

History of Money: 30 Sep 05

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Looking Back

Historically, payment systems were developed to meet specific needs. The earliest of these were to facilitate exchange in place of barter. It was essentially a representation of value. The convenience over barter where each goods or items to be exchanged have to be evaluated differently based on the items to be exchanged for made it cumbersome and difficult to trade, is taken for granted in modern day trade or exchanges. Money solved that problem to a large extent and has been adopted and remains the key means of exchanges in almost all countries in the world today.

New payment systems have been developed, tried, refined and evolved in their attempts to offer alternatives to cash. The quest to develop new payment systems are primarily driven by convenience and frauds. Fraudsters, of course, keep up with the new technologies and are constantly trying to 'break' and hence benefit from their ability to 'break' the payment systems. In response, developers and users of payment systems introduce better technologies to fight such attempts. Technology has been increasingly employed to facilitate existing and new needs, to fight frauds and to facilitate international transactions.

Looking back to the beginning of the 20th Century, there have been a number of significant developments in payment history, starting with:

- Western Union Shopper's plate – a form of identification to vouch for an individual's credit standing
- Diner's Club
- JCB
- Bank Americard, which subsequently becoming VISA
- Internet Banking (attributed to RBS's WorldPay), as early as 1994, using credit cards

Figure 1 below shows a timeline with some these and other payment developments in a chronological order.

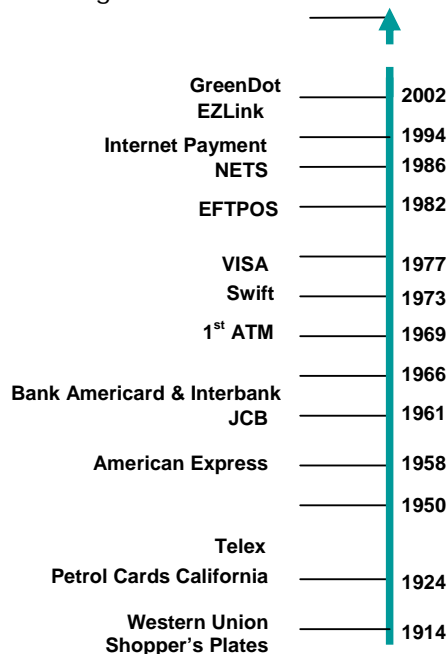


Figure 1 Important payment developments chronologically

Electronic Payments Today

Worldwide, bank to bank payments are dominated by SWIFT, which has surpassed the 2 billion annual transactions mark. SWIFT now has 7400 members in 199 countries throughout the world. It started in 1973 with only 239 members in 15 countries. Clearly, the growth has been very impressive and it also hints at the need for cross borders payments and exchanges.

Visa, the world's largest credit card brand, hit the trillion dollar transaction mark in annual transaction value back in 1988/89.

Electronic transactions are pervasive and all around us. This is set to grow. The US and Europe account for the bulk of all card transactions in the world today. However, it is Asia Pacific that has the most potential for growth, with its huge population base, the 3 most populous countries of the world being in Asia.

Asia Pacific has 4.5 million electronic transaction terminals and 392 million credit cards. Korea surpassed Japan in the use of credit cards in recent years. Until then, Japan was the biggest country in Asia Pacific in the use of credit cards.

However, it is China which will no doubt be the country with the largest payment cards and usage in the years to come. At present, most credit card issued in China, are in reality debit cards. As the number of Chinese nationals traveling overseas increases and the ballooning middle class gets introduced to credit and electronic banking, credit card usage will have definitely increase.. Inevitably, these debit cards will eventually be converted to credit cards.

