional measures in the form of encryption algorithms and keys

Fare Media Evaluation

Evaluation Criteria		Relative Impact of Payment Media					
		Cash	Token	Paper Ticket	Magnetic Ticket	Smart Cards	
						Contact Card	Contactless Card
Consumer	Convenience (ease of use)	1	2	2	2	2	3
	Flexibility	1	1	2	3	3	3
	Security (personal risk & information)	1	1	1	2	3	3
Both	Speed (e.g., on throughput, time saved)	1	2	1	2	2	3
	Positive Externalities	1	2	1	2	3	3
Transit Authority	Lower Operating Costs	1	2	1	2	2	3
	Reliability of Technology	1	2	2	2	3	3
	Cost of Equipment	3	2	3	1	1	1
	Cost of Purchase or Production of Media	3	3	3	3	1	1
	Fraud Risk Reduction (resistance to counterfeiting)	2	1	1	2	3	3
	Customer Relationship Management	1	1	1	1	3	3
	Accountability (impact on revenue control)	1	2	2	3	3	3
Total Score		17	21	20	25	29	32

Rating Key: 3 = High, 2 = Medium, 1= Low Positive Impact

SOURCE: TCRP Report 10; author's analysis

Thank you...

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