

# Overview of E-Banking and its Application

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## ABSTRACT

The e-services are used as an umbrella term for providing services on the Internet. E services include e-commerce transaction services for handling online orders, application hosting by Application Service Providers (ASPs) and any processing capability that is obtainable on the web. Here, we are discussing about e-banking and its application.

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## 1. Introduction

One clicks of mouse opens the world around us. Internet is one of the most successful technology and consistently increasing its importance as an effective communication channel and provides unlimited, speedy and effective facilitation because of its geographic advantage and low cost. The banking and financial industry is transforming itself in unpredictable ways, powered in an important way by advances in information technology. E-banking services are used increasingly by small and large organizations all over the world. Since the 1980s, commercial banking has continuously innovated through technology-enhanced products and services, such as multi-function ATM, tele-banking, electronic transfers, and electronic cash cards. Over the past decade, the Internet has clearly played a critical role in providing online services and giving rise to a completely new channel.

Often E-banking is defined as web-based banking. Deployment of retail or wholesale banking services over the internet is often referred as E-banking which involves individual and corporate clients, and includes bank transfers, payments and settlements, documentary collections and credits, corporate and household lending, card businesses and some others. Other researchers related E-banking to type of products and services through which bank customers request information and carryout most of their retail banking activities through computer, television or mobile phone. E-banking is described as an electronic connection between bank and customers in order to prepare, manage and control financial transactions. Since the careful analysis of the secondary data describes that internet banking globally shows a unique uptake.

E-banking means any user with a personal computer and a browser can get connected to his banks website to perform any of the virtual banking functions. In E-banking system the bank has a centralized database that is web-enabled. All the services that the bank has permitted on the internet are displayed in menu. Any service can be selected and further interaction is dictated by the nature of service. The traditional branch model of bank is now giving place to an alternative delivery channels with ATM network.

Once the branch offices of bank are interconnected through terrestrial or satellite links, there would be no physical identity for any branch. It would a borderless entity permitting anytime, anywhere and anyhow banking. The network which connects the various locations and gives connectivity to the central office within the organization is called intranet. These networks are limited to organizations for which they are set up. SWIFT is a live example of intranet application

## 2. Evolution of e-banking

Modern scenario projects that E-banking is shaping the financial services industry. Henceforth, it is imperative to understand comprehensively the evolution of E-banking. A brief history and trend analysis of the evolution of E-banking industry globally using document analysis reveals the major barriers, impediments and boosters for the rapid transition of the banking sector and uptake of E-banking. Document analysis is the systematic analysis of a particular topic, using documents such as newspapers, annual reports, employment records, published and unpublished articles, industry and consultancy reports, ongoing academic working papers, government white paper reports and white papers. In a broader perspective, electronic banking is defined as the provision of banking services via means other than traditional physical branches. Electronic banking offers its financial services to its prospective customers through various forms such as:

1. Automated Teller Machines (ATM)
2. Telephone Banking
3. Home Banking
4. Internet Banking
5. Mobile Banking

Banking organizations have been delivering e- services since long time. E-banking has actually been around us since the 1990s and year 1990 onward many Indian banks have turned up towards providing products and services to customer electronically via Internet. Although internet banks have paid attention on the improvement of their banking services quality but many of them still lagging behind in fulfilling their customers' expectation and demand. E-banking means various banking services like services introduction, loan application,

account balance inquiry, fund transfer etc. are provided by a bank through internet. E-banking has evolved into a "one-step service and information unit", that promises great benefits to both banks and consumers. Thus 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. Customers access e-banking services using an intelligent electronic device, such as a Personal Computer (PC), Personal Digital Assistant (PDA), Automated Teller Machine, kiosk, or Touch Tone telephone. It is very convenient and is not bound by operational timings. There are no geographical barriers and the services can be offered at a miniscule cost.

