

Security for Online Banking and Transaction

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ABSTRACT:-

Technological developments have been growing at an alarming speed in the international arena. Internet is proudly one of the best in those. So, the banking sector is also making the best utilization of it. In this study based on ONLINE BANKING, it has been observed that the development of online banking has increased by leaps and bounds during the past few years. Concentrating on the Indian economy, the use of online banking is still in the developing stage.

Today in India the scope of online banking is growing by a good decent rise in its usage. The rise in the usage of the Internet is the main criteria for development of online banking.

This project helps us understand the how the online banking came into existence and its need in the modern world. It shows us the insights of the online banking in India. It helps us understand the opportunities and the challenges associated with the online banking in India.

I. INTRODUCTION

Internet banking services have been operational in Malaysia since 2001. Presently, internet banking institutions licensed under the Banking and Financial Institution Act 1989 (BAFIA) and Islamic Banking Act 1983 are allowed to offer Internet Banking services here. There are 12 commercial banks (inclusive of Islamic banks) out of a total of 25 in Malaysia currently offering Internet Banking services. According to the 11th Malaysia Internet Survey conducted by AC Nielson, Internet Banking is the one of the most popular services utilized by Malaysian surfers. The survey found out that 51 percent out of the total respondent base of 8000 used the Internet for online banking once a month.

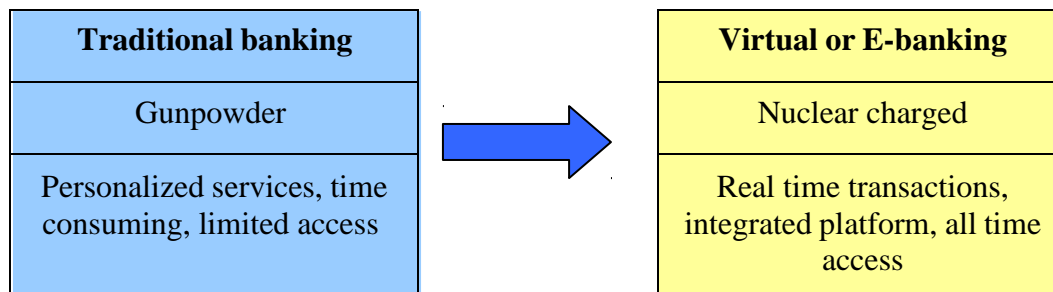
According to Munusamy et.al. (2012), Bank Negara Malaysia authorized all locally owned commercial banks to embark on internet banking and Malayan Banking Berhad (Maybank) was the first bank to initiate their online banking services to the public. In 2010, Yee and Faziharudean stated that only those banking institutions registered under the Banking and Financial Institution Act 1989 (BAFIA) and the Islamic Banking Act 1983 can offer internet banking to the customers. These days, the advantages of internet banking have become more apparent to retail banking customers. The advantages include availability, ease of use, safe time, relative advantage and so on (Ong *et al.*, 2014). However, although the adoption of the internet banking services benefits the customers, many people are still reluctant to use it. The biggest obstacle of internet banking is the security issue (Polasik & Wisniewski, 2009). The adoption of this service will be low if customers feel that internet banking is not

save and secured to use (Aliyu, Younus, & Tasmin, 2012).

1.2 BACKGROUND:-

The story of technology in banking started with the use of punched card machines like Accounting Machines or Ledger Posting Machines. The use of technology, at that time, was limited to keeping books of the bank. It further developed with the birth of online real time system and vast improvement in telecommunications during late 1970's and 1980's. It resulted in a revolution in the field of banking with "convenience banking" as a buzzword. Through Convenience banking, the bank is carried to the doorstep of the customer.

The 1990's saw the birth of distributed computing technologies and Relational Data Base Management System. The banking industry was simply waiting for these technologies. Now with distribution technologies, one could configure dedicated machines called front-end machines for customer service and risk control while communication in the batch mode without hampering the response time on the front-end machine.



Intense competition has forced banks to rethink the way they operated their business. They had to reinvent and improve their products and services to make them more beneficial and cost effective. Technology in the form of online banking has made it possible to find alternate banking practices at lower costs.

More and more people are using online banking products and services because large section of the banks future customer base will be made up of computer literate customer, the banks must be able to offer these customer products and services that allow them to do their banking by electronic means. If they fail to do this will, simply, not survive. New products and services are emerging that are set to change the way we look at money and the monetary system.

1.3 NEED OF THE STUDY:-

One has to approach the branch in person, to withdraw cash or deposit a cheque or request a statement of accounts. In true Online banking, any inquiry or transaction is processed online without any reference to the branch (anywhere banking) at any time. Providing Online banking is increasingly becoming a "need to have" than a "nice to have" service. The net banking, thus, now is more of a norm rather than an exception in many developed countries due to the fact that it is the cheapest way of providing banking services. Banks have traditionally been in the forefront of harnessing technology to improve their products, services and efficiency. They have, over a long time, been using electronic and telecommunication networks for delivering a wide range of value added products and services. The delivery channels include direct dial-up connections, private networks, public networks etc and the devices include telephone, Personal Computers including the Automated Teller Machines, etc. With the popularity of PCs, easy access to Internet and World Wide Web (WWW), Internet is increasingly used by banks as a channel for receiving instructions and delivering their products and services to their customers. This form of banking is generally referred to as Online banking, although the range of products and services offered by different banks vary widely both in their content and sophistication.

1.4 PURPOSE OF THE SYSTEM

1. **SECURITY:** There is a lot of security of data on this content management system. One cannot open our system without knowing the password. Immediately after opening login screen will appear on screen. Only after entering the correct username and password user can operate our system.
2. **REFERENTIAL INTEGRITY:** User cannot change the date in the transaction files. Addition of data can be done only on the master files date in transaction files cannot be entered until addition is done on the master files.
3. **EASY RETRIEVAL OF DATA:** Data is retrieved easily and quick using sql commands. On line commands are used to retrieve huge amount of data.
4. **GENERATION OF AUTOMATIC VALUES:** In project in some screen some fields generated automatically like Profile detail, Account number, etc.

1.5 SCOPE OF THE PROPOSED SYSTEM

Though there are many online systems available on internet but this can compete with them with some advancement in its functionality and can be used by any bank organization to maintain their customer's account and online transaction process.

The basic functionalities of the system are:

- Create Account
- Login

- Update Profile
- Password Recovery
- View Profile
- ATM and Bank finder
- Contact Form
- Amount Transaction
- EMI and Loan Calculator
- Delete account
- Logout

1.6 OBJECTIVE OF THE STUDY:-

The main objectives of the study are:

- The main objective of this study was to understand the growth of the online banking sector in India.
- To study the awareness level and reaction of customers toward Online Banking channels provided by Bank.
- To find out the frequency and the factors that influence the adoption of online banking services.
- To measure the satisfaction level of people.
- To understand the problems encountered by service class people while using online banking services.
- To find out main cause of dissatisfaction if any about online banking channels.
- To know which is the most popular service provided on Internet by Bank.

