ELECTRONIC FUND TRANSFER(EFT)

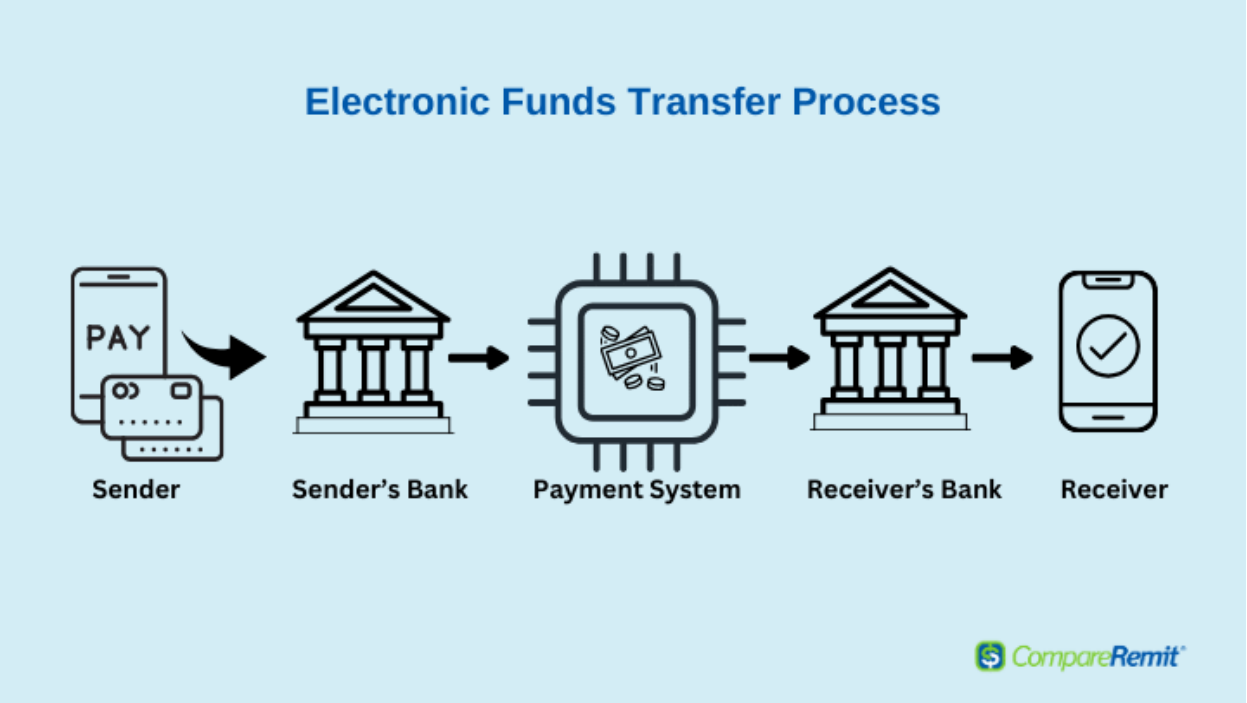
Electronic funds transfer (EFT) is the electronic movement of money from one financial account to another. This can be done between accounts within the same institution or across different institutions. EFTs can be initiated using a computer, telephone, magnetic tape, or electronic terminal.
EFTs are a secure and efficient alternative to traditional check or cash transactions. They can be used for a variety of purposes, including:

- Direct deposits: Pre-authorizing deposits for payroll checks, government benefits, and recurring bills
- ATM transfers: Accessing funds using an ATM
- Point-of-sale (POS) transfers: Making purchases at a store or business
- Debit card transactions: Making purchases online or at a store or business
- Electronic check conversion: Scanning a paper check to convert it into an electronic payment

To conduct an EFT, you'll typically need the following information:

- Recipient and sender bank account numbers
- Routing number
- Credit or debit card details
- Phone number
- Date to be sent
- Security code to authorize transfer

You can initiate an EFT by logging into your bank's website or app, clicking on the transfer feature, and entering the necessary information.



What are Types of Electronic Funds Transfer (EFT)?

