

## E-POCKET AND ITS USE IN BANKING SECTOR

<sup>1</sup>Palvinder Singh, <sup>2</sup>Arti

<sup>1,2</sup> Assistant Professor, Department of Electronics & IT

<sup>1,2</sup>Sanatan Dharma College, Ambala Cantt

### Abstract

A banking system is a collection of institutions that provides us with financial services. These organizations oversee running a payment system, making loans, accepting deposits, and assisting with investments. Depending on the network of institutions, banking systems serve a variety of functions. Payment and lending operations at commercial banks enable us to deposit funds and pay bills or make purchases using our checking accounts and debit cards. They can also assist us in financing our automobiles and residences. Every aspect of the banking system is now available online. We can pay bills, deposit fees, transfer money, recharge our phones, and shop online, among other things. When money is moved online from one account holder to another, these functions are used. These functions are enabled thanks to an internet system known as E-Banking.

### 1. Introduction:

Online banking, also known as internet banking, is an [electronic payment system](#) that enables customers of a [bank](#) or other [financial institution](#) to conduct a range of [financial transactions](#) through the financial institution's website. The online banking system will typically connect to or be part of the [core banking](#) system operated by a bank and is in contrast to [branch banking](#) which was the traditional way customers accessed banking services. Some banks operate as a "[direct bank](#)" (or "virtual bank"), where they rely completely on internet banking.

Internet banking software provides personal and corporate banking services offering features such as viewing [account](#) balances, obtaining statements, checking recent transaction, and making payments. Access is usually through a secure web site using a username and password, but security is a key consideration in internet banking and many banks also offer [two factor](#) authentication using a (security token).

#### 1.1 History:

Online banking was first introduced in the early 1980s in New York, United States.<sup>[1]</sup> Four major banks — [Citibank](#), [Chase Bank](#), [Chemical Bank](#) and [Manufacturers Hanover](#) — offered home banking services. Chemical introduced its [Pronto](#) services for individuals and small businesses in 1983, which enabled individual and small-business

clients to maintain electronic checkbook registers, see account balances, and transfer funds between checking and savings accounts. Pronto failed to attract enough customers to break even and was abandoned in 1989. Other banks had a similar experience. Since its inception in the United States, online banking has been federally governed by the Electronic Funds Transfer Act of 1978.<sup>[2]</sup>

Almost simultaneously with the United States, online banking arrived in the United Kingdom. The UK's first home online banking services known as [Homelink](#) was set up by [Bank of Scotland](#) for customers of the [Nottingham Building Society \(NBS\)](#) in 1983. The system used was based on the UK's [Prestel](#) viewlink system and used a computer, such as the [BBC Micro](#), or keyboard (Tandata Td1400) connected to the telephone system and television set. The system allowed on-line viewing of statements, bank transfers and bill payments. In order to make bank transfers and bill payments, a written instruction giving details of the intended recipient had to be sent to the NBS who set the details up on the homelink system. Typical recipients were gas, electricity and telephone companies and accounts with other banks. Details of payments to be made were input into the NBS system by the account holder via Prestel. A cheque was then sent by NBS to the payee and an advice-giving detail of the payment was sent to the account holder. [BACS](#) was later used to transfer the payment directly.

After a test period with 2,500 users starting in 1994, online banking services were launched in 1998<sup>[3]</sup> using [Minitel](#) terminals that were distributed freely to the population by the government. By 1990, 6.5 million Minitels were installed in households. Online banking was one of the most popular services. Online banking services later migrated to Internet.

Around 1994, banks saw the rising popularity of the internet as an opportunity to advertise their services. Initially, they used the internet as another brochure, without interaction with the customer. Early sites featured pictures of the bank's officers or buildings and provided customers with maps of branches and ATM locations, phone numbers to call for further information and simple listings of products.

