



**Smart Card
Alliance**

***Near Field Communication (NFC) and Transit:
Applications, Technology and Implementation
Considerations***

A Smart Card Alliance Transportation Council White Paper

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About the Smart Card Alliance

The Smart Card Alliance is a not-for-profit, multi-industry association working to stimulate the understanding, adoption, use and widespread application of smart card technology. Through specific projects such as education programs, market research, advocacy, industry relations and open forums, the Alliance keeps its members connected to industry leaders and innovative thought. The Alliance is the single industry voice for smart cards, leading industry discussion on the impact and value of smart cards in the U.S. and Latin America. For more information please visit <http://www.smartcardalliance.org>.

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TABLE OF CONTENTS

1	INTRODUCTION	5
2	OVERVIEW OF TRANSIT MOBILE APPLICATIONS.....	6
2.1	PROVISION OF REAL-TIME INFORMATION	6
2.2	ADDITIONAL OPPORTUNITIES.....	7
2.3	PILOT PROJECTS	7
2.3.1	<i>NJ TRANSIT, 2011</i>	7
2.3.2	<i>London, 2007</i>	8
2.3.3	<i>San Francisco, January-May 2008</i>	8
2.3.4	<i>Germany, 2008</i>	9
2.3.5	<i>Summary</i>	9
3	NFC APPLICATIONS THAT BENEFIT TRANSIT	10
3.1	STANDARDS AND SPECIFICATIONS	10
3.2	NFC-ENABLED OPEN BANK CARD PAYMENT.....	11
3.2.1	<i>Fare Product Acquisition</i>	11
3.2.2	<i>System Entry and Exit, and Transaction Processing</i>	11
3.2.3	<i>Post-Purchase Inspection and Processing</i>	12
3.3	NFC-ENABLED CLOSED SYSTEM TRANSIT TICKETING AND PAYMENT.....	12
3.3.1	<i>Fare Media Acquisition and Top Up</i>	12
3.3.2	<i>System Entry/Exit</i>	13
3.3.3	<i>Payment Validation</i>	13
3.4	NFC-ENABLED TRANSIT INFORMATION APPLICATIONS	13
4	THE NFC ECOSYSTEM AND IMPLEMENTATION OF NFC-ENABLED TRANSIT APPLICATIONS	14
4.1	ECOSYSTEM PARTICIPANTS	14
4.1.1	<i>Secure Element Providers and Issuers</i>	14
4.1.2	<i>Mobile Network Operator</i>	15
4.1.3	<i>Handset Manufacturer</i>	15
4.1.4	<i>Operating System Provider</i>	16
4.1.5	<i>Mobile Wallet Developer</i>	16
4.1.6	<i>Trusted Service Manager</i>	17
4.1.7	<i>Application Service Providers</i>	17
4.1.8	<i>Passengers/Consumers</i>	18
4.1.9	<i>NFC Application Acceptors</i>	18
4.1.10	<i>Transaction Processors</i>	18
4.2	NFC ECOSYSTEM RELATIONSHIP EXAMPLES.....	18
4.3	NFC AND THE TRUSTED SERVICE MANAGER.....	19
4.3.1	<i>Role of the TSM</i>	20
4.3.2	<i>Requirements for Filling the TSM Role</i>	22
5	KEY CONSIDERATIONS FOR DEVELOPING A MOBILE STRATEGY.....	23
5.1	BUSINESS CONSIDERATIONS.....	23
5.1.1	<i>Vendor and Partner Relationships</i>	23
5.1.2	<i>Merchant Acceptance</i>	23
5.1.3	<i>New Revenue Streams</i>	24
5.2	TECHNOLOGY CONSIDERATIONS.....	24
5.3	APPLICATION CONSIDERATIONS.....	24
5.4	SUMMARY	25
6	CONCLUSIONS	26
7	PUBLICATION ACKNOWLEDGEMENTS	27

8	REFERENCES.....	29
9	APPENDIX A: TRANSIT NFC ACTIVITIES	30
10	APPENDIX B: MIFARE4MOBILE	33
11	APPENDIX C: CIPURSE	34
12	APPENDIX D: GLOSSARY.....	36

1 Introduction

Mobile devices and phones have been in use since the early 1990s, and their rapid acceptance may lead them to eclipse the use of personal computers everywhere. Powerful new handsets are attracting new customers, while mobile operators are upgrading networks to accommodate seemingly endless mobile applications; private companies and government agencies in turn are developing IT strategies to adapt and thrive in the mobile environment. Added to this is an innovation that will significantly influence the direction and growth of mobile commerce: Near Field Communication, or NFC, a radio frequency (RF) communication technology that allows data to be exchanged between electronic devices in close proximity. NFC is expected to be used for a wide variety of applications, including: payments, coupons and merchant promotions, and transit ticketing.

As a short range or proximity technology, NFC differs significantly from more common forms of mobile communication. Mobile payment implementations, in particular, typically require a back-end server and transmit data using mobile channels, such as short message service (SMS), mobile applications (apps), or a browser. Mobile payment alternatives currently include the use of contactless stickers, microSD cards, and 2-D bar codes.

In contrast, mobile payment with NFC technology relies on a handset provisioned with a payment application, which may be provided by one of the major card brands and personalized with a payment account from the consumer's financial institution. Mobile NFC payment and settlement processes are identical to the processes executed when a contactless or magnetic-stripe credit or debit card is used for payment. The difference is that NFC-enabled devices offer two-way functionality; that is, an NFC-enabled device may act as both a contactless card and a contactless reader. This supports interactive processes whereby the consumer may collect information on the NFC-enabled device in the form of coupons, directions, web site/app store links, or buyer incentives from electronic boards, posters, or maps. Based on this information, the consumer can then choose to make a purchase. The actual payment transaction may be the final step in a series of data exchanges between the NFC-enabled device and a contactless point-of-sale (POS) reader. In short, an NFC-enabled device offers additional options for obtaining information to make purchase decisions, as well as a convenient way to make contactless purchases.

This white paper presents a high level perspective on different NFC applications that can be used in the public transit industry. The Smart Card Alliance Transportation Council has prepared this white paper to foster greater understanding of NFC technology, explain its role in the transit industry, and shed light on key issues facing the transit industry in developing a mobile strategy. It builds on the knowledge base developed in earlier white papers, including those from the NFC Forum and Smart Card Alliance Payments Council. In particular, this white paper explores the use of NFC for payment, transit ticketing and transit information applications. The Transportation Council believes NFC can help transit agencies overcome challenges faced by all transit riders, including selecting the correct route, obtaining real-time schedule information, acquiring fare media, purchasing fare product, paying the best fare, and viewing the status of fare products, all by way of an NFC-enabled handset.

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