Learning Objectives

1. Understand the shifts that are occurring with regard to noncash and online payments.
2. Discuss the players and processes involved in using credit cards online.
3. Discuss the different categories and potential uses of smart cards.
4. Discuss various online alternatives to credit card payments and identify under what circumstances they are best used.
Learning Objectives

5. Describe the processes and parties involved in e-checking.
7. Discuss electronic bill and invoice presentment and payment.
8. Understand the sales tax implications of e-payments.
Some crucial factors come into play in determining whether a particular method of e-payment achieves critical mass:

- Independence
- Interoperability and portability
- Security
- Anonymity
- Divisibility
- Ease of use
- Transaction fees
- Regulations
The Payment Revolution

Using Payment Cards Online

- **payment card**
  Electronic card that contains information that can be used for payment purposes

- Payment cards come in three types:
  - Credit cards
  - Charge cards
  - Debit cards
The Payment Revolution

- **Processing Cards Online**
  - **authorization**
    Determines whether a buyer’s card is active and whether the customer has sufficient funds
  - **settlement**
    Transferring money from the buyer’s to the merchant’s account
Three basic configurations for processing online payments. Merchants may:

- Own the payment software
- Use a point of sale system (POS) operated by an acquirer
- **payment service provider (PSP)**
  A third-party service connecting a merchant’s EC systems to the appropriate acquirers. PSPs must be registered with the various card associations they support
- Use a POS operated by a payment service provider
The key participants in processing card payments online include:

- Acquiring bank
- Credit card association
- Customer
- Issuing bank
- Merchant
- Payment processing service
- Processor
The Payment Revolution

- Fraudulent Card Transactions
  - In the online world, merchants are held liable for fraudulent transactions
  - Merchants can incur additional fees and penalties imposed by the card associations
  - Costs associated with combating fraudulent transactions are also the merchant’s responsibility
The key tools used in combating fraud:

- **Address Verification System (AVS)**
  Detects fraud by comparing the address entered on a Web page with the address information on file with the cardholder’s issuing bank

- Manual review

- Fraud screens and automated decision models
The Payment Revolution

The key tools used in combating fraud:
- **card verification number (CVN)**
  Detects fraud by comparing the verification number printed on the signature strip on the back of the card with the information on file with the cardholder’s issuing bank
- Card association payer authentication services
- Negative files
The Payment Revolution

- **virtual credit card**
  An e-payment system in which a credit card issuer gives a special transaction number that can be used online in place of regular credit card numbers

- **smart card**
  An electronic card containing an embedded microchip that enables predefined operations or the addition, deletion, or manipulation of information on the card
Smart Cards

- **contact card**
  A smart card containing a small gold plate on the face that when inserted in a smart card reader makes contact and passes data to and from the embedded microchip.

- **contactless (proximity) card**
  A smart card with an embedded antenna, by means of which data and applications are passed to and from a card reader unit or other device without contact between the card and the card reader.
Smart Cards
Smart Cards

- **smart card reader**
  Activates and reads the contents of the chip on a smart card, usually passing the information on to a host system

- **smart card operating system**
  Special system that handles file management, security, input/output (I/O), and command execution and provides an application programming interface (API) for a smart card
Smart Cards

Applications of Smart Cards
- Retail Purchases
- Transit Fares
- E-Identification
- Health Care

Securing Smart Cards
- Smart cards are more secure than conventional payment cards
stored-value card

A card that has monetary value loaded onto it and that is usually rechargeable

Anyone can obtain a stored-value card without regard to prior financial standing or having an existing bank account as collateral

The stored-value card market is growing rapidly
E-Micropayments

e-micropayments
Small online payments, typically under $10
E-Micropayments

Five basic micropayment models that do not depend solely or directly on credit or debit cards:

- Aggregation
- Direct payment
- Stored value
- Subscriptions
- Ála Carte
E-Checking

- **e-check**
  A legally valid electronic version or representation of a paper check
E-Checking

EXHIBIT 12.3 Processing E-Checks with Authorize.Net

1. Customer
2. Internet
3. Authorize.Net
4. Authorize.Net’s Bank (ODF)
5. ACH Network
6. Merchant
7. Merchant’s Bank Account
8. Customer’s Bank (RDF)
Automated Clearing House (ACH) Network

