THE STATE COMMITTEE FOR COMMUNICATION,
INFORMATIZATION AND TELECOMMUNICATION TECHNOLOGIES
OF THE REPUBLIC OF UZBEKISTAN
TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGY

To protection to admit
Managing chair
_____
_____ 2013 y.

FINAL QUALIFYING WORK

On a theme:

CONDITIONS AND PROSPECTS OF DEVELOPMENT THE INTERNET-BANKING IN UZBEKISTAN

Graduate _____ Tashkenbaev D.F.
Signature, Full name.

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TASHKENT – 2013

THE STATE COMMITTEE OF COMMUNICATION, INFORMATIZATION AND TELECOMMUNICATION TECHNOLOGIES OF THE REPUBLIC OF UZBEKISTAN

TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGY

Faculty «Economy and Management» chair "Economy"

Direction: 5340100 - Economy (On branches and spheres)

Managing chair _____ «____» _____ 2013 y.

THE TASK

For final qualifying work of the student: Tashkenbaev Davron Fahritdinovich

On a theme: «Condition and prospects of development the Internet-banking in Uzbekistan»

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2. Term of delivery of the finished work: "___"_____ 2013 y.

3. Initial data to work: standard-legal documents, works of the President of Republic Uzbekistan I.A.Karimov, the economic literature on a studied theme.

4. The maintenance is settlement-explanatory note (the list of subjects to working out of questions): 1. The bases of using of internet technologies in bank activity; 2. Condition and the analysis of development of "Internet Banking" in Uzbekistan; 3. Internet banking: problems and prospects.

5. List of graphic materials: Tables Drawings: Dynamics of development in last year's, the changes of figures during two year period, probably changes, the structure of system, increasing rate of changes indicators over the 4 years.

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The task has accepted _____

7. Advisers for separate sections of final work

The name of the section	Supervisors	Signature, date	
		The task was given	The task was received
1. The bases of using of internet technologies in bank activity.	Yunusova Sh.K.	16.01.2013	16.01.2013
2. Condition and the analysis of development of "Internet Banking" in Uzbekistan.	Yunusova Sh.K.	15.02.2013	15.02.2013
3. Internet banking: problems and prospects.	Yunusova Sh.K.	05.04.2013	05.04.2013
4.Vital safety on activity.	Qodirov F.M.	18.05.2013	18.05.2013

8. Schedule of performance of work

№	The name of the section	Deadline of performance	Signature of supervisors
1.	The bases of using of internet technologies in bank activity.	08.02.2013	
2.	Condition and the analysis of development of "Internet Banking" in Uzbekistan.	20.03.2013	
3.	Internet banking: problems and prospects.	11.05.2013	
4.	Safety of vital activity	25.05.2013	

Graduate _____ « » June 2013 year.

Signature.

Supervisor _____ « » June 2013 year.

Signature.

ANNOTATSIYA

Ushbu bitiruv malakaviy ishi O’zbekiston banklaridagi masofaviy xizmat ko’rsatish tizimi Internet-banking xizmatiga bag’ishlangan bo’lib, unda bu xizmat turini banklarda kengroq tatbiq etish yo’llari va uni rivojlantirish istiqbollari ko’rib chiqilgan. Jahon banklari va mamlakatimiz banklaridagi “Internet-banking” xizmatini bugungi holati solishtirilib, tahlil qilib chiqilgan. Ushbu tizimni rivojlanishiga to’siq bo’layotgan omillar aniqlanib, uni bartaraf etish yo’llari bo’yicha tavsiyalar berildi.

ANNOTATION

This final qualification work is devoted to remote banking system the Internet-banking. The ways of introduction and prospects of development of Internet banking in the Uzbek banks. A series of comparative analysis of Internet banking services between the global and domestic banks were hold and findings, and also recommendations are given on ways improving the prevention of problems and distance services.

АННОТАЦИЯ

Данная выпускная квалификационная работа посвящена дистанционной банковской системе Интернет-банкингу. Рассмотрены пути внедрение и перспективы развития Интернет-банкинга в узбекских банках. Проведен сравнительный анализ услуги Интернет-банкинг между всемирными и отечественными банками и выявлены недостатки, а так же даны рекомендации пути по предотвращение проблем и совершенствования дистанционных услуг.

