Hong Kong Octopus Card

The Hong Kong Octopus card, launched in 1997 as an electronic purse for public transportation, is the most successful and mature implementation of contactless smart cards used for mass transit payment. The card's acceptance and popularity have since extended its use to nearby retailers.

Octopus cards were developed as an automatic fare collection (AFC) scheme for Hong Kong's transit system. Over 9 million Octopus cards and 150,000 smart watches have been issued, and over 7 million transactions are recorded on a daily basis, for a daily transaction value of over HK$50 million (about US$6.5 million). This contactless smart card ticketing system currently includes over 100 service providers, including all of the major transport operators (bus, taxi, subway, train, tram, and ferry services). Because Hong Kong's main transport operators are all partners in the Octopus card, kiosks are widely available, making it easy for customers to check the balance on a card and recharge it with cash or electronic payments. The use of the card has shortened queues at ticket barriers, because the card doesn't have to be taken out of a bag or wallet — customers can just wave it past a scanner at a distance of several centimeters.

The first non-transit applications for the Octopus card allowed the card to be used for payment at photo booths located in the Mass Transit Railway (MTR) stations and pay phones operated by New World Telephone. After only 5 years, 25 percent of Octopus card transactions are unrelated to transit. The card lets consumers make payments quickly and conveniently and is accepted by more than 160 merchants.

- Park 'N Shop (Hong Kong's leading supermarket), Watson's, 7-Eleven, Starbucks, McDonald's and Circle K convenience stores accept the Octopus card.
- More than 3,000 soft drink vending machines in offices, schools, and shopping malls now have Octopus scanners. Sales have increased, as consumers make more impulse buys when they don't need to use cash.
- Pay phones, photo booths, and many car parks accept the card, avoiding the need for consumers to carry change. The card can also be used for admission to public swimming pools and other recreational centers.
- Nokia has launched a cover for one of their mobile phones that includes an embedded Octopus chip and antenna, enabling commuters to use their phone to make Octopus payments.

While Octopus cards are anonymous by default, over 500,000 personalized cards have been issued and are used for the Octopus Automatic Add-Value Service. Twelve Hong Kong banks and one credit card company support the automatic add-value service. Because each personalized card has a unique identification number, up to 40,000 cards are also being used as security passes at housing estates, for staff identification cards, and as loyalty cards.

The contactless Octopus card is based on Sony's FeliCa™ technology, a proprietary 13.56 MHz technology similar to but not compliant with the ISO/IEC 14443 standard technology. This technology has widespread acceptance in the Asia Pacific region, with over 25 million cards issued worldwide, according to JCB International Credit Card Company. Terminals read the cards instantly, processing transactions in less than one-third of a second. On the MTR, a scanner at the ticket barrier loads data on the card that is then used by scanners at the exit gates to deduct the correct fare and show the remaining credit.

In 2002, the Asia Pacific Smart Card Association reported that 95% of the "economically active population" was using the Octopus card. Travelers have found that the card provides increased

convenience, allowing them to pass through fare collection points 15 to 20% faster, according to Octopus card statistics. The scheme has succeeded because it offers real convenience to cardholders.

References

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This profile was developed by the Smart Card Alliance Terminal and eTransaction Infrastructure Task Force with the assistance of Julie Krueger, JCB International Credit Card Company, as part of the white paper, "Contactless Payment and the Retail Point of Sale: Applications, Technologies and Transaction Models," available at http://www.smartcardalliance.org/alliance_activities/contactless_payment_report.cfm. For more information about how smart cards are used for transit and retail payment, visit the Alliance web site at http://www.smartcardalliance.org.