LITERATURE REVIEW

Nitsure, R.R. (2003) this article indicates the online banking Challenges and opportunities lie in the banking industry. Online banking has the potential to transform the banking business as it significantly lowers transaction and delivery costs. This paper discusses some of the problems developing countries, which have a low penetration of information and telecommunication technology, face in realizing the advantages of online banking initiatives. Major concerns such as the 'digital divide' between the rich and poor, the different operational environments for public and private sector banks, problems of security and authentication, management and regulation, and inadequate financing of small and medium scale enterprises (SMEs) are highlighted.

Picado, Gonzalez & Eckelman (2004) this study investigated the customer satisfaction using QFD and a research on service quality and customer satisfaction has become significant in the service industries. This study develops a case study that considers both external and internal service management issues and subsequent service innovations based on the framework of quality function deployment (QFD). Application of the customer window quadrant (CWQ) and the action plan matrix in the analysis of customer and service elements constitute a different approach for QFD. Some benefits and disadvantages of the QFD process are discussed as compared to extant service quality

and customer paradigms. Finally, suggestions and directions are offered for future applications, with particular interest in the online bank service management issues.

Asghar (2004) the study depicts that online banking and the web channel are here to stay. Financial services rely on multiple distribution channels and online banking represents the channel of the future. Success stories around online banking have taken shape through a mix of innovation and experience. The financial services sector needs to apply both these factors to their advantage to produce the desired results. Win-win implementation of online banking not only requires high online penetration rates and stable infrastructures, but more importantly, for companies to realize the powerful revenue opportunity of this business arm vis-à-vis the traditional brick and mortar system of operation. Therefore, it is imperative that all online banking implementations are seamlessly integrated with the core 'traditional' services thereby making the online experience truly holistic for the customer.

Kamiya (2006) this article shows that Indian banks are trying to make your life easier. Not just bill payment, you can make investments, shop or buy tickets and plan a holiday at your fingertips. In fact, sources tell us, "Our Online banking base has been growing at an exponential pace over the last few years. Currently around 78 per cent of the bank's customer base is registered for online banking." To get started, all you need is a computer with a modem or other dial-up device, a checking account with a bank that offers online service and the patience to complete about a one-page application--which can usually be done online. You can avail the following services:

Bill payment Services, Fund Transfer, Credit Card, Online shopping, and Investment through Online etc. Due to the Online banking the life of an individual becomes easy and raises the standard of life of the humans.

Hsun, K.S. (2008) this study considers the coherence of the financial service sector and adopts different observational variables to identify innovation capital (training and R&D density) and process capital (IT system sufficiency). The results show that human capital has a direct impact on both innovation capital and process capital, which in turn affect customer capital; while finally, customer capital affects business performance. In addition, there is a negative relationship between process capital and customer capital in the financial service sector. It suggests that in the financial services sector, customer satisfaction relies on a sufficient degree of training and R&D density. Intemperate investment on the support of online banking operation systems may not be a good answer.

Reeti, Sanjay, and Malhotra, A. (2009) Stated about the Customer's perspectives regarding online banking in an emerging economy. So that, the author determines various factors affecting customer perception and attitude towards and satisfaction with online banking is an essential part of a bank's strategy formulation process in an emerging economy like India. To gain this understanding in respect of Indian customers, the study was conducted on respondents taken from the northern part of India. The major findings depict that customers are influenced in their usage of online banking services by the kind of account they hold, their age and profession, attach highest degree of usefulness to balance enquiry service among Online banking services, consider security & trust most important in affecting their satisfaction level and find slow transaction speed the most frequently faced problem while using online banking.

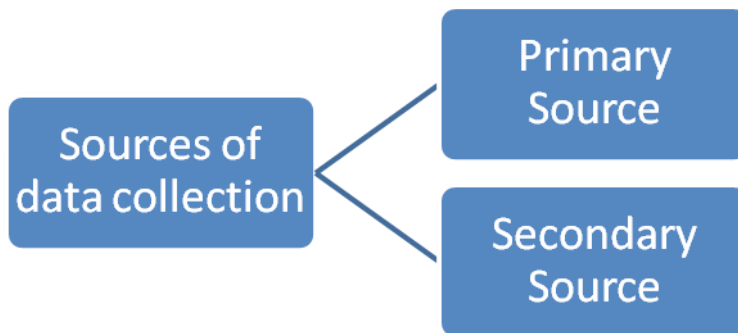
RESEARCH Methodology

❖ RESEARCH DESIGN

Research design is systematic procedure for collection and analysis of data. It is a blue print that guides the study to be done. The present research work is done with the **descriptive research design** method. Descriptive research has been used in this study to obtain information about the various challenges and opportunities emerging in online banking. Various information collected are analyzed and tabulated thoroughly. At last the findings of the study are sorted out to present the result of the study in clear terms

❖ DATA COLLECTION:

For this study, data has been collected from two sources:



PRIMARY DATA are those which are collected a fresh and for the first time. In this study, has been collected through personal contact. Questionnaire was used to collect primary data from respondents. Questionnaire distributed among people having bank accounts. A sample questionnaire of 10 questions distributed to 25 people.

SECONDARY DATA are those which have already been collected by someone else. In this study, secondary source data has been collected from Articles, journals and Websites, research papers.

LIMITATIONS OF THE STUDY:-

Every research is conducted under some constraints and this research is not an exception. Limitations of this study are as follows:-

1. The study of this project is limited to 25 people of KOLKATA who have been questioned to understand the project well.
2. There were several time constraints.
3. The basic figures as per by the source i.e. statistical records states that analysis obtained through various statistical tools is based on examining, service class people only.
4. Due to continuous change in environment, what is relevant today may be irrelevant tomorrow.

CONCEPTUAL FRAMEWORK

WHAT IS ONLINE BANKING?

If you're like most people, you've heard a lot about online banking but probably haven't tried it yourself. You still pay your bills by mail and deposit checks at your bank branch, much the way your parents did. You might shop online for a loan, life insurance or a home mortgage, but when it comes time to commit, you feel more comfortable working with your banker or an agent you know and trust.

Online banking isn't out to change your money habits. Instead, it uses today's computer technology to give you the option of bypassing the time-consuming, paper-based aspects of traditional banking in order to manage your finances more quickly and efficiently.

❖ Origin of online banking

The advent of the Internet and the popularity of personal computers presented both an opportunity and a challenge for the banking industry.

For years, financial institutions have used powerful computer networks to automate millions of daily transactions; today, often the only paper record is the customer's receipt at the point of sale. Now that its customers are connected to the Internet via personal computers, banks envision similar economic advantages by adapting those same internal electronic processes to home use.

Banks view online banking as a powerful "value added" tool to attract and retain new customers while helping to eliminate costly paper handling and teller interactions in an increasingly competitive banking environment.