In 1995, Wells Fargo was the first U.S. bank to add account services to its website, with other banks quickly following suit. That same year, Presidential became the first U.S. bank to open bank accounts over the internet. According to research by Online Banking Report, at the end of 1999 less than 0.4% of households in the U.S. were using online banking. At the beginning of 2004, some 33 million U.S. households (31%) were using some form of online banking. Five years later, 47% of Americans used online banking,

according to a survey by Gartner Group. Meanwhile, in the UK online banking grew from 63% to 70% of internet users between 2011 and 2012.[\[4\]](#)

## **2. Operations /functions:**

To access a financial institution's online banking facility, a customer with internet access will need to register with the institution for the service, and set up a password and other [credentials](#) for customer verification. The credentials for online banking is normally not the same as for [telephone](#) or [mobile banking](#). Financial institutions now routinely allocate customers numbers, whether customers have indicated an intention to access their online banking facility. Customer numbers are normally not the same as account numbers, because a number of customer accounts can be linked to the one customer number. Technically, the customer number can be linked to any account with the financial institution that the customer controls, though the financial institution may limit the range of accounts that may be accessed to, say, cheque, savings, loan, credit card and similar accounts.

The customer visits the financial institution's [secure website](#), and enters the online banking facility using the customer number and credentials previously set up.

Each financial institution can determine the types of financial transactions which a customer may transact through online banking, but usually includes obtaining account balances, a list of recent transactions, [electronic bill payments](#), financing loans and [funds transfers](#) between a customer's or another's [accounts](#). Most banks set limits on the amounts that may be transacted and other restrictions. Most banks also enable customers to download copies of bank statements, which can be printed at the customer's premises (some banks charge a fee for mailing hard copies of bank statements). Some banks also enable customers to download transactions directly into the customer's accounting software. The facility may also enable the customer to order a cheque book, statements, report loss of credit cards, stop payment on a cheque, advise change of address and other routine actions.

## **3. Features:**

Online banking facilities typically have many features and capabilities in common, but also have some that are application specific. The common features fall broadly into several categories.

A bank customer can perform non-transactional tasks through online banking, including:

- Viewing account balances

- Viewing recent transactions
- Downloading [bank statements](#), for example in [PDF](#) format
- Viewing images of paid [cheques](#)
- Ordering cheque books
- Download periodic account statements.
- Downloading applications for M-banking, E-banking etc.

Bank customers can transact banking tasks through online banking, including:

[Funds transfers](#)

- between the customer's linked accounts
- Paying third parties, including [bill payments](#) (see, e.g., [BPAY](#)) and third party [fund transfers](#) (see, e.g., [FAST](#))
- Investment purchase or sale
- Loan applications and transactions, such as repayments of enrollments
- Credit card applications
- Register utility billers and make bill payments.
- Financial institution administration
- Management of multiple users having varying levels of authority.
- Transaction approval process

Some financial institutions offer special internet banking services, for example:

- Personal financial management support, such as importing data into personal accounting software. Some online banking platforms support [account aggregation](#) to allow the customers to monitor all of their accounts in one place whether they are with their main bank or with other institutions.

#### 4. Security

Security of a customer's financial information is very important, without which online banking could not operate. Similarly the reputational risks to banks themselves are important.[5] Financial institutions have set up various security processes to reduce the risk of unauthorized online access to a customer's records, but there is no consistency to the various approaches adopted.

The use of a [secure website](#) has been almost universally embraced.

Though single [password authentication](#) is still in use, it by itself is not considered secure enough for online banking in some countries. Basically, there are two different security methods in use for online banking:

- The [PIN/TAN](#) system where the PIN represents a password, used for the login and TANs representing [one-time passwords](#) to authenticate transactions. TANs can be distributed in different ways, the most popular one is to send a list of TANs to the online banking user by postal letter. Another way of using TANs is to generate them by need using a [security token](#). These token generated TANs depend on the time and a unique secret, stored in the security token ([two-factor authentication](#) or 2FA).

More advanced TAN generators ([chipTAN](#)) also include the transaction data into the TAN generation process after displaying it on their own screen to allow the user to discover [man-in-the-middle attacks](#) carried out by [Trojans](#) trying to secretly manipulate the transaction data in the background of the PC.[5]

Another way to provide TANs to an online banking user is to send the TAN of the current bank transaction to the user's (GSM) mobile phone via SMS. The SMS text usually quotes the transaction amount and details, the TAN is only valid for a short period of time. Especially in Germany, Austria, and the Netherlands many banks have adopted this "[SMS TAN](#)" service.

