Week 6
ECOM13003 Electronic Commerce

E-Commerce Payment Systems
Chapter 6

Outcomes
after this class you should be able to:

- Describe the features of traditional payment systems
- Describe the features and functionality of major types of digital payment systems
- Describe the features and functionality of major types of electronic presentation and billing systems

Types of Payment Systems

- Cash
- Cheque Transfer
- Credit Card
- Stored Value
- Accumulating Balance

Cash
- Legal tender defined by a national authority to represent value
- Most common form of payment in terms of number of transactions
- Instantly convertible into other forms of value without intermediation of any kind
- Portable, requires no authentication, and provides instant purchasing power
- "Free" (no transaction fee), anonymous, low cognitive demands
- Limitations: easily stolen, limited to smaller transaction, does not provide any float

Cheque Transfer
- Funds transferred directly via a signed draft or cheque from a consumer's checking account to a merchant or other individual
- Most common form of payment in terms of amount spent
- Can be used for both small and large transactions
- Some float
- Not anonymous, require third-party intervention (banks)
- Introduce security risks for merchants (forgeries, stopped payments), so authentication typically required

Credit Card
- Represents an account that extends credit to consumers, permitting consumers to purchase items while deferring payment, and allows consumers to make payments to multiple vendors at one time
- Credit card associations: Nonprofit associations (Visa, MasterCard) that set standards for issuing banks
- Issuing banks: Issue cards and process transactions
- Processing centers (clearinghouses): Handle verification of accounts and balances
Stored Value
- Accounts created by depositing funds into an account and from which funds are paid out or withdrawn as needed
  - Examples: Debit cards, gift certificates, prepaid cards, smart cards
  - Debit cards: Immediately debit a checking or other demand-deposit account
  - Peer-to-peer payment systems such as PayPal a variation

Accumulating Balance
- Accounts that accumulate expenditures and to which consumers make period payments
  - Examples: utility, phone, American Express accounts

Current Online Payment Systems
- Credit cards are dominant form of online payment, accounting for around 80% of online payments in 2005
- New forms of electronic payment include:
  - Digital cash
  - Online stored value systems
  - Digital accumulating balance payment systems
  - Digital credit accounts
  - Digital checking

How an Online Credit Card Transaction Works
Figure 6.4, Page 316
- Processed in much the same way that in-store purchases are
- Major difference is that online merchants do not see or take impression of card, and no signature is available (CNP transactions)
- Participants include consumer, merchant, clearinghouse, merchant bank (acquiring bank) and consumer’s card issuing bank

Limitations of Online Credit Card Payment Systems
- Security: neither merchant nor consumer can be fully authenticated
- Cost: for merchants, around 3.5% of purchase price plus transaction fee of 20 – 30 cents per transaction
- Social equity: many people do not have access to credit cards (young adults, plus almost 100 million other adult Americans who cannot afford cards or are considered poor risk)

The SET (Secure Electronic Transaction) Protocol
Figure 6.5, Page 320
- Authenticated cardholder and merchant identity through use of digital certificates
- An open standard developed by MasterCard and Visa
- Transaction process similar to standard online credit card transaction, with more identity verification
- Thus far, has not caught on much, due to costs involved in integrating SET into existing systems, and lack of interest among consumers
Digital Wallets
- Concept of digital wallet relevant to many of the new digital payment systems
- Seeks to emulate the functionality of traditional wallet
- Most important functions:
  - Authenticate consumer through use of digital certificates or other encryption methods
  - Store and transfer value
  - Secure payment process from consumer to merchant
- Most common types are client-based software applications: Gator eWallet.com, MasterCard Wallet

Digital Cash
- One of the first forms of alternative payment systems
- Not really "cash": rather, are forms of value storage and value exchange that have limited convertibility into other forms of value, and require intermediaries to convert
- Many of early examples have disappeared; concepts survive as part of P2P payment systems

Online Stored Value Systems
- Permit consumers to make instant, online payments to merchants and other individuals based on value stored in an online account
- Rely on value stored in a consumer’s bank, checking, or credit card account

Smart Cards as Stored Value Systems
- Another kind of stored value system based on credit-card sized plastic cards that have embedded chips that store personal information
- Two types:
  - Contact
  - Contactless
- Examples: Mondex, Octopus

Digital Accumulating Balance Payment Systems
- Allows users to make micropayments and purchases on the Web, accumulating a debit balance for which they are billed at the end of the month
- Examples: Qpass, Valista, Clickshare, Click & Buy, Peppercoin

Digital Credit Card Payment Systems
- Extend the functionality of existing credit cards for use as online shopping payment tools
- Focus specifically on making use of credit cards safer and more convenient for online merchants and consumers
- Example: eCharge
Digital Cheque Payment Systems
- Extend the functionality of existing cheque accounts for use as online shopping payment tools
- Examples: PayByCheck, Western Union MoneyZap

Electronic Billing Presentment and Payment (EBPP) Figure 6.11, Page 342
- Online payment systems for monthly bills
- EBPP expected to grow rapidly, to an estimated 40% of all households by 2007
- Main business models in EBPP market include:
  - Biller-direct
  - Consolidator
- Above are supported by EBPP infrastructure providers

B2B Payment Systems Table 6.8, Page 343
- More complex than B2C
- Major types:
  - Systems that replace traditional banks (example: TradeCard, Orbian)
  - Financial institutions hoping to extend to the B2B marketplace
  - Credit card companies

Class Discussion
- Case study – page 345
  - Question 2 & 4 on page 348

Next Week
- Ethical, Social & Political Issues
- Case study page 588
  - Question 2 & 3
- Group Presentation 4