Types of EFT (electronic funds transfer) include:

- ACH payment or ACH direct deposits
- Global ACH (like SEPA payments in the EU)
- Wire transfers
- E Commerce transactions
- Point of sale (POS) transactions
- Credit card or debit card transactions
- Peer-to-peer payments
- Phone-initiated funds transfers, and
- ATM (automated teller machine) transactions.

ACH as Electronic Funds Transfer (EFT)

ACH is one type of electronic funds transfer. ACH credits and ACH debits for online bank transfers include direct deposits and eChecks (electronic checks) for one-time payments or automated recurring bill payments for bill pay. ACH transactions are sent through the Automated Clearing House network (ACH network) as bank transfers between member financial institutions like banks and credit unions.

A United States-based ACH transaction uses bank account information, including the bank routing number (ABA number) and bank account number for the payer and payee and their originating bank and receiving bank. ACH transactions can be made using Same Day ACH or Next Day ACH, where day means business day.

Global ACH as Electronic Funds Transfer (EFT)

International ACH electronic payments may be loosely called global ACH payments if they use a similar network to the ACH network to make electronic payments. In the European Union (EU), electronic SEPA (Single Area Euro Payments) using debit and credit transfers are a type of global ACH payment that are EFT payments. SEPA is useful for cross-border payments.

Wire Transfer as Electronic Funds Transfer (EFT)

Wire transfers are domestic or international electronic funds transfers to a recipient's bank account made through the Fedwire Funds Service (Federal Reserve Banks) or Clearing House Interbank Payments System (CHIPS) in the U.S. or the SWIFT network or IBAN internationally and for cross-border payment transactions for the transfer of money.

eCommerce and Point of Sale Retail Transactions as EFT

Online eCommerce and electronic point of sale (POS) transactions made from physical stores are types of electronic fund transfer (EFT)when the customer pays the merchant via online bank account transactions, debit cards, or credit cards using a payment processor. Cash transactions on-premises paid using paper and coin currency like dollar bills and quarters are not considered EFT.

Credit Card or Debit Card Transactions Always EFT

Credit card and debit card transactions are always an EFT (electronic funds transfer) transaction between the payer and the payee. The purchase price, including any sales tax, is electronically charged to the customer on a credit card or to their bank account using a debit card. The funds are electronically transferred in batches to a merchant's bank account.

Peer to Peer Payments as Electronic Funds Transfer (EFT)

Peer-to-peer payments are electronic funds transfers (EFTs) made through mobile apps or the Internet to transfer money electronically between them. Examples of peer-to-peer payment systems include PayPal, Venmo, Zelle, Apple Cash, and eWallet apps where both parties (the payer and payee receiver) have accounts. EFTs are electronic money (E-money) transactions.

Phone-initiated Fund Transfer as EFT (Electronic Funds Transfer)

Many companies and government entities include an optional payment method by phone using a bank transfer (ACH), credit card, or debit card payment. These payments, which are processed electronically by a service provider based on phone instructions, are considered electronic funds transfers (EFTs).

Bank ATM (Automated Teller Machine) as Electronics Fund Transfer (EFT)

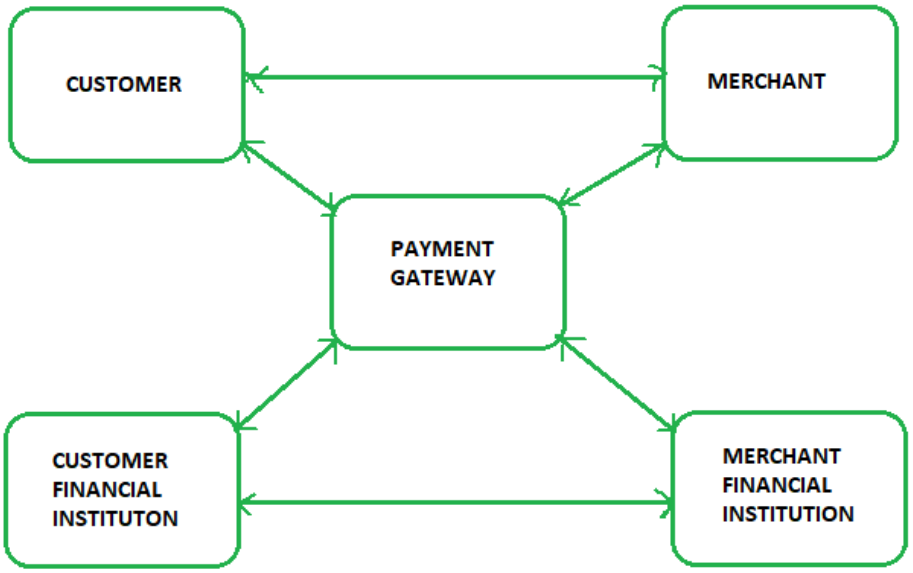
Bank ATM transactions, to electronically transfer money between bank accounts, deposit funds, or make withdrawals of money from a bank account as cash, are one kind of electronic funds transfer (EFT) that uses online banking. ATM transactions are initiated using a bank-issued debit card and password.

