Understanding Modern Electronic Payment Systems

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What is an Electronic Payment System?

- • Any system enabling financial transactions electronically
- • Examples: ATM, Debit/Credit cards, Mobile Apps, Online Banking
- • Replaces cash and physical payments

Card-Based Payment Systems

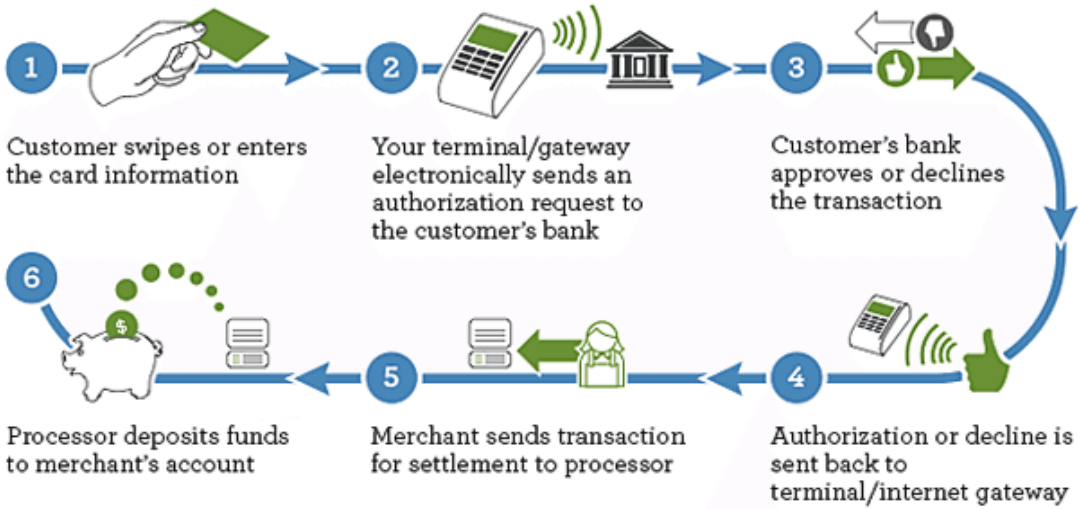
- • Credit Card – Borrowed money, paid later
- • Debit Card – Directly linked to your bank account
- • Prepaid Card – Loaded with a fixed amount

- Examples: Visa, MasterCard, Amex

How Card Transactions Work

- 1. User swipes or enters card details
- 2. Payment gateway verifies bank authorization
- 3. Bank confirms transaction
- 4. Merchant receives payment confirmation

How Card Transactions Work



Advantages & Challenges of Card Systems

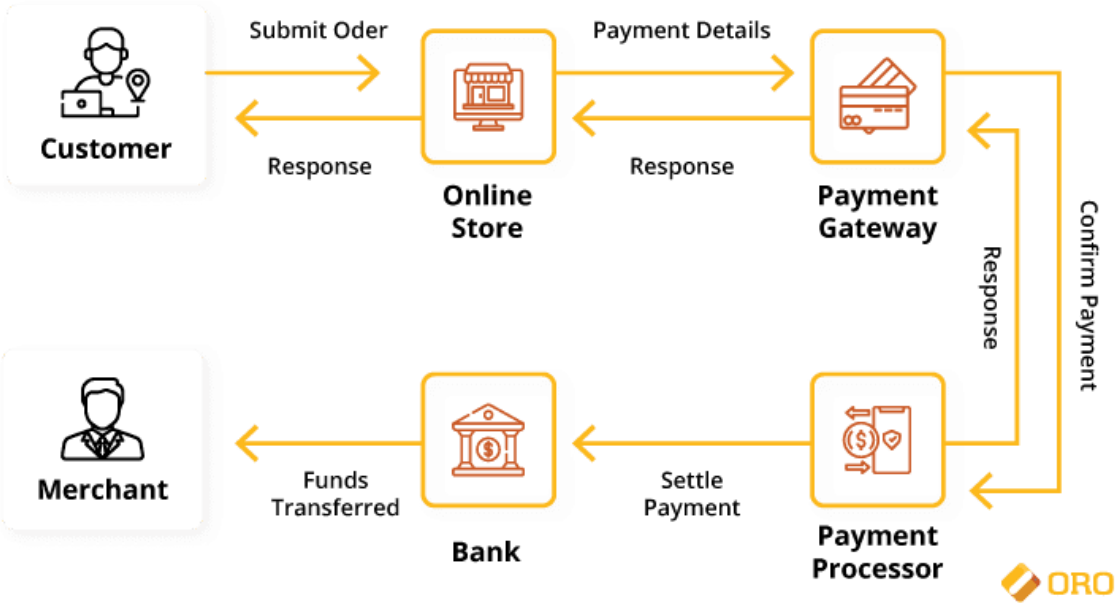
- Advantages:
- • Convenient and globally accepted
- • Keeps transaction records