According to Michael Karlin, the president and chief operation officer of the world's first virtual bank, Security first network bank, the idea of internet banking is as follows:

1. Customers don't have to purchase any software, store any data on our computer, back up any information, since all transactions occur on the bank server over the infrastructure of the internet.
2. Customers will be able to conduct their banking services anywhere they like but they need to have a computer and a modem, no matter where they are i. e. at home, at office, or in a place outside the country.
3. Customers can use the banking services 24 hours a day, 7 days a week, and 365 days a year. They no longer have to reconcile a bank statement or manually track their ATM and paper checks.

**Different types of Transactions Performed by E-Banking:** Online banking facilitate to its customers to perform any type of transaction-

- i. Sign e-cheques
- ii. Payment to their clients
- iii. Money transfers from one account to another account  
Apply for bank-drafts
- iv. Account balance enquiry
- v. Simultaneous accessibility of multiple accounts
- vi. Enquiry for various new and upcoming schemes like loan transaction process, account schemes etc.

### 3. Types of E-Banking

E-banking is a high-order construct which provides several distribution channels and exists as a bigger platform than just banking through internet. However, the most general form of e-banking is internet banking. Numerous factors including competitive cost, customer service, and demographic considerations are motivating banks to evaluate their technology and assess their e-commerce and internet banking strategies. Some of the market factors that may drive a bank's strategy include competitive pressure, cost efficiencies, branding, customer demographics etc. Broadly we can categorize the types of internet banking as Informational, Communicative and Transactional. Currently, the following three basic kinds of Internet banking are being employed in the marketplace:

1. **Informational** — this is the basic level of Internet banking. Typically, the bank has marketing information about the bank's products and services on

a stand-alone server. The risk is relatively low, as informational systems typically have no path between the server and the bank's internal network. This level of Internet banking can be provided by the bank or outsourced. While the risk to a bank is relatively low, the server or web site may be vulnerable to alteration. Appropriate controls therefore must be in place to prevent unauthorized alterations to the bank's server or web site.

2. **Communicative** — this type of Internet banking system allows some interaction between the bank's systems and the customer. The interaction may be limited to e-mail, account inquiry, loan applications, or static file updates like name and address changes etc. Because these servers may have a path to the bank's internal networks, the risk is higher with this configuration than with informational systems. Appropriate controls need to be in place to prevent, monitor, and alert management of any unauthorized attempt to access the bank's internal networks and computer systems. Virus controls also become much more critical in this environment.
3. **Transactional** — This level of Internet banking allows customers to execute transactions. Since a path typically exists between the server and the bank's or outsourcer's internal network, this is the highest risk architecture and must have the strongest controls. Customer transactions can include accessing accounts, paying bills, transferring funds etc.

### 4. Different Delivery Platform for E-Banking

The different channels or variety of platform to provide e-banking are:

- i. PC Banking or Offline Banking
- ii. Internet Banking or Online Banking
- iii. Telephone banking
- iv. TV-based Banking.
- v. Mobile phone banking, and
- vi. Managed Network.

The term *e-banking* covers both *computer banking* and *telephone banking*. E-Banking is also known as PC banking, home banking or online banking. Both computer and telephone banking involve the use of passwords which give access to the individuals' accounts. In case of computer banking, customer can direct gains access to the bank's computer by using internet. In computer banking customer is allowed to perform variety of tasks such as obtaining print out of transactional activities, transferring funds between accounts, making payments, signing e-cheques, balance inquiry, downloading transaction information and applying for bank drafts. Many banks also have the facility for their customers to set up, amend or cancel standing orders, accessing different accounts in different banks simultaneously and can inquire about the latest account schemes, loan applications and the loan transaction process, investment activity and other value-added services etc. The *terms internet banking and online banking* are often used in literature to refer the same thing and nowadays internet is the main channel for e-banking. *Internet banking* is browser-based banking, *PC home banking* allows customers to perform Banking services only on PCs, where

customer installs the assigned software's packages given by bank on their PC like include Intuit, Inc.'s Quicken and Microsoft Corp.'s Money.