Usually online banking with PIN/TAN is done via a web browser using SSL secured connections, so that there is no additional encryption needed.

- Signature based online banking where all transactions are signed and encrypted digitally. The Keys for the signature generation and encryption can be stored on smartcards or any memory medium, depending on the concrete implementation (see, e.g., the Spanish [ID card DNI electrónico](#)[6]).

## 5. E- Banking App:

Almost every bank launches its mobile application. Rather than these apps there is some app which direct communicates with customer account. These apps are BHIM, GOOGLE Pay, PHONE PAY, PAYTM etc.

### 5.1 PayUMoney:

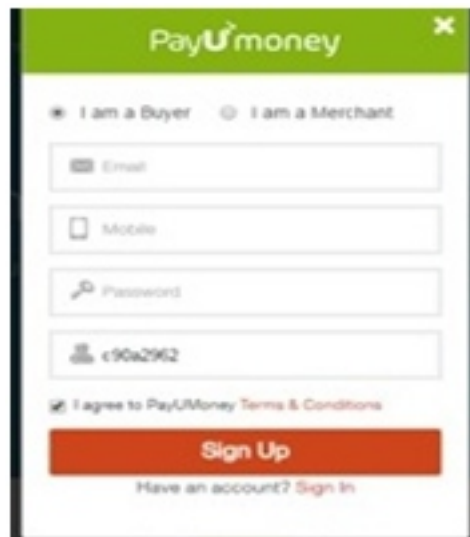
In the Indian market PayU Money is probably the first eWallet service and

provides some exclusive discounts on online transactions such as (Flat 20% off on BookMyShow on Wednesday tickets). Figure 1 shows logo of PayUMoney.



**Figure 1:** PayUMoney logo

It also provides great discounts on FoodPanda.in and other retail stores tool. PayU keeps on updating its main site with exclusive deals, discounts & offers every week.



**Figure 2:** Login Screen of PayUMoney

If you want to use this service, you must do registration after that you have useid and password to use this service. Figure 2 shows login screen of PayUMoney

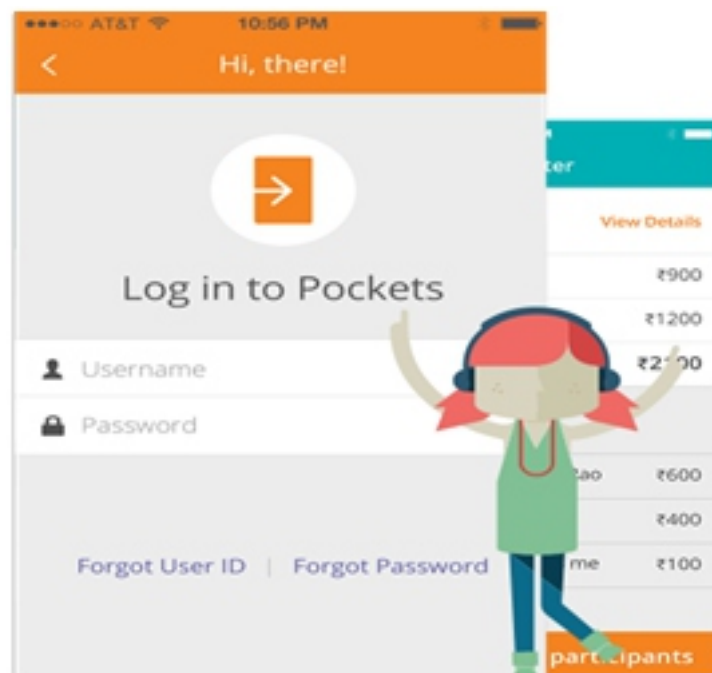
## **5.2 Pockets by ICICI Bank**

Pockets is the newest entry amongst the eWallet services but being a product of ICICI Bank and its powerful back end it has quite a lot of interesting offers stacked up.