Secure Electronic Transaction (SET) Protocol

Secure Electronic Transaction or SET is a security protocol designed to ensure the security and integrity of electronic transactions conducted using credit cards. Unlike a payment system, SET operates as a security protocol applied to those payments. It uses different encryption and hashing techniques to secure payments over the internet done through credit cards. The SET protocol was supported in development by major organizations like Visa, Mastercard, and Microsoft which provided its Secure Transaction Technology (STT), and Netscape which provided the technology of Secure Socket Layer (SSL).

SET protocol restricts the revealing of credit card details to merchants thus keeping hackers and thieves at bay. The SET protocol includes Certification Authorities for making use of standard Digital Certificates like X.509 Certificate.

Before discussing SET further, let's see a general scenario of electronic transactions, which includes client, payment gateway, client financial institution, merchant, and merchant financial institution.



Requirements in SET: The SET protocol has some requirements to meet, some of the important requirements are:

- It has to provide mutual authentication i.e., customer (or cardholder) authentication by confirming if the customer is an intended user or not, and merchant authentication.
- It has to keep the PI (Payment Information) and OI (Order Information) confidential by appropriate encryptions.
- It has to be resistive against message modifications i.e., no changes should be allowed in the content being transmitted.
- SET also needs to provide interoperability and make use of the best security mechanisms.

Participants in SET: In the general scenario of online transactions, SET includes similar participants:

1. **Cardholder –** customer
2. **Issuer –** customer financial institution
3. **Merchant**
4. **Acquirer –** Merchant financial

5. **Certificate authority –** Authority that follows certain standards and issues certificates(like X.509V3) to all other participants.

SET functionalities:

- **Provide Authentication**
    - **Merchant Authentication** – To prevent theft, SET allows customers to check previous relationships between merchants and financial institutions. Standard X.509V3 certificates are used for this verification.
    - **Customer / Cardholder Authentication** – SET checks if the use of a credit card is done by an authorized user or not using X.509V3 certificates.
- **Provide Message Confidentiality**: Confidentiality refers to preventing unintended people from reading the message being transferred. SET implements confidentiality by using encryption techniques. Traditionally DES is used for encryption purposes.
- **Provide Message Integrity**: SET doesn't allow message modification with the help of signatures. Messages are protected against unauthorized modification using RSA digital signatures with SHA-1 and some using HMAC with SHA-1,

Dual Signature: The dual signature is a concept introduced with SET, which aims at connecting two information pieces meant for two different receivers :

- **Order Information (OI) for merchant**
- **Payment Information (PI) for bank**

Digital Economy

Digital economy is one collective term for all economic transactions that occur on the internet. It is also known as the Web Economy or the Internet Economy. With the advent of technology and the process of globalization, the digital and traditional economies are merging into one. Let us learn more about this concept of digital economy.

What is Digital Economy?

Digital economy is defined as an economy that focuses on digital technologies, i.e. it is based on digital and computing technologies. It essentially covers all business, economic, social, cultural etc. activities that are supported by the web and other digital communication technologies.

The term was first coined in a book "The Digital Economy: Promise and Peril in the Age of Networked Intelligence" by author Don Tapscott in 1995.

There are three main components of this economy, namely,

- e-business
- e-business infrastructure
- e-commerce

In the last 15 years, we have seen the tremendous growth of digital platforms and their influence on our lives. Now consumers are influenced by things they see on social media (Facebook, Twitter, Instagram) and other such popular websites (youtube etc).