Telephone banking, TV-based banking, and managed network do not play such a big role in banking today. In case of telephone banking customer can controls his/her bank accounts by giving the bank instructions over the telephone. With telephone banking all telephone calls are recorded, so checks can be made if there are queries about a transaction. Using these methods, banking transactions can be done 24 hours a day and seven days a week. In the future the delivery platform is expected to shift from wired internet connections to wireless mobile technologies. Thus, as Wah suggested in 1999 that e-banking does not necessarily have to be on a computer screen. It can, for example, be on the tiny screen of a mobile phone or any other wireless device. With these wireless applications customers can perform various banking activities like consult their bank account balances and transactional

histories, view pie chart of their holdings in portfolio, initiating payments or orders to buy and sell securities, and also send e-mail to their banks. The future of e-banking looks very promising, It has been constructed to provide simplified business activities at higher speed and it can be defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels. E-banking is the newest delivery channel in many developed countries and there is a wide agreement that the new channel will have a significant impact on the bank market. Internet banking allows customers to perform their banking transaction electronically and at an advanced level it is called as transactional online banking because it involves the provision of facilities such as accessing accounts, transfer of funds and buying financial products or services online.

In the following table summarized delivery platforms for e-banking have been shown :

Type of service	Description
PC banking (private dial up)	Proprietary software, distributed by the bank, is installed by the customer on their PC. Access to bank via a modem linked directly to the bank
Internet banking	Access their bank via Internet
Managed network	The bank makes use of an online service provided by another party
TV based	The use of satellite or cable to deliver account information to the TV screens of customers (Also Internet based)
Telephone banking	Customers access their bank via telephone (Own personal ID and password required)
Mobile phone banking (SMS, WAP, 3rd generation)	Access with text message (SMS), Internet connection (WAP), or high speed 3rd generation mobile connection (also Internet based)

Table 1: Delivery Platform For E-Banking (Source: Adapted From Daniel, 1999 And Karjaluo 2003)

**5. Building blocks of an e- banking system**

E-Banking system has been constructed to provide simplified business activities at higher speed. For this purpose, e-banking uses latest computer technology to manage financial transactions more quickly and efficiently.

The basic building blocks of an e-banking system are as follows:

**Hardware**

- Servers
- Storage device and database
- Communication channels and lines
- Gateways and remotely located devices (e.g., thin clients or internet appliances) serving as interfaces between users and computers.

**Software**

- Operating systems
- Firewalls
- Database management systems
- Security application programs.

In the following diagram E-banking setup has been shown

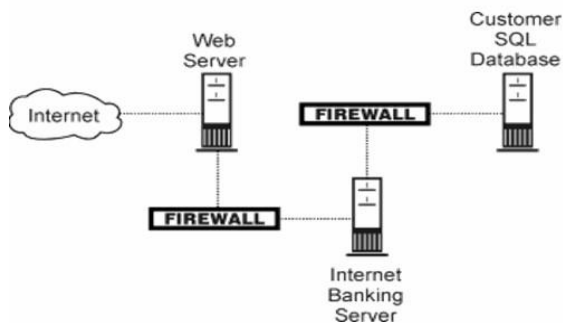


Figure 1: Setup of E-Banking

A customer, who is having a PC connected to the internet, will be able to access infinity. For optimal performance and security, the recommended browsers are: Microsoft Internet Explorer 4.x or later and Netscape Navigator 4.x or later versions. For example, the ICICI bank presently has over 15,000 NRI customers, a majority of whom are in the United States, Middle East and Europe. To provide more facility to NRI customers ICICI Bank launched a web banking service for them. NRI customers can now open an account with the bank on-line by visiting its NRI services section on the web-site.