**Figure 3:** Pockets by ICICI Bank logo

Figure 3 shows logo of Pocket of ICICI Bank. User can even use Pockets to accept money using mobile number/e-mail ID for using as a gateway to pay for online purchasing. Figure 4 shows login screen of Pocket of ICICI Bank.



**Figure 4:** login screen of Pocket of ICICI Bank

This ICICI Pocket acting as a digital savings account. User can also add money to your Pockets wallet using Cards/ Net Banking. User can also redeem/withdraw your money held in your Pockets wallet to your Bank account at nominal costs.

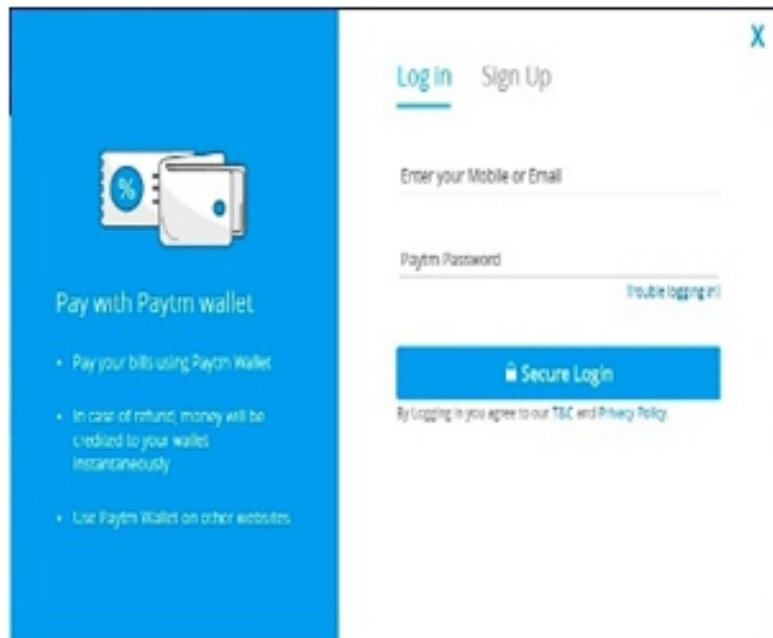
### 5.3 Paytm:

Although, Paytm started off as an online recharge site providing coupons, it has come a long way to have its own shopping portal, discount coupons and full of deals. Figure 5 shows logo of Paytm. Peoples 're never short of deals on the Paytm site, and it has many deals and Paytm coupons running on for bus booking/travels to electronics purchases to home decor and garments tool.



**Figure 5:** logo of Paytm

Paytm wallet can be used to store your cash which can be later used to purchase goods on Paytm shopping portal or many merchants who accept payments by Paytm wallet.



**Figure 6:** login screen of Paytm



You will surely also get cashbacks if you shop using Paytm wallet. If you want to use this service, you must do registration after that you have useid and password to use this service. Figure 6 shows login screen of Paytm. Paytm wallets can also be used to accept and receive money from others, and the money in wallet can also be redeemed into Bank account as well.

#### 5.4 Oxigen Wallet:

Figure 7 shows logo of Oxigen Wallet. It is not accepted as widely as the previous 3 ones, but not to underestimate its power, Oxigen Wallet provides flat discounts, and cashbacks on sites where no other services are able to (e.g., eBay. In).If you want to use this service, you have to do registration after that you have useid and password to use this service. Figure 8 shows login screen.



Figure 7: logo of Oxigen Wallet

If you want to use this service, you must do registration after that you have useid and password to use this service. Figure 8 shows login screen of Oxigen Wallet. Thus, it's quite handy to have it, incase if the above eWallet, eMoney services are not supported by your online merchant.