❖ Brick-to-click banks

Today, most large national banks, many regional banks and even smaller banks and credit unions offer some form of online banking, variously known as PC banking, home banking, electronic banking or Internet banking. Those that do are sometimes referred to as "brick-to-click" banks, both to distinguish them from brick-and-mortar banks that have yet to offer online banking, as well as from online or "virtual" banks that have no physical branches or

tellers whatsoever.

The challenge for the banking industry has been to design this new service channel in such a way that its customers will readily learn to use and trust it. After all, banks have spent generations earning our trust; they aren't about to risk that on a Web site that is frustrating, confusing or less than secure.

Most of the large banks now offer fully secure, fully functional online banking for free or for a small fee. Some smaller banks offer limited access or functionality; for instance, you may be able to view your account balance and history but not initiate transactions online. As more banks succeed online and more customers use their sites, fully functional online banking likely will become as commonplace as automated teller machines.

❖ **Understanding Online Banking Services**

Online banking is a great convenience for many people. Whether people use it to manage traditional accounts or switch all of their banking to an online-only firm, it is a wonderful improvement over the days when everything had to be done face-to-face.

No matter what kind of banking is done online, it starts with a secure web site. Usually, the bank will have certain requirements to ensure password strength as well. This and other security measures ensure that online accounts are safe from tampering. From there, all of the necessary services can be accessed.

Online banking is quite simple once the basics are understood. Depositing money is simple, and can be done in a number of ways. The most popular method is likely direct deposit. Many employers offer direct deposit of paychecks, and by providing them with your online bank account number, your checks will go right into that account. Other ways of depositing money include bank and wire transfers. Some accounts even allow customers to mail their checks in.

Paper checks are typically provided with online checking accounts. This, however, is not likely to be the most common way a customer will access funds. Online bill payment allows users to pay their bills without mailing checks, and those who use web-based accounts typically prefer this and other electronic payment methods. Most types of bills can be paid via a debit card or electronic checks, as well. This makes it easy to eliminate the need for paper checks entirely. Still, many find it useful to have a few checks on hand for those few companies that haven't quite reached the modern age.

The management of traditional accounts is another common use for online banking. Most banks offer online access to accounts, and all customers need to do to make use of the service is sign up through their bank's site. Once this is done, checking your balance, seeing which payments have cleared, and other common banking operations can be done from the computer. This eliminates the need to call or visit the bank for simple account maintenance needs.

Every online banking interface is slightly different, but all banks try to make things easy and intuitive for users. It won't take long for a new user to figure out exactly how everything works. Sign up for an online bank account or online access to your current one, and soon you'll wonder how you could have lived without it.

❖ **FEATURES OF ONLINE BANKING**

We need to be able to manage our finances from anywhere in the world. Rich online banking services are much more important than a physical location. Since I have been doing all of my banking online with quite a few different

online banks as I looked for the best solution, I've had a chance to really experiment with what works and what doesn't work for us.

Here is a checklist of things to look for in an online bank. Some items you may be familiar with. Others might be new to you if it isn't something your current bank offers.

1. Bill Pay Service - One of the biggest reasons for going with an online bank is to get really good bill payment services. Different banks handle bill payment different ways. Here are some things to think about:

- A. How many bills are you allowed to pay per month?
- B. What are the fees for going over the limit?
- C. Can the bill payment send physical checks to merchants who aren't set up to take electronic payments?
- D. Do checks come from your account or from a third party service? For privacy reasons, it might be better to be able to pay someone without giving them your bank account number on the check. On the other hand, if the checks actually come from your account, the money doesn't get taken out until the check is cashed.
- E. Can you set up reoccurring payments?

2. Electronic Bill Notification – With electronic bills, your merchant (Credit Card Company, gas company, electric company, etc.) sends an electronic bill to your bank. You can set it up to pay automatically or notify you for approval. This can be particularly good for people who are on the road because it reduces the amount of physical mail you have to somehow get read or forwarded to you.

3. Online Check Images – Most banks will show you an image of the check, which makes it really easy to balance your account if you can't remember what a particular payment was for. (Ideally, you should minimize the number of physical checks you write to reduce fraud.)

4. Online Deposit Slip Images – Most banks just record the total with no image. It will let you see an image of each deposit slip. Having the images available can be very helpful if you ever have to prove something for tax purposes or need to remember where that \$2581 deposit came from.

5. Reporting Tools – Most banks offer basic reporting tools that will let you see how much you have spent in each category you've created. This may not be an issue if you use desktop money management software, but it still can be handy if you are traveling and want to see how much you've paid on your mortgage over the past 12 months.

6. Linked Accounts – Can you link your bank account with a brokerage account? Can you add your minor children as custodial accounts and manage them all centrally? If you and your spouse both set them up IRAs, is it easy to view them both along side the rest of your finances, or do you have to have a separate login for each IRA to keep them on separate SSNs? These are small things that many banks don't support, but it starts getting really complicated when you have to manage a bunch of accounts instead of having a single place to manage all of your money.

7. Convenient Deposit Methods - Since you may not be anywhere near the physical location of your bank, make sure you understand how to deposit money. Payroll can be set up on direct deposit, but there will be times when

you need to deposit checks. Does the bank provide postage paid envelopes and deposit slips? Some banks work with FedEx or UPS stores to allow you to send in a deposit overnight for free.

8. **Low ATM Fees and Convenient Locations** – If you need to get cash, will the bank refund the ATM fees? Are there only certain ATMs that are free, and if so, are they located near places you normally go? Are the ATMs available nationwide so you can use them on vacation? What are the fees for using the ATM internationally and how is the exchange rate handled?
9. **Many Account Types** – Some banks only offer basic checking and savings accounts. Ideally you want a bank that makes it easy to open money market accounts, IRAs, health savings accounts, etc. If you have to go to another institution to open a different type of account, it is more difficult to manage—especially if you are on the road. You want to be able to easily open a CD to take advantage of a higher interest rate, easily open an IRA to help reduce your tax liability, etc.
10. **Free Money Transfers** – Be sure to consider how easy it is to move money in and out of the account. You should be able to set up links with your accounts from other institutions to transfer money back and forth as necessary. Make sure you understand what types of fees are associated with these transfers. Good banks should allow a certain number of transfers per month with no fee.
11. **Security Balanced with Convenience** - Some banks spend so much effort trying to keep things secure that you'll find yourself automatically logged out of their website while you try to balance your account. You want security but you don't want it to get in the way of you doing your banking. Also check into what type of additional security features are available. For example, some banks will offer you an RSA keychain with a number that changes every 60 seconds. In addition to your password, you will need the number from that key in order to get access to your account.
12. **Ease of Use** – This is something that most banks seem to struggle with. Right now I have my personal account with one online bank and my business accounts with another. I dread using the business accounts and I absolutely love using my personal account. At first I thought I was just more familiar with the bank where my personal accounts are, but I finally realize that it comes down to the ease of use. One is ok and the other is superb, but it makes a big difference.

