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E-Commerce or Electronics Commerce sites use electronic payment where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing paper work, transaction costs, labour cost. Being user friendly and less time consuming than manual processing, helps business organization to expand its market reach / expansion. Some of the modes of electronic payments are following.

- Credit Card
- Debit Card
- Smart Card
- E-Money
- Electronic Fund Transfer (EFT)

## Credit Card

Payment using credit card is one of most common mode of electronic payment. Credit card is small plastic card with a unique number attached with an account. It has also a magnetic strip embedded in it which is used to read credit card via card readers. When a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill. It is usually credit card monthly payment cycle. Following are the actors in the credit card system.

- The card holder - Customer
- The merchant - seller of product who can accept credit card payments.
- The card issuer bank - card holder's bank
- The acquirer bank - the merchant's bank
- The card brand - for example , visa or mastercard.

## Credit card payment process

Step	Description
Step 1	Bank issues and activates a credit card to customer on his/her request.
Step 2	Customer presents credit card information to merchant site or to merchant from whom he/she want to purchase a product/service.
Step 3	Merchant validates customer's identity by asking for approval from card brand company.
Step 4	Card brand company authenticates the credit card and paid the transaction by credit. Merchant keeps the sales slip.
Step 5	Merchant submits the sales slip to acquirer banks and gets the service chargers paid to him/her.
Step 6	Acquirer bank requests the card brand company to clear the credit amount and gets the payment.
Step 6	Now card brand company asks to clear amount from the issuer bank and amount gets transferred to card brand company.

## Debit Card

Debit card, like credit card is a small plastic card with a unique number mapped with the bank account number. It is required to have a bank account before getting a debit card from the bank. The major difference between debit card and credit card is that in case of payment through debit card, amount gets deducted from card's bank account immediately and there should be sufficient balance in bank account for the transaction to get completed. Whereas in case of credit card there is no such compulsion.

Debit cards free customer to carry cash, cheques and even merchants accepts debit card more readily. Having restriction on amount being in bank account also helps customer to keep a check on his/her spendings.

## Smart Card

Smart card is again similar to credit card and debit card in appearance but it has a small microprocessor chip embedded in it. It has the capacity to store customer work related/personal information. Smart card is also used to store money which is reduced as per usage.

Smart card can be accessed only using a PIN of customer. Smart cards are secure as they store information in encrypted format and are less expensive/provide faster processing. Mondex and Visa Cash cards are examples of smart cards.

## E-Money

E-Money transactions refer to a situation where payment is done over the network and amount gets transferred from one financial body to another financial body without any involvement of a middleman. E-money transactions are faster, convenient and save a lot of time.

Online payments done via credit card, debit card or smart card are examples of e-money transactions. Another popular example is e-cash. In case of e-cash, both customer and merchant both have to sign up with the bank or company issuing e-cash.

## Electronic Fund Transfer

It is a very popular electronic payment method to transfer money from one bank account to another bank account. Accounts can be in same bank or different bank. Fund transfer can be done using ATM (Automated Teller Machine) or using computer.

Now a day, internet based EFT is getting popularity. In this case, customer uses website provided by the bank. Customer logs in to the bank's website

and registers another bank account. He/she then places a request to transfer certain amount to that account. Customer's bank transfers amount to other account if it is in same bank otherwise transfer request is forwarded to ACH (Automated Clearing House) to transfer amount to other account and amount is deducted from customer's account. Once amount is transferred to other account, customer is notified of the fund transfer by the bank.

**E-checks:**

contain the same information as paper checks contain are based on the same rich legal framework as paper checks can be linked with unlimited information and exchanged directly between parties can be used in any and all remote transactions where paper checks are used today enhance the functions and features provided by bank checking accounts expand on the usefulness of paper checks by providing value-added information

**Benefits of Electronic Checks**

Electronic checks have the following advantages:

Electronic checks work in the same way as traditional checks, thus simplifying customer education. By retaining the basic characteristics and flexibility of paper checks while enhancing the functionality, electronic checks can be easily understood and readily adopted.