- Challenges:
- • Risk of fraud
- • Hidden charges
- • Dependence on network

What is a Payment Gateway?

- A payment gateway acts as a secure bridge between a customer, the merchant's website, and the bank to process online payments.
- It verifies card details, checks account balance, and confirms whether a transaction is approved or declined.
- It encrypts sensitive information like card numbers and CVV codes to protect users from fraud.
- Examples: Visa, MasterCard, Amex, SSLCommerz

Payment Gateway



Bangladesh Context – Payment Gateways

- Common gateways: SSLCommerz, PortWallet, ShurjoPay
- Used by Daraz, Evaly, Chaldal, and others
- Supports local currency and mobile wallets

Mobile Financial Services (MFS)

- Allows financial transactions via mobile phones
- Transactions are protected using PIN codes, One-Time Passwords (OTP), and SMS confirmations to prevent fraud.
- Directly from their mobile phones without needing a traditional bank account.
- No need for a bank account
- Examples: bKash, Nagad, Rocket

How bKash Works

- 1. User registers with NID
- 2. Cash-in via agent or bank
- 3. Send/receive money or pay bills
- 4. Cash-out from agent or ATM

Benefits and Challenges of MFS

- Benefits:
- • Financial inclusion for rural users
- • Instant, easy, and available 24/7

- Challenges:
- • Fraud/scam risks
- • Low awareness on financial security

Digital Wallets – Global Perspective

- • Store card or bank information securely
- • Used for online and NFC (tap-to-pay) payments
- • Examples: PayPal, Google Pay, Apple Pay

Digital Wallet Example – PayPal

- • User pays via PayPal → Merchant gets payment confirmation
- • Secure encryption protects card details
- • Easy refunds and buyer protection

Cryptocurrency – Basic Idea

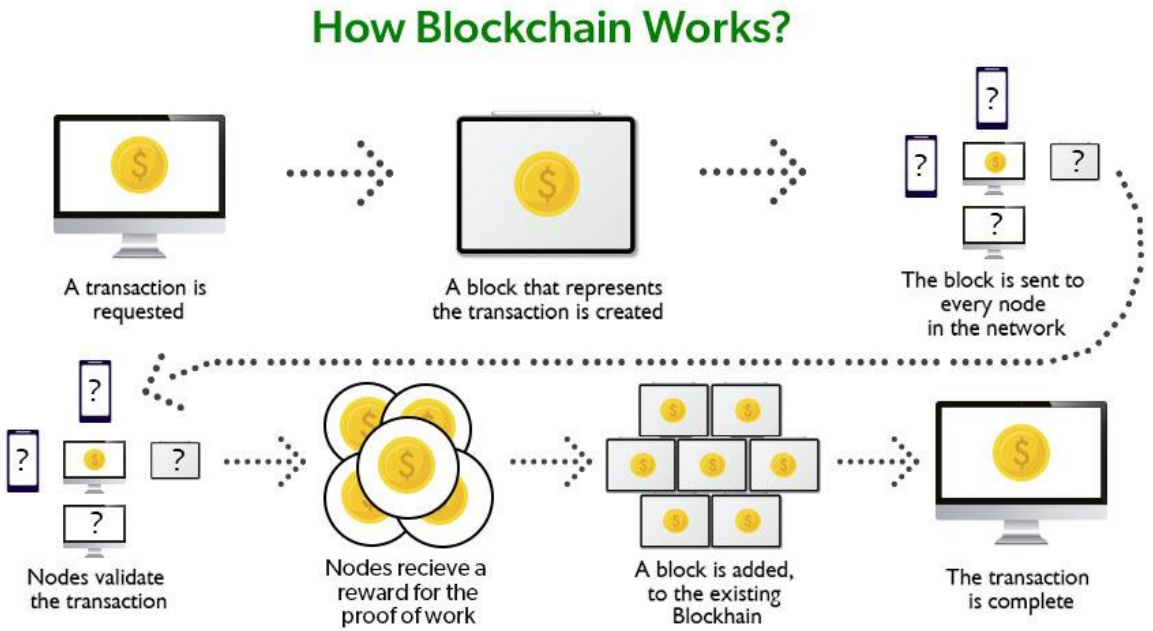
- Cryptocurrency is a form of digital or virtual currency that exists only online and has no physical form like coins or notes.
- It uses encryption techniques to secure transactions and control the creation of new units, making it difficult to counterfeit.
- No central authority (decentralized)
- Examples: Bitcoin, Ethereum