❖ **Advantages of online banking:**

- **Convenience:** Unlike your corner bank, online banking sites never close; they're available 24 hours a day, seven days a week and they're only a mouse click away.
- **Ubiquity:** If you're out of state or even out of the country when a money problem arises, you can log on instantly to your online bank and take care of business, 24/7.
- **Transaction speed:** Online bank sites generally execute and confirm transactions at or quicker than ATM processing speeds.
- **Efficiency:** You can access and manage all of your bank accounts, including IRAs, CDs, even securities, from one secure site.
- **Effectiveness:** Many online banking sites now offer sophisticated tools, including account aggregation, stock quotes, rate alerts and portfolio managing programs to help you manage all of your assets more effectively. Most are also compatible with money managing programs such as Quicken and Microsoft

Money.

❖ **Disadvantages of online banking:**

- **Start-up may take time:** In order to register for your bank's online program, you will probably have to provide ID and sign a form at a bank branch. If you and your spouse wish to view and manage your assets together online, one of you may have to sign a durable power of attorney before the bank will display all of your holdings together.
- **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.
- **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.
- **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

❖ **SECURITY THREATS IN INTERNET BANKING**

- Security threats can affect a financial institution through numerous vulnerabilities. No single control or security device can adequately protect a system connected to a public network. Many problems concerning the security of transactions are the result of unprotected data being sent between clients and servers. The problems of the systems today are inherent within the setup of the communications and also within the computers itself. The current focus of security is on session-layer protocols and the flaws in end-to-end computing.
- **Social Engineering** - One of the most common attacks does not involve knowledge of any type of computer system. Tricking consumer into revealing sensitive information by posing as a system administrator or customer service representative is known as social engineering. Social engineers use surveillance and a consumer's limited knowledge of computer systems to their advantage by collecting information that would allow them to access private accounts.
- **Port Scanners** - Attackers can use port scanners to ascertain entry points into a system and use various techniques to steal information. This type of software sends signals to a machine or router and records the message the machine responds with to ascertain information and entry points (Cobb, 2007). The main purpose of a port scanner is to gather information related to hardware and software that a system is running so that a plan of attack can be developed.
- **Password Cracking** - Password cracking can involve different types of vulnerabilities and decrypting techniques; however, the most popular form of password cracking is a brute force attempt. Brute force password attacks are used to crack an individual's username and password for a specific website by scanning thousands of common terms, words, activities, and names until a combination of them is granted access to a server. Brute force cracking takes advantage of systems that do not require strong passwords, thus users will often use common names and activities making it simple for a password cracker to gain access to a system.

- Trojans - Trojan software is considered to be the most harmful in terms of electronic banking security due to its ability to secretly connect and send confidential information. These programs are developed for the specific purpose of communicating without the chance of detection. Trojans can be used to filter data from many different clients, servers, and database systems. Trojans can be installed to monitor emails, instant messages, database communications, and a multitude of other services.

ISSUES OF ONLINE BANKING SECURITY

In the year of 2003 and 2004 saw the emergence of fraudulent activities pertaining to Internet Banking or better known in the industry as “phishing”. A total of 92 phishing cases were reported to the Malaysian Computer Emergency Response Team (MyCERT, www.mycert.org.my) in 2004. The modus operandi of this activity is to use spoofing techniques to gain names and passwords of account holders. The victims reported being deceived into going to a fake website where perpetrators stole their usernames and passwords and later use the information for the perpetrators’ own advantage. Phishing is an attempt to commit fraud via social engineering. The impact is the breach of information security through the compromise of confidential data.

The Association of Banks Malaysia (ABM) has urged both commercial banks and their customers to be extra vigilant following reports of fraudulent email purportedly sent by banks with Internet banking services to online customers. The fraudulent activities mentioned above are not limited to the Malaysian banking industry. It is a worldwide problem particularly in the United States. Based on APWG (2015), there are 2560 new unique phishing sites were reported to the Anti Phishing Working Group (APWG) in this year. It was an increase of 47 percent over the December 2004 figure. APWG is an industry association focused on eliminating identity theft and fraud that result from the growing problem of phishing and email spoofing. This voluntary based organization provides a forum to discuss phishing issues, trials and evaluations of potential technology solutions, and access to a centralized repository of reports on phishing attacks.

How Does Online Banking Work?

Online banking provides many identical services that a traditional bank does with the biggest difference is in teller availability: Human tellers leave; electronic tellers—the websites—are available virtually all day, everyday—weekends and holidays, included.

Online Banking Structure:

Online banking mirrors traditional banking procedures in many instances, and in some, actually improves security and reduces both banks’ and customer’s costs.

In electronic form, online banking still allows:

1. Deposits to the account, whether via payroll deposits or funds transfers.
2. Bill payments via automatic payment schedules or individually ordered payments. Most bill pay users opt for the bank-generated checks, but payments can be ordered in a one off situation or scheduled regularly.
3. Statement formats can be electronic or paper; most who prefer online banking choose the electronic statements for convenience and reduced paper use.

4. Wire transfers to accounts within and without the bank's structure, though some banks charge additional transaction fees for wire transfers.
5. Differing services depending on the individual financial institute.

Online Actions

All online banking transactions are initiated by creating an online account identity. Account login name and password creation is followed by choosing and answering security questions. It's not recommended that security questions and answers be common or known by others; they should have unique answers, whether historically true or not.

For example, if a user chooses a security question, "What is the name your first elementary school," choose an answer that is not the actual name or the actual elementary school. Use instead the name of another school or anything else that is easily remembered.

Provide an email address that is not tied to an Internet Service Provider. If the user changes ISPs, that email address will be lost. Instead, use a free email address that can last for as long as the user chooses.

Once the security aspects are in place and verified, look around the bank's website and note important areas, such as:

1. Account activity
2. Statement delivery change areas
3. Customer Service options
4. Bill pay procedures, if any
5. And any other area provided on the website.

Online banking often reduces funds availability delays and hastens resolution to disputes and inquiries. While some complaints and problems do require human intervention, Customer Service Agents are available for longer during a calendar day than local branch personnel are.

Online banking differs from traditional banking when physical checks or cash is deposited; human interaction via a drive thru lane or at the counter is required. Cashier checks, traveler checks, and money orders cannot be purchased from the institution via online banking, but because all transactions allowed are electronic, tracking and accountability are easily provided.

OPPORTUNITIES IN ONLINE BANKING

❖ Is There a Future in Online Banking?

By this point, no one can dismiss online banking as a fad. However, it is worth considering whether the trend towards online financial transactions is going to slow or reverse in the years to come. There will continue to be people who resist online banking in favor of offline transactions just as there are people who prefer to keep their money in mattresses instead of putting it in banks. Whether these people will exert serious influence on the

movement towards online banking can be examined by looking at the needs of modern consumers, and the interests of the banks themselves.

❖ The Move to Online Business

The global connectivity provided by the internet, combined with the fallout from the global financial crisis has encouraged a growing number of entrepreneurs to start their own businesses online. As an increasing number of people look to save themselves from unemployment or augment otherwise insufficient salaries by finding new ways to make money online, they will require new ways to send, receive, and invest their online funds.