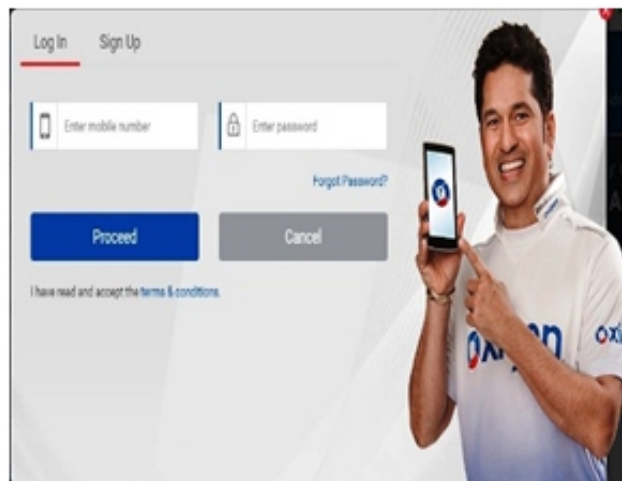


Figure 8: login screen of Oxigen Walle

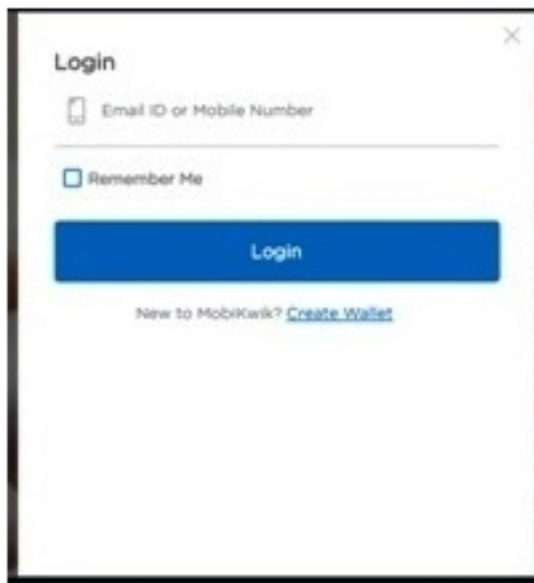
### 5.5 Mobikwik Wallet:

Another eMoney service provider in India is Mobikwik, but it mainly deals with offers on Recharges. Figure 9 shows logo of Mobikwik. It has its present on other online merchants too but in our tests, those merchants were already covered by one or more of the service providers.



**Figure 9:** logo of Mobikwik

We discussed above, and neither was there much difference between the discounts/cashbacks provided between Mobikwik and them, nevertheless it still makes.



**Figure 10:** login screen of Mobikwik Wallet

it way in due to the Recharge Cashbacks offers provided by it. If you want to use this service, you must do registration after that you have useid and password to use this service. Figure 10

shows login screen of Mobikwik Wallet.

### 5.6. PhonePeapp:

One app for all your payments. From utility bills, mobile & DTH recharge, sending & requesting money, to paying your credit card bill and insurance premium. You can do all this and more on the PhonePe app.

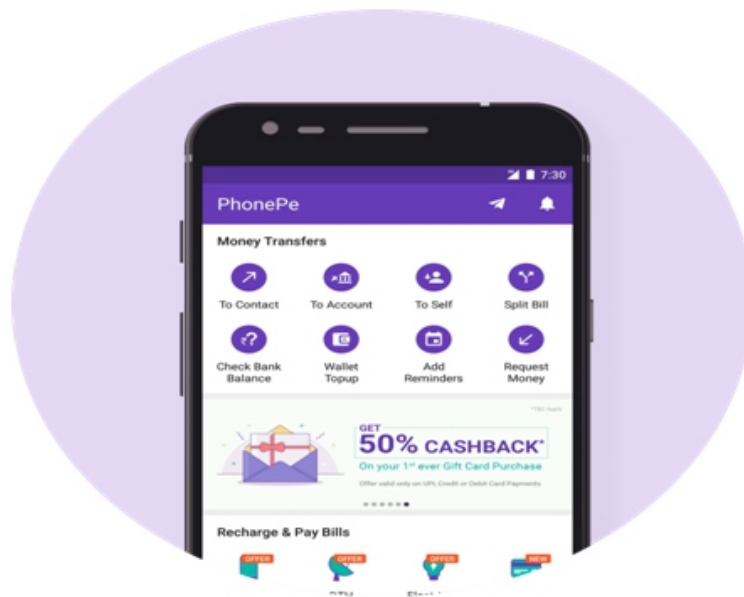


Figure 11:PhonePe app Screen

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