Position Paper: Should the Transit Agency Own the Chip?

Transit agencies and banks both want to implement smart credit cards for fare payment at transit gates and fareboxes. At the moment, two contradictory systems are vying for dominance in the U.S. One system has a *transit agency chip* hosted on a credit card. The other, based on the Seoul model, has a *bank chip* on a credit card running a transit application beside the banking one. This paper explores the implications of both systems and then advocates the Seoul model as being better.

Both models offer banks a top-of-wallet effect, stickiness and distinctiveness for their cards. Both models present no great technical problem in implementation. In both models, the bank pays for the card.

The host model has some virtues. Since transit agencies control the chip, they can easily program the application for their maximum convenience. The number of chips is more limited than in the Seoul model, since only transit riders will have chips on their cards, so the negative list will be smaller, making for cheaper gates and fareboxes.

The Seoul model, however, has more virtues.

1. The bank pays for the chip, account creation, management and termination, and customer service, resulting in tremendous savings for the agencies.
2. Banks will be able to conquer the micropayment market with their chip, whereas they cannot with a transit chip. If they don't own the chip, they can't go to other micropayment outlets—supermarkets, delis, newsstands, fast food, etc.—and can't realize any of the income from interchange fees on those transactions.
3. The security of the card for normal transactions is not increased with the transit application. With a bank chip on the card, eventually normal credit transactions would be made with the smart chip. Since the chip is extremely secure—much more so than magnetic stripe—some of the transactions can be verified offline, thus reducing processing costs. The transit chip finally does not serve the bank's purposes.
4. Associations have chip cards that they are trying to promote. The host model actually does much to discourage the acceptance of these new cards.
5. Even though the transit chip resides on a bank card, it is not connected to the banking system and cannot refill the customer's stored value. Only the bank chip can assure the user that as long as they have good credit or a balance on the card if a debit card, they will always pass the gate successfully without having to go to a vending machine to refill the card.

A transit application on a bank chip can do all of the things that a transit agency desires without involving them in card management or issuance. Since its data schema can be evolved according to transit agencies' priorities, it has all the advantages of the host model with none of the disadvantages to banks.

Lately, transit agencies dream of getting some monetary benefit or fee from banks for transit-ready contactless credit cards. After all, they claim, doesn't the bank get top-of-wallet, stickiness, etc.? But even if banks were willing to pay something, wouldn't they pay more to issue cards with a chip they controlled rather than someone else's chip?

We believe that the transit agencies' fascination with the host model comes from the legacy of owning their own fare collection systems. We think that card associations and interested banks are misguided in allowing transit agencies to determine what will go on their cards. If current trends persist, it may be ten years before agencies come to realize that they have exerted too much control over the chip and that they have cost themselves millions needlessly. Finally, the correct business model—the bank chip on the bank card—will naturally conquer the market. But how many years will the passivity of associations and banks waste before that happens? And when it does, and the associations finally take back their real estate, there might not be room on the cards for a transit chip at all.

It is probable that transit agencies are exceeding their needs in delving so far into the structure of the transit application and its ownership. Agencies should specify what they want to do with the application and leave open the question of whose chip it is. We recommend that transit agencies should stop at specifying what business features they want to implement and leave the banking to banks.

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