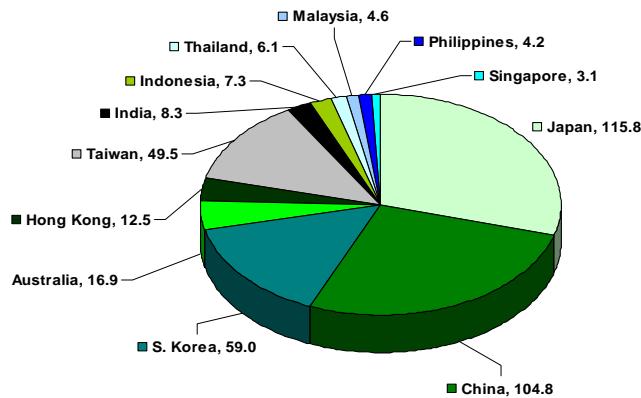


Figure 2 Credit Cards in Circulation, 2002

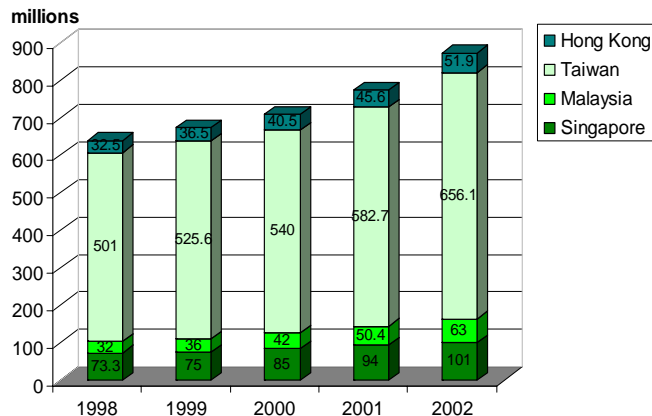


Figure 3 EFTPOS Transactions

Electronic Payments in Singapore

Singapore has over 25,000 terminals for EFTPOS transactions and chalked up about 250 million transactions in 2003 an increase of 33% since 2000. For a small country with 4.2 million population, it can be considered to have fairly high number of electronic payment transactions. This is set to grow, from recent new home owners survey, 91% indicated willingness to carry less cash in future.

Within Singapore, online payments are dominated by credit card, accounting for about 80% of all online payment transactions. Over the past few years, internet banking and direct debit payments using bank accounts are increasingly becoming popular.

Internet Payment Worldwide



Probably the most well know small value payment on the Internet, PayPal was founded in 1998 and was acquired by eBay fairly recently. It boasts about 40 million member accounts.



WorldPay was founded in 1993 it opened the first online shop offering secure transactions on the internet. It essentially provides services to online merchants who wish to accept credit card transactions online. As such, it is less well known to the general public.



Visa and MasterCard have introduced various technologies to facilitate credit card transactions over the Internet. Their effort begun in the late 90s with a technology known as SET, which is now defunct. The current technology of choice promoted by the two card associations are 3D Secure by VISA and Secure Code by MasterCard. Both work the same way, by introducing an added authentication of the cardholders by the Issuer of the cards prior to the usual credit card authorizations for Internet based transactions. This would tackle transactions involving stolen or fraudulent cards used in Internet transactions.

Use of smart cards in Payments

Another area of development in the consumer payment arena prior to the focus on Internet payments, was facilitated by smart cards. These largely appeared in the forms of stored value cards and secured (improved) form of credit cards or other payment cards where authentication goes beyond the use of the magnetic stripes and PIN.

Many in the industry believe that smart cards would propel the future development in the Card Payments.

Magnetic stripe cards are being phased out due to frauds and the inability of magnetic stripes to incorporate more functionalities which can be facilitated by the chip on smart cards.

Today, all of us who use a GSM mobile phone, is depending on the chip on the smart card, known as SIM card to facilitate the many mobile calls we make each day. While the SIM card is generally not a payment card, it is critical to the mobile operators being able to identify the callers and charge them appropriately with the help of the SIM card.

In general, smart cards are being used to ensure privacy, authenticate users or services, ensure integrity of transactions (in particular financial related transactions) and to support non-repudiation in transactions.

Increasingly, it is also being deployed to function as an identification card. Malaysia is one of the early adopters of such technology on a country wide basis, to replace securely printed identity cards. This technology is also being tested in many countries along with biometrics to replace traditional passports in the wake of concerns with cross border terrorism after the 9-11 incident.

Instead of facilitating a simple read function of static data in a magnetic-stripe card, the chip can utilize dynamic data and along with authentication methods such as the 3DES mutual authentication, generally accepted in financial transactions. The use of technologies makes the smart-card a lot more secure.

The writer is involved in IT operations and business development functions and has extensive experience in the areas of credit card, debit card, e-payment and payment processing. Currently, he is the SVP of a local payment services company. This article is contributed in his personal capacity.