❖ The Rise of Mobile Banking

As handheld mobile devices become more sophisticated, users are experimenting with more sophisticated transactions. Moving beyond ringtone downloads; consumers can now shop online and purchase software upgrades and augmentations through app stores. In addition to this buying and selling, anyone with a web browser on their phone can access their bank's online banking site to move and manage their money in more locations than ever before.

❖ Staffing Solutions

As banks consolidate and grow larger, they are looking for more ways to cut costs, and reducing the number of full-time employees on their payroll is an attractive option. Encouraging customers to do their banking online allows banks to close smaller branches in outlying locations and use economies of scale to develop customer assistance centers in locations where the labor market is more favorable.

❖ Growth of Internet

The increase in the growth of internet usage will definitely help the cause of growth of online banking in India. The following chart shows the growth of internet in India during the past decade or so:

YEAR	Users	Population	% Penetration
2000	1,400,000	1,094,870,677	0.1 %
2001	2,800,000	1,094,870,677	0.3 %
2002	5,500,000	1,094,870,677	0.5 %
2003	7,000,000	1,094,870,677	0.7 %
2004	16,500,000	1,094,870,677	1.6 %
2005	22,500,000	1,094,870,677	2.1 %

2006	39,200,000	1,094,870,677	3.6 %
2007	50,600,000	1,112,225,812	4.5 %
2008	40,000,000	1,112,225,812	3.6 %
2009	42,000,000	1,129,667,528	3.7 %
2010	81,000,000	1,156,897,766	7.0 %
2011	100,000,000	1,173,108,018	8.5 %

Why Banks Encourage Online Banking?

❖ OVERVIEW

Online banking has enjoyed increased popularity, and some banks actually require it. From standard, brick-and-mortar institutions to cloud managed institutions, online banking offers flexibility and convenience for all involved.

❖ BANK ADVANTAGES:

- Each visit to a bank costs the institution money, whether in bank teller wages and benefits to security costs to maintenance costs. Online banking reduces those costs and increases the bank's profit margin.
- Online banking reduces the need for the number of physical locations and services offered within each. Because Customer Service Departments are united into fewer locations, asset sharing within those locations further reduce bank costs.

❖ CUSTOMER ADVANTAGES:

- Online security of financial data has evolved tremendously since the early days of online banking, and often transactions can be even more secure than those conducted in a drive thru lane.
- Comprehensive Help sections on banks' websites often reduce on-location inquiries, further reducing overhead costs for banking institutions. Additional service enrollment or dis-enrollment, address updates, and account status and verification are all time saving activities for both the bank and the banking customer.
- Online Bill Pay processes reduce stolen or counterfeit checks which cost banks billions of dollars every month. Each online bill pay transaction allows for a grace period from the payment order date to the actual check delivery date, which also allows the account holder additional time to preview activity and account status.

Challenges in Online Banking

Information technology analyst firm, the Meta Group, recently reported that "financial institutions who don't offer home banking by the year 2000 will become marginalized." By the year of 2002, a large sophisticated and highly competitive Internet Banking Market will develop which will be driven by

- Demand side pressure due to increasing access to low cost electronic services.
- Emergence of open standards for banking functionality.
- Growing customer awareness and need of transparency.
- Global players in the fray
- Close integration of bank services with web based E-commerce or even disintermediation of services through direct electronic payments (E- Cash).
- More convenient international transactions due to the fact that the Internet along with general deregulation trends, eliminate geographic boundaries.
- Move from one stop shopping to 'Banking Portfolio' i.e. unbundled product purchases.

Certainly some existing brick and mortar banks will go out of business. But that's because they fail to respond to the challenge of the Internet. The Internet and it's underlying technologies will change and transform not just banking, but all aspects of finance and commerce. It represents much more than a new distribution opportunity.

❖ MAIN CONCERNS IN INTERNET BANKING:

In a survey conducted by the Online Banking Association, member institutions rated security as the most important issue of online banking. There is a dual requirement to protect customers' privacy and protect against fraud. Banking Securely: Online Banking via the World Wide Web provides an overview of Internet commerce and how one company handles secure banking for its financial institution clients and their customers. Some basic information on the transmission of confidential data is presented in Security and Encryption on the Web. PC Magazine Online also offers a primer: How Encryption Works. A multi-layered security architecture comprising firewalls, filtering routers, encryption and digital certification ensures that your account information is protected from unauthorised access:

- Firewalls and filtering routers ensure that only the legitimate Internet users are allowed to access the system.
- Encryption techniques used by the bank (including the sophisticated public key encryption) would ensure that privacy of data flowing between the browser and the Infinity system is protected.
- Digital certification procedures provide the assurance that the data you receive is from the Infinity system.

Security concerns:

Security fears have served as deterrents to online growth. Of particular concern are threats of pharming and phishing. Phishing is an internet fraud, through which innocent people are enticed to divulge their personal information like user ID and passwords, which are later on used by scammers in unauthorized ways.

The most common method of phishing is sending emails claiming to be from your bank or other financial institutions which are dealing that already has your personal information and you will be asked to confirm the details by clicking a particular link (URL) provided in this fake email. This URL will take you to a fake website which will be similar to your genuine website, and the information provided by the customer in the forms provided in the fake website will be gathered and used for committing fraud in their accounts or withdraw funds unauthorizedly from these accounts.

Pharming is another internet fraud, whereby as many as users as possible are redirected before they reach the legitimate online banking websites they intend to visit and they are lead to malicious ones. The bogus sites to which victims are redirected without their knowledge or consent, will likely looks the same as genuine site. But when users enter their login name or password, the information is captured by criminals.

FURTHER PROBLEMS RELATING TO NET BANKING IN INDIA

Given that India is the IT and tech services outsourcing hotspot of the world, it's surprising that Internet banking has not really taken off. Despite the advent of a very tech-savvy and vast consumer class in recent years, a mix of industry issues and unique challenges continue to thwart the expansion of net banking in India. Technology challenges, IT practices, certain cultural issues, industry lethargy, and workplace constraints have affected widespread acceptance of Internet banking.

❖ *Low Broadband Internet Penetration*

India has one of the lowest broadband connectivity penetration rates in Asia as compared to Japan, Taiwan, Korea and Singapore. While the bigger cities such as Mumbai, Delhi, Chennai, and Bangalore have relatively better broadband penetration rates, PC users in smaller cities and towns still use dial-up options to connect to the Internet. Slow connectivity speeds often dampen the online banking experience for many customers eager to use such services.

❖ *Banks' Ambivalent Commitment Levels*

Internet banking did take off in India at the turn of the millennium but soon faltered due to lack of takers. In the middle of this decade, multinational and domestic private banks started offering net banking services as a competitive differentiator. Only recently, state-owned and public sector banks have started doing likewise. However, banks' ambivalent commitment levels and their reluctance to allocate huge budgets for net banking branding initiatives, as well as a lack of industry advocacy efforts, have resulted in poor acceptance levels of Internet banking by customers.