A nationwide batch-oriented electronic funds transfer system that provides for the interbank clearing of electronic payments for participating financial institutions.
E-Checking

Benefits of E-Checks

- Reduces the merchant’s administrative costs
- Improves the efficiency of the deposit process for merchants and financial institutions
- Speedier during the checkout process for consumers
- Provides consumers with more information about their purchases on their account statements
- Reduces the float period and the number of checks that bounce because of insufficient funds (NSFs)
Electronic Bill Presentment and Payment

- electronic bill presentment and payment (EBPP)
  Presenting and enabling payment of a bill online. Usually refers to a B2C transaction
Electronic Bill Presentment and Payment

EXHIBIT 12.4  E-Bill Presentment

To make payments, select a bank account, select each payee and payment you want to pay, and enter an amount and payment date. Click Pay All Marked to make your payments. The earliest date on which you can schedule a payment is displayed.
Electronic Bill Presentment and Payment

Types of E-Billing
- Online banking
- Biller direct
- Bill consolidator
Electronic Bill Presentment and Payment

EXHIBIT 12.5  E-Billing Process for Single Biller

- **Step 1**: Customer accesses Biller site
- **Step 2**: Customer views bill
- **Step 3**: Customer authorizes payment
- **Step 4**: Biller originates debit to Customer Account
- **Step 5**: Payment settlement: debit to customer, credit to Biller's Payment Provider
Electronic Bill Presentment and Payment

EXHIBIT 12.6  E-Billing Processes for Bill Consolidator

- Step 1: Enrollment
- Step 2: Activation
- Step 3a: Biller
- Step 3b: Biller
- Step 3c: Bill Presentment
- Step 4: Payment
- Step 5a: Payment Instructions
- Step 5b: Payment Settlement
- Step 6: Recording by Remittance Date
Advantages of E-Billing

- The reduction in expenses related to billing and processing payments
- Advertising: electronic inserts can be customized to the individual customer
Electronic Bill Presentment and Payment

- Reduces the customer’s expenses by eliminating the cost of checks, postage, and envelopes
- Simplifies and centralizes payment processing and facilitates better record keeping
- Customers can review and pay bills at virtually any time
B2B Electronic Payments

- Current B2B Payment Practices
  - B2B payments are part of a much larger financial supply chain that includes:
    - Procurement
    - Contract administration
    - Fulfillment
    - Financing
    - Insurance
    - Credit ratings
    - Shipment validation
    - Order matching
    - Payment authorization
    - Remittance matching
    - General ledger accounting
More organizations have indicated a willingness to migrate from checks to electronic payments in the future because of:

- Current payment practices
- Electronic payments
- Role of EDI
- Integration of electronic payment and accounting systems
- Barriers to electronic payment
- Prospects for electronic payments
B2B Electronic Payments

- enterprise invoice presentment and payment (EIPP)

Presenting and paying B2B invoices online
B2B Electronic Payments

- EIPP Models
  - Seller direct
  - Buyer direct
  - Consolidator
B2B Electronic Payments

- EIPP Options
  - ACH network
  - Purchasing cards (p-cards)
  - Fedwire or wire transfer
  - Letters of credit for global payments
B2B Electronic Payments

- purchasing cards (p-cards)
  Special-purpose payment cards issued to a company’s employees to be used solely for purchasing nonstrategic materials and services up to a preset dollar limit

- letter of credit (LC)
  A written agreement by a bank to pay the seller, on account of the buyer, a sum of money upon presentation of certain documents
The Sales Tax Issue

A 1992 ruling by the U.S. Supreme Court held that a state cannot force out-of-state businesses to collect sales taxes unless the business has a physical presence—a store, factory, or distribution center—in the state.

Researchers at the University of Tennessee estimate that in the United States, state and local governments have lost $15.5 billion in sales taxes because of online sales.
The Sales Tax Issue

Because of the complexities, many online businesses (B2C and B2B) rely on specialized third-party software and services to calculate the taxes associated with a sale.
The Sales Tax Issue

- Representative companies that offer software and services to handle the detailed computations and keep abreast of tax law changes include:
  - Salestax.com
  - Sales Tax Clearinghouse
  - Cybersource
Managerial Issues

1. What B2C payment methods should we use?
2. What B2B payment methods should we use?
3. Should we use an in-house payment mechanism or outsource it?
4. How secure are e-payments?