

Electronic Banking (E-Banking)

E-banking is defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels. E-banking includes the systems that enable financial institution customers, individuals or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the Internet or mobile phone. Customers access e-banking services using an intelligent electronic device, such as a personal computer (PC), personal digital assistant (PDA), automated teller machine (ATM), or telephone.

Electronic banking, also known as Electronic Fund Transfer (EFT), uses computer and electronic technology as a substitute for checks and other paper transactions. EFT's are initiated through devices like cards or codes that let you, or those you authorize, access your account. Many financial institutions use ATM or debit cards and Personal Identification Numbers (PIN's) for this purpose. Some use other forms of debit cards such as those that require, at the most, your signature or a scan.

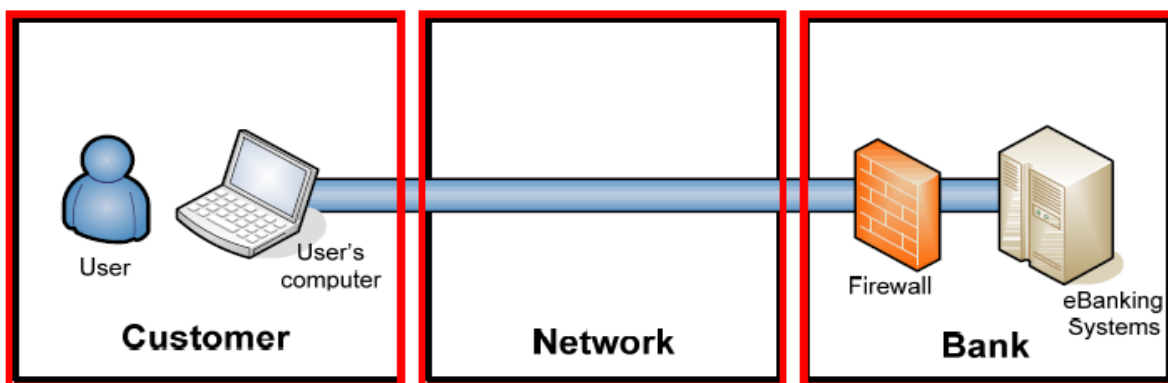


Figure 40 E-banking system elements

Types of E-banking

The terms 'PC banking', 'online banking', 'Internet banking', 'Telephone banking' or 'mobile banking' refer to a number of ways in which customers can access their banks without having to be physically present at the bank branch. E-banking may be understood as term that covers all these ways of banking business electronically.

Tele-banking

Tele-banking service is provided by phone. To access an account it is required to dial a particular telephone number and there are several options of services. These options include

- Checking account balance.
- Funds transfer between current, savings and credit card accounts.
- Bill payments.
- Stock exchange transaction.
- Receive statement via fax.
- Loan payment information

PC Banking

The increasing awareness of the importance of literacy of computer has resulted in increasing use of personal computers through the entire world. Furthermore, incredible plummet of cost of microprocessor has accelerated the use of computer. The term 'PC banking' is used for banking business transacted from a customer's PC. Using the PC banking or home banking now customers can use their personal computers at home or at their office to

access their accounts for transactions by subscribing to and dialing into the banks' Intranet proprietary software system using password.

Internet Banking

Internet banking would free both bankers and customers of the need for proprietary software to carry on with their online banking transactions.

Customer behavior is changing rapidly. Now the financial service is characterized by individuality, independence of time and place and flexibility. These facts represent huge challenges for the financial service providers. So the Internet is now considered to be a 'strategic weapon' for them to satisfy the ever-changing customers' demand and innovative business needs.

Mobile Banking

Actually mobile banking is a variation of Internet banking. Mobile banking is a good example of how the lines between the various forms of e-banking are becoming gradually blurred. Due to the new transmission technologies such as WAP (Wireless Application Protocol), portable terminal like mobile phones, personal digital assistant (PDA) or small hand-held PCs are providing bank customers with access to the Internet and thus paving the way to Internet banking. It assures immense flexibility and makes the financial services independent of time and place. However, the use of mobile banking is still in a nascent state. The slower transmission speed of the WAP standard and the limited amount of information available are just two of the factors inhibiting the use of those terminals.

Electronic Banking Services

Electronic banking offers several services that consumers may find practical:

Automated Teller Machines (ATM) or 24-hour tellers are electronic terminals that let your bank be on transaction almost any time. To withdraw cash, make deposits, or transfer funds between accounts, you generally insert an ATM card and enter your PIN. Some financial institutions and ATM owners charge a fee, particularly to consumers who don't have accounts with them or on transactions at remote locations. Generally, ATMs must tell you they charge a fee and its amount on or at the terminal screen before you complete the transaction. Check the rules of your institution and the ATMs you use to find out when or whether a fee is charged.

Direct Deposit lets you authorize specific deposits, such as paychecks and social security checks, to your account on a regular basis. You also may pre-authorize direct withdrawals so that recurring bills, such as insurance premiums, mortgages, and utility bills, are paid automatically.