❖ *Customers' Preference for Traditional Branches*

There are thousands of highly active traditional bank branches in India's crowded cities and major towns. Office workers take longer lunch breaks to finish banking activities and transactions at these branches rather than conduct them online. Most customers prefer the personal touch and customized service offered by staff in brick-and-mortar bank branches. Many Indians are also averse to calling call centers and banks' customer contact lines to address issues related to online bank accounts.

❖ *Fear of Online Threats/Scams*

Ubiquitous and prevalent online threats about hackers, identity theft, stolen passwords, viruses, worms and spyware tend to make customers wary just like in any other country. Conservative Indian bank customers used to years of saving in an erstwhile mixed-socialist economy are always fearful of losing hard-earned savings in online scams. These customers are also not sure about the efficacy of banks' websites and their commitment to allocate funds for reliable encryption mechanisms and robust back-end technologies and systems.

❖ *Other Problems*

Workplace constraints and corporate policies about using external websites or pursuing personal activities such as online banking have affected its expected fast-paced acceptance among the growing affluent class in India. Cultural issues, such as parents giving priority use of the home PC to their children rather than using it themselves, stifle the potential growth of home access to Internet banking services. Public sector banks with vast customer bases also don't tend to invest money in training personnel for e-banking initiatives, resulting in poor customer service levels.

ONLINE BANKING VERSUS TRADITIONAL BANKING

In spite of so many facilities that Online banking offers us, we still seem to trust our traditional method of banking and is reluctant to use online banking. But here are few cases where Online banking will turn out to be a better option in terms of saving your money.

'Stop payment' done through Online banking will not cost any extra fees but when done through the branch, the bank may charge you Rs 50 per cheque plus the service tax.

Through Online banking, you can check your transactions at any time of the day, and as many times as you want to.

On the other hand, in a traditional method, you get quarterly statements from the bank and if you request for a statement at your required time, it may turn out to be an expensive affair. The branch may charge you Rs 25 per page, which includes only 30 transactions. Moreover, the bank branch would take eight days to deliver it at your doorstep.

If the fund transfer has to be made outstation, where the bank does not have a branch, the bank would demand outstation charges. Whereas with the help of online banking, it will be absolutely free for you.

As per the Internet and Mobile Association of India's report on online banking 2006, "There are many advantages of online banking. It is convenient, it isn't bound by operational timings, there are no geographical barriers and the services can be offered at a miniscule cost."

THE INDIAN SCENARIO

Drivers of change:-

Advantages previously held by large financial institutions have shrunk considerably. The Internet has leveled the playing field and afforded open access to customers in the global marketplace. Online banking is a cost-effective delivery channel for financial institutions. Consumers are embracing the many benefits of Online banking. Access to one's accounts at anytime and from any location via the World Wide Web is a convenience unknown a short time ago. Thus, a bank's Internet presence transforms from 'brouchware' status to 'Online banking' status once the bank goes through a technology integration effort to enable the customer to access information about his or her specific account relationship. The six primary drivers of Online banking includes, in order of primacy are:

- Improve customer access
- Facilitate the offering of more services
- Increase customer loyalty
- Attract new customers
- Provide services offered by competitors
- Reduce customer attrition.

Indian banks on web

The banking industry in India is facing unprecedented competition from non- traditional banking institutions, which now offer banking and financial services over the Internet. The deregulation of the banking industry coupled with the emergence of new technologies, are enabling new competitors to enter the financial services market quickly and efficiently.

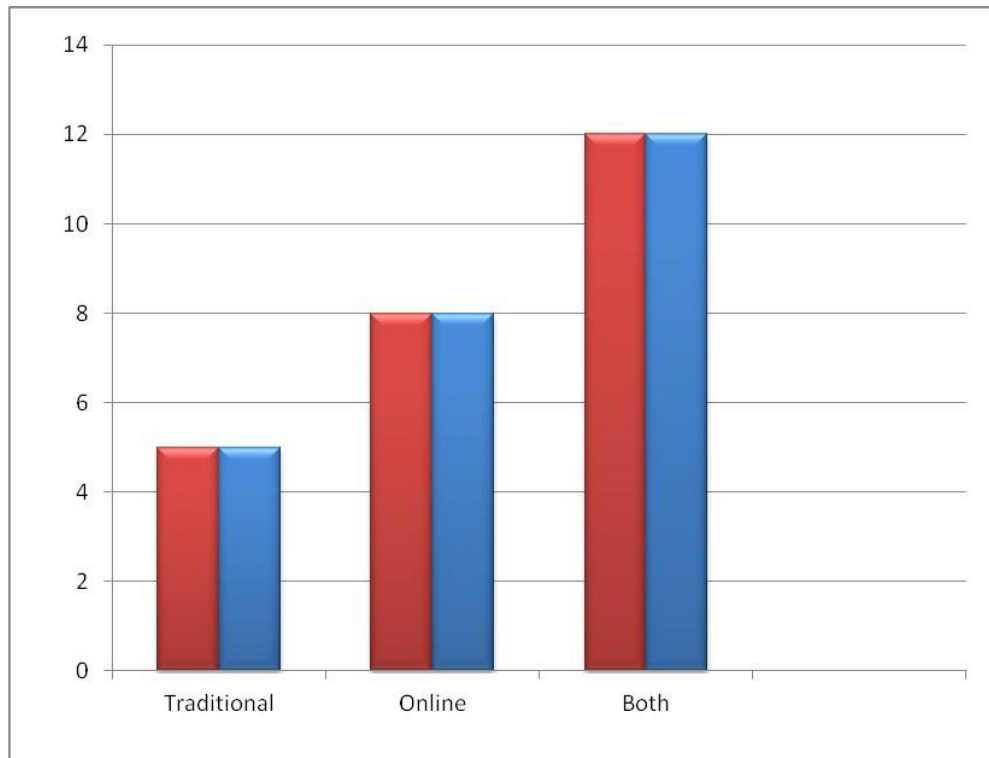
Indian banks are going for the retail banking in a big way. However, much is still to be achieved. This study that was conducted by students of IIML shows some interesting facts:

- Throughout the country, the Online banking is in the nascent stage of development (more than 50 banks are offering varied kind of Online banking services).
- In general, these Internet sites offer only the most basic services. 55% are so called 'entry level' sites, offering little more than company information and basic marketing materials. Only 8% offer 'advanced transactions' such as online funds transfer, transactions & cash management services.
- Foreign & Private banks are much advanced in terms of the number of sites & their level of development.