Electronic checks are well suited for clearing micro payments; the conventional cryptography of electronic checks makes them easier to process than systems based on public-key cryptography (like digital cash). The payee and the payee's and payer's banks can authenticate checks through the use of public key certificates. Digital signatures can also be validated automatically. Electronic checks can serve corporate markets. Firms can use electronic checks to complete payments over the networks in a more cost-effective manner than present alternatives. Further, since the contents of a check can be attached to the trading partner's remittance information, the electronic check will easily integrate with EDI applications, such as accounts receivable. Electronic checks create float, and the availability of float is an important requirement for commerce. The third-party accounting server can earn revenue by charging the buyer or seller a transaction fee or a flat rate fee, or it can act as a bank and provide deposit accounts and make money from the deposit account pool. Electronic check technology links public networks to the financial payments and bank clearing networks, leveraging the access of public networks with the existing financial payments infrastructure.

**How do Electronic Check works?**

Electronic checks are another form of electronic tokens. They are designed to accommodate the many individuals and entities that might prefer to pay on credit or through some mechanism other than cash. Buyers must register with a third-party account server before they are able to write electronic

checks. The account server also acts as a billing service. The registration procedure can vary depending on the particular account server and may require a credit card or a bank account to back the checks. Once registered, a buyer can then contact sellers of goods and services. To complete a transaction, the buyer sends a check to the seller for a certain amount of money. These checks may be sent using e-mail or other transport methods. When deposited, the check authorizes the transfer of account balances from the account against which the check was drawn to the account to which the check was deposited.

The e-check method was deliberately created to work in much the same way as a conventional paper check. An account holder will issue an electronic document that contains the name of the payer, the name of the financial institution, the payer's account number, the name of the payee and amount of the check. Most of the information is in uncoded form. Like a paper check, an e-check will bear the digital equivalent of a signature: a computed number that authenticates the check as coming from the owner of the account.

And, again like a paper check, an e-check will need to be endorsed by the payee, using another electronic signature, before the check can be paid. Properly signed and endorsed checks can be electronically exchanged between financial institutions through electronic clearinghouses, with the institutions using these endorsed checks as tender to settle accounts. The specifics of the technology work in the following manner: On receiving the check, the seller presents it to the accounting server for verification and payment. The accounting server verifies the digital signature on the check using any authentication scheme. A user's digital "signature" is used to create one ticket—a check which the seller's digital "endorsement" transforms into another—an order to a bank computer for fund transfer. Subsequent endorsers add successive layers of information onto the tickets, precisely as a large number of banks may wind up stamping the back of a check along its journey through the system.

**Comparison with other payment instruments**

**E-Check and Paper Checks**

The electronic check (e-Check) is an all-electronic enhancement to the paper check and is based on current check law. This white paper briefly compares paper and echecks, based on five categories: usage, cost, and allowance for errors, risk management, and information richness.

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### **E-checks and Debit cards**

Debit cards are used by individuals and to a far lesser extent by businesses, to make payments at the retail point-of-sale, or to obtain cash from ATMs. This white paper will briefly compare the differences between debit cards and e-checks.

### **E-check and Automated Clearing House (ACH)**

Since electronic checks are debit transactions, this white paper provides a high level comparison of some of the main differences between the ACH debit system and echecks. These differences are reviewed in five main categories: terminology, business practices, underlying technology, transaction authorization, and risk management.

### **E-check and Secure Electronic Transaction (SET)**

The SET protocol specifications were defined by the credit card industry to facilitate credit card purchases over the Internet. This white paper briefly compares the differences between SET and e-checks.

### **E-check and Home Banking**

Home banking bill payments are convenient for consumers, and although they have some of the characteristics of electronic payments, there are significant differences between echecks and home banking bill payments. This white paper will briefly explore the differences between the two payment approaches.