

E-Commerce Payment Systems

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1

Overview

- ◆ Electronic Payment Systems Requirements
- ◆ Types of E-Payment Systems
- ◆ Non-Internet Methods
- ◆ Protocols
- ◆ Related Issues
- ◆ Selecting an E-payment Method
- ◆ Conclusion

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2

Electronic Payment Systems Requirements

- ◆ Technological
- ◆ Economic
- ◆ Social
- ◆ Regulatory

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Technological Requirements

- ◆ Authenticity
- ◆ Privacy/Security
- ◆ Integrity
- ◆ Non-Repudiation
- ◆ Interoperability
- ◆ Maintainability
- ◆ Portability
- ◆ Scalability

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Economic Requirements

- ◆ Cost-Effective
- ◆ User Reach
- ◆ Value Mobility
- ◆ Financial Risks

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Social Requirements

- ◆ Anonymity
- ◆ User Friendliness
- ◆ Mobility
- ◆ Atomic Exchange

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Regulatory Requirements

- ◆ E-commerce Contracts
- ◆ Technical Standards
- ◆ Custom & Taxation
- ◆ International Agreements

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Electronic Payment Methods

- ◆ Online Credit Cards
- ◆ Electronic Cash
- ◆ Electronic Checks
- ◆ Micropayments

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8

Online Credit Cards

- ◆ Partially/Entirely Anonymous
- ◆ Low Financial Risks
- ◆ Compatibility
- ◆ Good Authenticity (VCC Card No., PIN)
- ◆ Mobility
- ◆ Integrity (Hash Function)

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Online Credit Cards

- ◆ Internationally Used
- ◆ Fair Usage Range
- ◆ None Value Mobility
- ◆ High Transaction Costs
- ◆ Limited Transfer Amount
- ◆ Online Transactions

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10

Electronic Cash

- ◆ Entirely Anonymous
- ◆ Fair Authenticity (Uses PIN)
- ◆ Low Transaction Costs
- ◆ Privacy (No Track of Bank Account No.)
- ◆ Integrity (Blind Signature)

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11

Electronic Cash

- ◆ Poor Mobility (E-Cash Purse Installation)
- ◆ Relatively High Financial Risks
- ◆ Incompatible with Financial Systems
- ◆ Online Transactions only
- ◆ Unable to Meet International Standards

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Electronic Checks

- ◆ Authenticity (Digital Signature)
- ◆ Compatibility (Offline/Online Financial Organizations)
- ◆ Fair Privacy
- ◆ No Limit on Transfer Amount

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13

Electronic Checks

- ◆ Relatively High Fixed Costs
- ◆ Limited to Virtual World (Share a Checking Account)
- ◆ No Anonymity
- ◆ Poor Mobility
- ◆ Risky for Consumers
- ◆ Unable to Meet International Standards

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Micropayments

- ◆ Entirely Anonymous
- ◆ Real/Virtual Use
- ◆ Low Transaction Costs
- ◆ Internationally Used
- ◆ Privacy (Consumers' Serial No.)

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Micropayments

- ◆ Offline/Online Use
- ◆ Low Financial Risks (Stolen, Lost, Misused)
- ◆ Authenticity (Serial No.)
- ◆ Good for Small Payments

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Micropayments

- ◆ Financial Risks for Consumers
- ◆ Poor Value Mobility
- ◆ None Integrity
- ◆ Convenience (Needs Special Certificate from a Broker)

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Non-Internet E-Payment Systems

- ◆ Self-Check Out
 - Sears, K-mart
- ◆ Scanning Checks
 - Wal-Mart
- ◆ Using Regular Credit Cards
 - PepsiCo, Coca-Cola Vending Machines

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Electronic Payment Protocols

◆ **Secure Socket Layer (SSL)**

- Easy to Implement
- Compatible
- Low Cost
- Digital Certificate (seller only)
- Less Secure (Internet Security protocol)

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Electronic Payment Protocols

◆ **Secure Electronic Transaction (SET)**

- De facto Standard
- Provides Confidentiality, Integrity, Authentication
- More Secure (Suitable for E-Payments)
- Digital Certificate (Seller & Buyer)

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Electronic Payment Protocols

- ◆ Secure Electronic Transaction (SET)
 - Complex Implementation (POS client software)
 - Interoperability Problems
 - High Cost
 - Performance Issues

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Electronic Payment-Related Issues

- ◆ Taxation
- ◆ Confidentiality
- ◆ Integrity of E-Money Issuers
- ◆ Privacy
- ◆ Government Control Over Money Supply

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Selecting an E-Payment Method

◆ Demographical Considerations

- Age
- Computer Literacy
- Macro Vs. Micro Payments
- Convenience

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Selecting an E-Payment Method

◆ Technological Considerations

- Required Level of Security
- Set Up Costs

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Conclusion

- ◆ Implications of the Existing E-Payment Systems
- ◆ Technical/Institutional Constraints
- ◆ Incompatible Regulatory System
- ◆ E-payment-Related Issues (Taxation, Confidentiality, Privacy)