ANALYSIS & FINDINGS

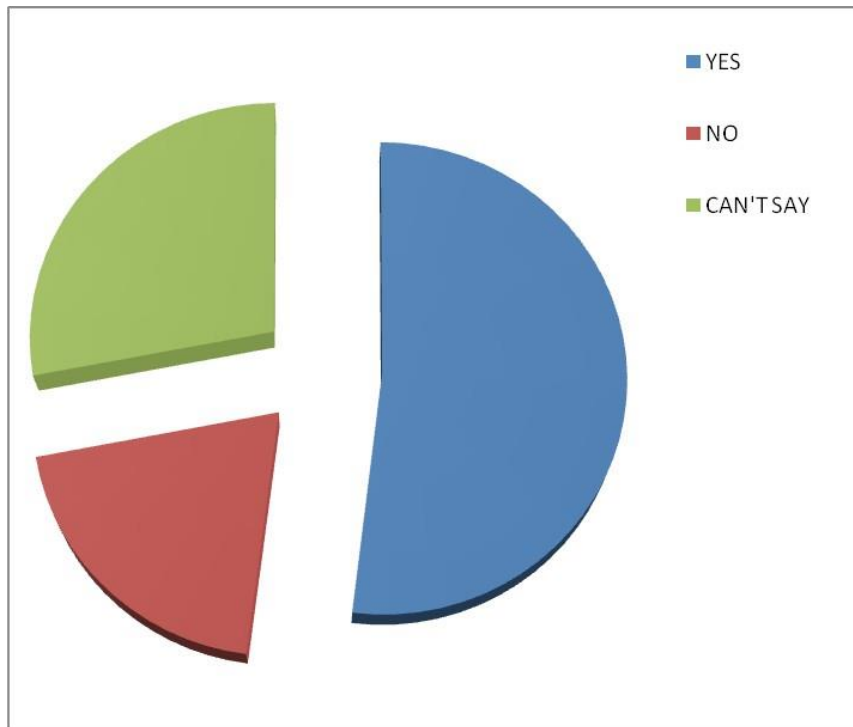
A survey was conducted on online banking in India for the primary data among 25 people. The analysis of this survey or data is as follows:-

Q.1 What kind of banking do you prefer?



POLL out of 25: Traditional – 5 ; Online – 8 ; Both – 12

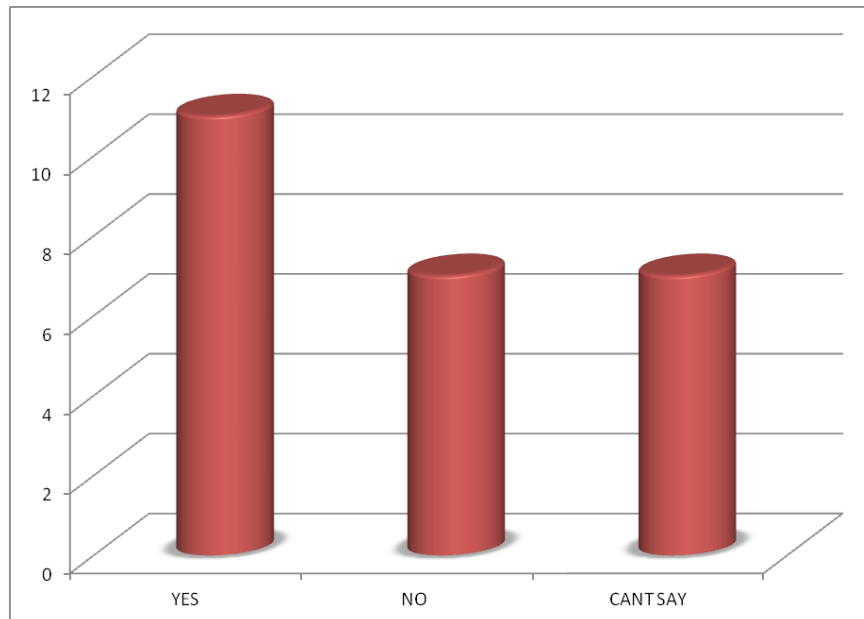
FINDINGS: This shows us the preference of the people towards the type of banking. They prefer to use the services of both the online and traditional banking rather than a particular type.

Q.2 Do you think online banking is better than traditional banking?

POLL out of 25: Yes - 13; No - 5; Can't Say – 7

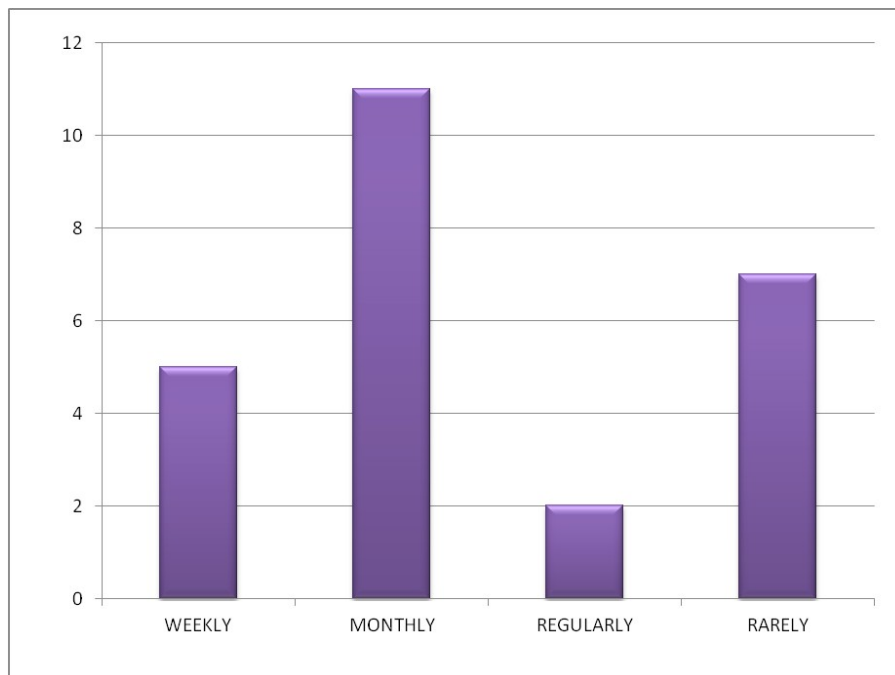
FINDINGS: The people understand that online banking is better than the traditional banking because of its nature. While a few of the people are still not fully convinced.

Q.3 Do you feel your account is secured in online banking?