## 6. Applications of e-banking

E-banking applications tremendously reduce the need of visiting a bank personally for completing transactions. Applications pertaining to general banking, finance and insurance come under e-banking applications. The Reserve Bank of India constituted a working group on internet banking which divided the internet banking products in India into following 3 types based on the levels of access granted.

- i. **Information Only System:** In this system, there is no possibility of any unauthorized person getting into production systems of the bank through internet. As its clear from the name this system provides general purpose information like interest rates, branch location, bank products and their features, loan and deposit calculations etc. through the banks website. There exist facilities for downloading various types of application forms according to the customer's requirement. In this category the communication is normally done through e-mail for further enquiry. There is no interaction between the customers and bank's application system. No identification of the customer is done.
- ii. **Electronic Information Transfer System:** The systems which provide customer specific information usually in read only formats are called as electronic information transfer system. Customer gets authentication through passwords. The information is fetched from the bank's application system either in batch mode or off-line. The application systems cannot directly access through the internet. Some of the forms in which information is provided include account balances, transaction details, statement of accounts, etc.
- iii. **Fully Electronic Transactional System:** These systems have bidirectional capabilities and perform all the transactions involving both the customer and the bank. The transactions can be submitted by the

customer for online update. Performing these operations require a high degree of security and control. The system cannot fail in between a transaction. So, a high degree of control is required to ensure proper roll back of state in case a system fails while a transaction is happening. The web server and the application systems are linked over secure infrastructure. It comprises technology covering computerization, networking and security, inter-bank payment gateway and legal infrastructure. Some of the popular applications coming under e-banking are discussed below:

1. **Automated Teller Machines** - The automated teller machine (ATM) is an automatic banking machine (ABM) which allows customer to complete basic transactions without any help of bank representatives. There are two types of automated teller machine (ATMs). The basic one allows the customer to only draw cash and receive a report of the account balance. Another one is a more complex machine which accepts the deposit, provides credit card payment facilities and reports account information. It may be on-line or off-line. The on-line ATM enables the customer to avail banking facilities from anywhere. In off-line the facilities are confined to that particular ATM assigned.
2. **Credit Cards / Debit Cards** - A credit card allows you to make purchases with borrowed money, known as credit. As you spend and make purchases on your credit card, you will begin to build up a balance that needs to be repaid at the end of every month. The Credit Card holder is empowered to spend wherever and whenever he wants with his Credit Card within the limits fixed by his bank. Credit Card is a postpaid card. On the other hand, debit card is a prepaid card with some stored value. Every time a person uses this card, the internet banking house gets money transferred to its account from the bank of the buyer. The buyers account is debited with the exact amount of purchases.
3. **Smart Card** - A smart card is a physical card that has an embedded integrated chip that acts as a security token. Smart cards are typically the same size as a driver's license or credit card and can be made out of metal or plastic. Banks are adding these chips to their current magnetic stripe cards to enhance security and offers new service called smart cards. The amount of information that can be stored on smart cards is thousands of times more than what can be stored on magnetic stripe cards. In addition, these cards are highly secure, more reliable and perform multiple functions.

Smart card holds a large amount of personal information, from medical and health history to personal banking and personal preferences. Online bill payment, online fund transfer, obtaining railway passes online, investing in share market online, recharging prepaid phone, etc. are all examples of services made possible because of e-banking.

## 7. Conclusion

It is evident that E-banking services provide customer access to accounts, the ability to move their money between different accounts or making payments via e-channels. The advantages generated by this service have determined an accelerate developing of this industry over the entire world. The usage of e banking by the enterprises came into existence in mid-90's. e- banking came into existence in greater numbers because of low operating costs. First it is in the form of ATM's

and phone transactions. Recently it transformed to internet a new channel between customers and banks which benefits both. The main aim of e- banking services is to provide the customers a much faster services with low cost. From the last twenty years, banking sector has chosen a new method of banking based on the progress of information technology. In addition to these customers, transaction and communication abilities are fastened based on information technology.

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