So this economy is a way to exploit this opportunity. Now it is integrated into every aspect of the user's life – healthcare, education, banking, entertainment etc.

Merits of Digital Economy

Digital economy has given rise to many new trends and start-up ideas. Almost all of the biggest companies in the world (Google, Apple, Microsoft, Amazon) are from the digital world. Let us look at some important merits of the digital economy.

1. Promotes Use of the Internet

If you think about it, most of your daily work can today be done on the internet. The massive growth of technology and the internet that began in the USA is now a worldwide network. So there is a dramatic rise in the investment on all things related – hardware, technological research, software, services, digital communication etc. And so this economy has ensured that the internet is here to stay and so are web-based businesses.

2. Rise in E-Commerce

The businesses that adapted and adopted the internet and embraced online business in the last decade have flourished. The digital economy has pushed the e-commerce sector into overdrive. Not just direct selling but buying, distribution, marketing, creating, selling have all become easier due to the digital economy.

3. Digital Goods and Services

Gone are the days of Movie DVD and Music CD's or records. Now, these goods are available to us digitally. There is no need for any tangible products anymore. Same is true for services like banking, insurance etc. There is no need to visit your bank if you can do every transaction online. So certain goods and services have been completely digitized in this digital economy.

4. Transparency

Most transactions and their payment in the digital economy happen online. Cash transactions are becoming rare. This helps reduce the black money and corruption in the market and make the

economy more transparent. In fact, during the demonetization, the government made a push for online transactions to promote the web economy.

Demerits of Digital Economy

1] Loss in Employment

The more we depend on technology, the less we depend on human resources. The advancement of the digital economy may lead to the loss of many jobs. As the processes get more automated, the requirement for human resources reduces. Take the example of online banking itself.

2] Lack of Experts

Digital economy requires complex processes and technologies. To build the platforms and their upkeep require experts and trained professionals. These are not readily available, especially in rural and semi-rural areas.

3] Heavy Investment

Digital economy requires a strong infrastructure, high functioning Internet, strong mobile networks and telecommunication. All of this is a time consuming and investment heavy process. In a developing country like ours, development of the infrastructure and network is a very slow, tedious and costly process.

- In the digital economy, the methods of payment on the internet have evolved to cater to the needs of online transactions, offering convenience, speed, and security. The primary methods include electronic cash, electronic checks (e-cheques), and credit cards. Each of these payment methods has its own set of features that make it suitable for different types of transactions:

- Electronic Cash (e-Cash)

Electronic cash is a form of digital currency that is designed to mimic the characteristics of physical cash. It enables users to conduct transactions anonymously and instantaneously over the internet. E-cash is stored in digital wallets and can be used for peer-to-peer payments or purchasing goods and services online.

Features:

Anonymity, immediate transfer, and the ability to use it for small transactions (micropayments). It's like having physical cash but in a digital form.

• Use Cases:

Online retail purchases, peer-to-peer payments, and micropayments for digital content.

- Electronic Checks (e-Checks)

An electronic check is a digital version of a traditional paper check. It uses the Automated Clearing House (ACH) network to transfer funds from the payer's checking account to the payee's account over the internet. It's a popular method for transferring large sums of money securely.

Features:

Offers a secure and direct way of transferring money from one bank account to another. It includes authentication, certification, and encryption processes to ensure the security of the transactions.

• Use Cases:

Bill payments, business-to-business transactions, and any scenario where traditional checks might be used but with the convenience and speed of electronic processing.

- Credit Cards

Credit cards remain one of the most popular and widely accepted methods of payment on the internet. They allow consumers to borrow funds from the card issuer up to a certain limit in order to purchase goods or services. Credit card transactions on the internet are secured through encryption and other security measures.

• Features:

Widely accepted, offers fraud protection and the ability to dispute charges, and provides a convenient way to make purchases without immediate deduction of funds from a user's bank account.

• Use Cases:
Almost any online purchase, from e-commerce stores to subscription services, including booking flights, hotels, and rental services.

Security and Convenience:

secure transaction protocols to protect against theft and fraud. Credit card transactions on the internet are secured through various encryption technologies and verification methods, such as CVV codes and 3D Secure authentication.