Poll out of 25: Yes - 11; No - 7; Can't Say – 7

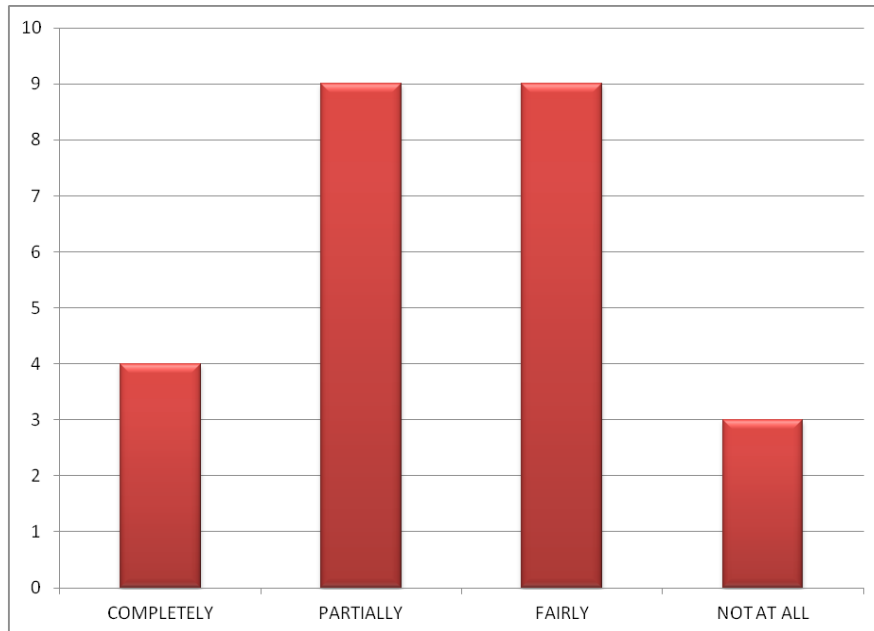
FINDINGS: Majority of the people think that their Account is secured, but not all. Their security concern should be eradicated. This will attract customers.

Q.4 How frequently do you use banking services?

POLL out of 25: Weekly - 5; Monthly - 11; Regularly - 2; Rarely – 7

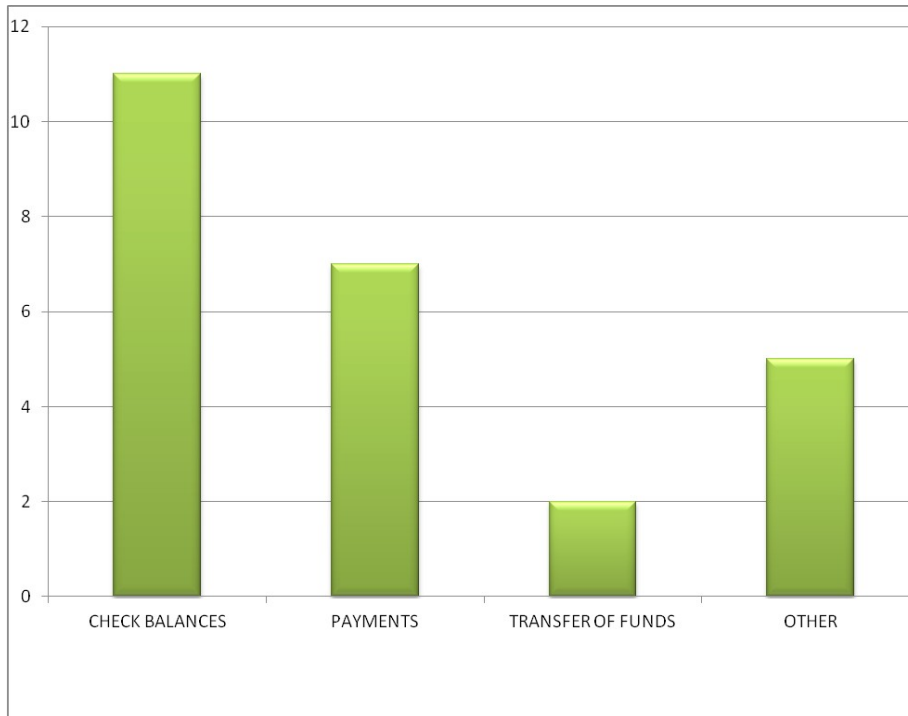
FINDINGS: Most of the people do not need the services of banks regularly or maybethe there is no need. They may transact with the bank on monthly basis for most of the time.

Q.5 How happy are you with services of online banking provided by yourbank?



POLL out of 25: Completely - 4; Partially - 9; Fairly - 9; Not at all – 3

FINDINGS: The satisfaction level of people with the online banking services of theirbanks has a mixed review. This may be due to multiple reasons.

Q.6 What type of transaction do you make in online banking?

POLL out of 25: Check balances - 11; Payments - 7; Transfer of fund - 2; Other -5

FINDINGS: The utility of the online banking is service is not used to the extent is should be and it is being majorly used for the purpose of checking the balance in the account. The reason for this is the low volume of transaction among the people.

CONCLUSION & RECOMMADATIONS

CONCLUSION

The data analysis and its interpretation lead to the following findings and conclusion:

- People are not confident enough to whether to rely completely on online banking. There is hesitancy in their minds with regards to preference. So they use both the techniques of banking i.e. Online and Traditional.
- Because of the complexity and the unawareness in the people regarding the online banking, there is less utilization of the online banking services provided by the banks.
- People are not sure whether their account is completely secured in online banking. Security concern is the main and the core reason why people do not tend to use online banking.
- People in India are not aware of the full utility of online banking and the services that can be availed of in online banking.
- Most of the Indian population are salaries employees who do not have that volume of transaction that can be used for online transaction.

RECOMMENDATIONS AND SUGGESTIONS

After analyzing the entire study on online banking with respect to both the primary and the secondary data, the following recommendations can be put forth:-

- The infrastructure for the development is not being implemented in way that could be beneficial.
- There are various obstacles in the banking scenario with regards to guidelines and issues for functioning. This has led to decline in the usage of the online banking service of the banks.
- The people having accounts can be urged to take up an internet banking facility. They should be motivated rather than just being told that there exists a service of online banking.
- There are more people who are not actually aware of all the benefits that they reap out of the transaction of online banking. They should be proper awareness.
- Most of the people do not count online banking due the problems of security concerns. Proper security software should be developed and people should be convinced that their accounts are secured in online transactions.

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ANNEXURE

“QUESTIONNAIRE”

ONLINE BANKING IN INDIA

Personal Details:

Name: _____

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------

Age (in years): Below20 20 – 35 35 – 50 above 50

Gender: ☐ Male ☐ Female

Educational Profile:

☐ 10th Pass
☐ Graduate

☐
☐ 12th Pass Post Graduate

Question 1 Which bank do you have an account?

Private sector bankOther

Public sector bank

Question 2 What kind of banking do you prefer?

Traditional

Online

Both

Question 3 Do you think online banking is useful?

Yes

No

Can't say

Question 4 How frequently do you use banking services?

Weekly

Monthly

Regularly

Rarely)

Question 5 Do you think online banking is better than traditional banking?

☐☐

Yes

No

Can't Say

☐

Questions 6 Do you feel online banking has a growth potential in India?

Yes

☐

No

☐

Can't Say

☐

Question 7 What type of transaction do you make in online banking?

Check balances

☐

Make payments

☐

Transfer funds

☐

Other

☐

Question 8 Do you feel your account is completely secured in online banking?

Yes

☐

No

☐

Can't Say

☐

Question 9 Are you happy with the services of online banking provided by your bank?

Completely

☐

Partially

☐

Fairly

☐

Not at all

☐

Question 10 For me online banking is