How Blockchain Works

- Transactions stored in blocks
- Blocks linked together – ‘Blockchain’
- Immutable and transparent record keeping

- Analogy: A digital ledger that everyone can see but can’t secretly edit.

How Blockchain Works



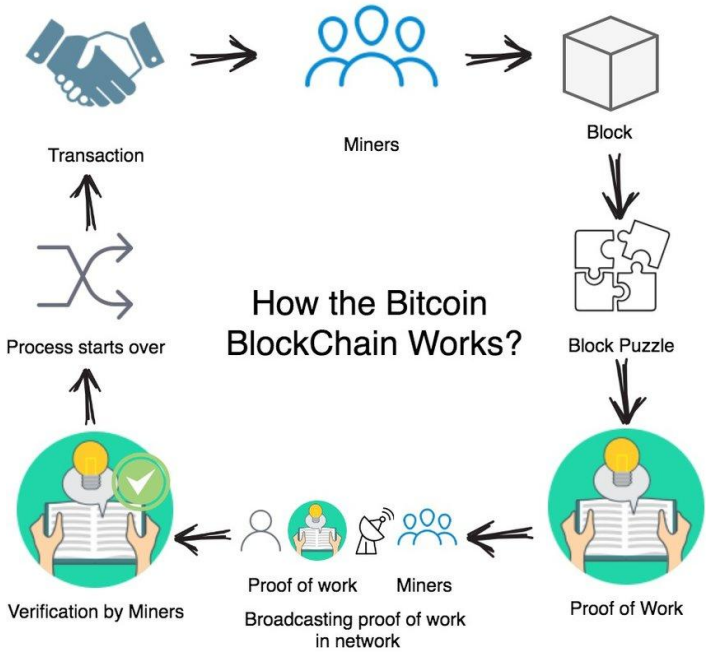
Bitcoin Transaction Flow

- 1. Sender creates transaction
- 2. Verified by network (miners)
- 3. Added to blockchain
- 4. Receiver gets confirmation

How bitcoin works?

- **Digital Wallet Creation:**
  Each user has a Bitcoin wallet, which stores digital keys
- **Transaction Initiation:**
  When someone sends Bitcoin, they use their private key to sign the transaction digitally
- **Verification by the Network:**
  The transaction is broadcast to a global network of computers (called nodes) verifies the sender
- **Block Creation and Mining:**
  Verified transactions are grouped into a “block.” Specialized computers (called miners)
- **Transaction Confirmation:**
  Once added to the blockchain, the transaction is considered confirmed

How bitcoin works?



Risks and Legal Status

- • High volatility and price fluctuation
- • Not legal in Bangladesh (as per BFIU)
- • Potential for innovation in global remittance

Secure Online Transactions

- • Two-Factor Authentication (2FA)
- • Encryption and Digital Certificates (SSL)
- • PCI DSS Standards for card security

Best Practices for Safe Payments

- • Never share OTP or PIN
- • Use verified apps only
- • Check for https:// in URLs
- • Update software and use strong passwords

Digital Transformation in Bangladesh

- • Growth of MFS: bKash, Nagad
- • E-Government initiatives and cashless systems
- • Scope for secure digital economy development

Future of Digital Payments

- • Central Bank Digital Currency (CBDC)
- • AI-driven fraud detection
- • Unified QR and interoperable payment platforms

Summary and Takeaways

- Digital payments enable inclusion and transparency
- Security and awareness are crucial
- Government can lead by example in adopting secure e-payments
- Digital transaction for corruption free society

Thank You

Questions & Open Discussion