Be cautious before you pre-authorize direct withdrawals to pay sellers or companies with whom you are unfamiliar; funds from your bank account could be withdrawn fraudulently.

Pay-by-Phone Systems let you call your financial institution with instructions to pay certain bills or to transfer funds between accounts. You must have an agreement with the institution to make such transfers.

Debit Card Purchase Transactions let you make purchases with a debit card, which also may be your ATM card. This could occur at a store or business, on the Internet or online, or by phone. The process is similar to using a credit card, with some important exceptions. While the process is fast and easy, a debit card purchase transfers money – fairly quickly – from your bank account to the company's account. So it is important that you have funds in your account to cover your purchase. This means you need to keep accurate records of the dates and amounts of your debit card purchases and ATM withdrawals in addition to any checks you write. Also be sure you know the store or business before you provide your debit card information, to avoid the possible loss of funds through fraud. Your liability for unauthorized use, and your rights for error resolution, may differ with a debit card.

Electronic Cheque Conversion converts a paper cheque into an electronic payment in a store or when a company receives your cheque in the mail. In a store, when you give your cheque to a cashier, the cheque is run through an electronic system that captures your banking information and the amount of the cheque. You're asked to sign a receipt and you get a copy for your records. When your cheque has been handed back to you, it

should be voided or marked by the merchant so that it can't be used again. The merchant electronically sends information from the cheque (but not the cheque itself) to your bank or other financial institution, and the funds are transferred into the merchant's account. When you mail-in a cheque for payment to a merchant or other company, they may electronically send information from your cheque (but not the cheque itself) through the system, and the funds are transferred into their account. For a mailed cheque, you should still receive advance notice from a company that expects to send your cheque information through the system electronically.

Security Considerations in E-Banking Systems

With demanding security regulations throughout the world and increasing amount of valuable services provided using the Internet and other networked media, the assurance of secure and privacy preserving identity authentication became a crucial issue.

E-banking risk arises from fraud, processing errors, system disruptions, or other unanticipated events resulting in the institution's inability to deliver products or services. This risk exists in each product and service offered. Institutions should determine the appropriate level of security controls based on their assessment of the sensitivity of the information to the customer and to the institution and on the institution's established risk tolerance level.

There are three major identity authentication approaches: knowledge-based, token-based and biometrics.

Knowledge-based methods rely on information that only a genuine user is supposed to know, such as passwords or PINs. **Token-based authentication** requires that the user presents a legitimate token which is provided by a recognized authority. Commonly used tokens are smart cards with built-in micro chips which can store a user's personal information, access rights, etc. **Biometric authentication** requires that a subject possesses a body trait (such as a fingerprint or iris pattern) or is able to reproduce a particular behavioral task (such as a signature or spoken password) that matches the previously stored template, in order to be positively verified.

Electronic Fraud in E-banking systems

The key focus in minimizing electronic fraud is to enable the actual user of the account to be correctly identified. The notion of allowing a card to prove your identity is fast becoming antiquated and unreliable. With this in mind, using biometrics to develop a more accurate identification process could greatly reduce fraud.

The main forms of biometrics which are available today are:

- Fingerprinting
- Facial recognition
- Iris recognition
- Voice recognition
- Computer recognized hand writing analysis

Although all of these biometric techniques are accurate ways of identifying people, voice recognition and handwriting analysis do not lend themselves to electronic payments use as easily. Hand writing styles change over time and, depending on the state the customer (i.e. sober), could easily affect their ability to satisfy the computer of their identity. A similar problem is experienced with voice recognition.

If the environment experiences high levels of background noise, the ability to identify the customer becomes more difficult.

Advantages and Potential Difficulties of Electronic Banking

▪ Advantages

1. For organizations who give their own time it means that they can carry out banking out of working hours in the evenings and at weekends. Customers are able to carry out transactions 24 hours a day, 7 days a week and will no longer be restricted to bank opening hours.
2. Customers can instantly see what is happening with their money rather than waiting for statements to be sent.
3. There is no time spent queuing or journey time to travel to and from the bank for clients or employees of the organization.
4. Electronic banking enables individual branches to have their own local accounts but enables the organizations to access information regarding the bank balances of each branch. This may help the

customers to exercise greater control over branch finances and may enable the funds of all the branches to be added together to secure a more favorable rate of interest.

▪ **Potential Difficulties**

1. Learning curve: Banking sites can be difficult to navigate at first. Plan to invest some time and/or read the tutorials in order to become comfortable in your virtual lobby.
2. Bank site changes: Even the largest banks periodically upgrade their online programs, adding new features in unfamiliar places. In some cases, you may have to re-enter account information.
3. The trust thing: For many people, the biggest hurdle to online banking is learning to trust it. Did my transaction go through? Did I push the transfer button once or twice? Best bet: always print the transaction receipt and keep it with your bank records until it shows up on your personal site and/or your bank statement.
4. For organization or clients that have more than a basic computer banking service there may be a charge for the services of the bank.
5. To use telephone banking there is the cost of the telephone calls to the bank, although these are usually charged at a local rate.