THE CONTENT

INTODUCTION

Important factor of achievement of high rates of economic growth of the country is stable credit and financial system, conforming to high international standards and open for innovations. Steady positions of banks of Uzbekistan, which were reached thanks to consecutive reforming of the sphere and increase of its liquidity, became the guarantor and the original locomotive of dynamical development of national economy.

Domestic bank sector is developing in enviable rates, and consequences of any movement in this market can be notable. State has a considerable influence on a strategy of a bank through corresponding statutory acts and etc.

Necessary measures in this direction is the further capitalization of commercial banks, wide attraction in bank turnover of available assets of the population and managing subjects, increase in resource base, strengthening of investment activity of banks, and also enhancement of standard-legal base of financially-bank activity. These tasks are specified by Decree of the President of Republic of Uzbekistan, Islam Karimov «*About priority directions of the further reforming and increase of stability of financial and banking system of the Republic in 2011-2015 and achievements of high international rating indicators*[1] and «*About additional measures on the further development of information-communication technologies*»[2].

Changes which have occurred over the last ten years in credit and financial sphere have caused occurrence of various financial tools, and in particular of some new ones to the banking products domestic market for example variations of

[1] Decree of the President of the Republic of Uzbekistan dated on 10/26/2010, the number of PP-143 “On the priority areas for further reform and improve the stability of the financial and banking system of the country in 2011-2015 and the achievement of high international figures”.

[2] Decree of the President of the Republic of Uzbekistan dated on 7/8/2005, the number of PP-117 “On additional measures for further development of information and communication technologies”.

plastic cards, systems of remote management of accounts: "Internet banking" and etc. Innovative development and the use of ICT becomes major line of activities of commercial banks with their occurrence.

Starting modernization of an IT infrastructure of a bank it is necessary to understand requirements of business. As well as any business, a bank also needs to raise productivity, to create such conditions that clients feel comfort. Modern lines of the market for the bank's products and services demand the complex approach to optimization of all lines of activity of a modern bank.

For this purpose it is necessary

- to create legal conditions for wider application of modern electronic technologies in banking system;
- to provide equal possibilities for the credit organizations in fulfilling the operations and the transactions which are conducted on financial markets, on the basis of modern information and banking technologies;
- to give particular attention to questions of creation of system of interbank calculations in a mode of real time.

One of the basic features of modern banking system is prompt development of computer and telecommunication means. Information systems make essential impact on profitableness of credit organizations, their competitiveness and appeal to clients.

Introduction of "Internet banking" in domestic banking system - an imperative need to survive in the international market. It is a chance for successful competition. All factors set above have also caused a **topicality** of the chosen matter.

Final qualifying work consists of the introduction, four headings, the conclusion and the references.

1. BASES OF APPLICATION OF INTERNET TECHNOLOGIES IN BANK ACTIVITY

1.1. Kinds, tasks and functions of the banks

Banks play a huge role in modern economy. A year from year banking system of Uzbekistan is becoming more and more stable. Along with important achievements we are attaining success in the decision-making of some actual issues. Measures on enhancement of standard-legal base in bank activity have been performed to increase the competitiveness of domestic banks with those of developed countries during the last decades.

The bank is a legal body and as well as commercial organization that performs a set of following types of activities, determined as a bank activity[3]:

- Accepting of contributions from legal and both physical parties and the use of the accepted means, for crediting or investment on own risk;
- Realization of payments.

Characterizing credit-bank system, we can allocate its three major elements:

- Central (issue) bank;
- Commercial banks;
- Specialized monetary institutions.

Thus, the bank system is comprised of the aforementioned former and latter elements (Fig.1.1.1).

[3] The law of Republic of Uzbekistan: «About banks and bank activity» 4/25/1996.

The centers of the credit-monetary system in each country are banks of issue to which the state gives a monopoly on release (issue) of banknotes. They loan funds to other banks and in this sense are the ruling institution of the banking system of a country

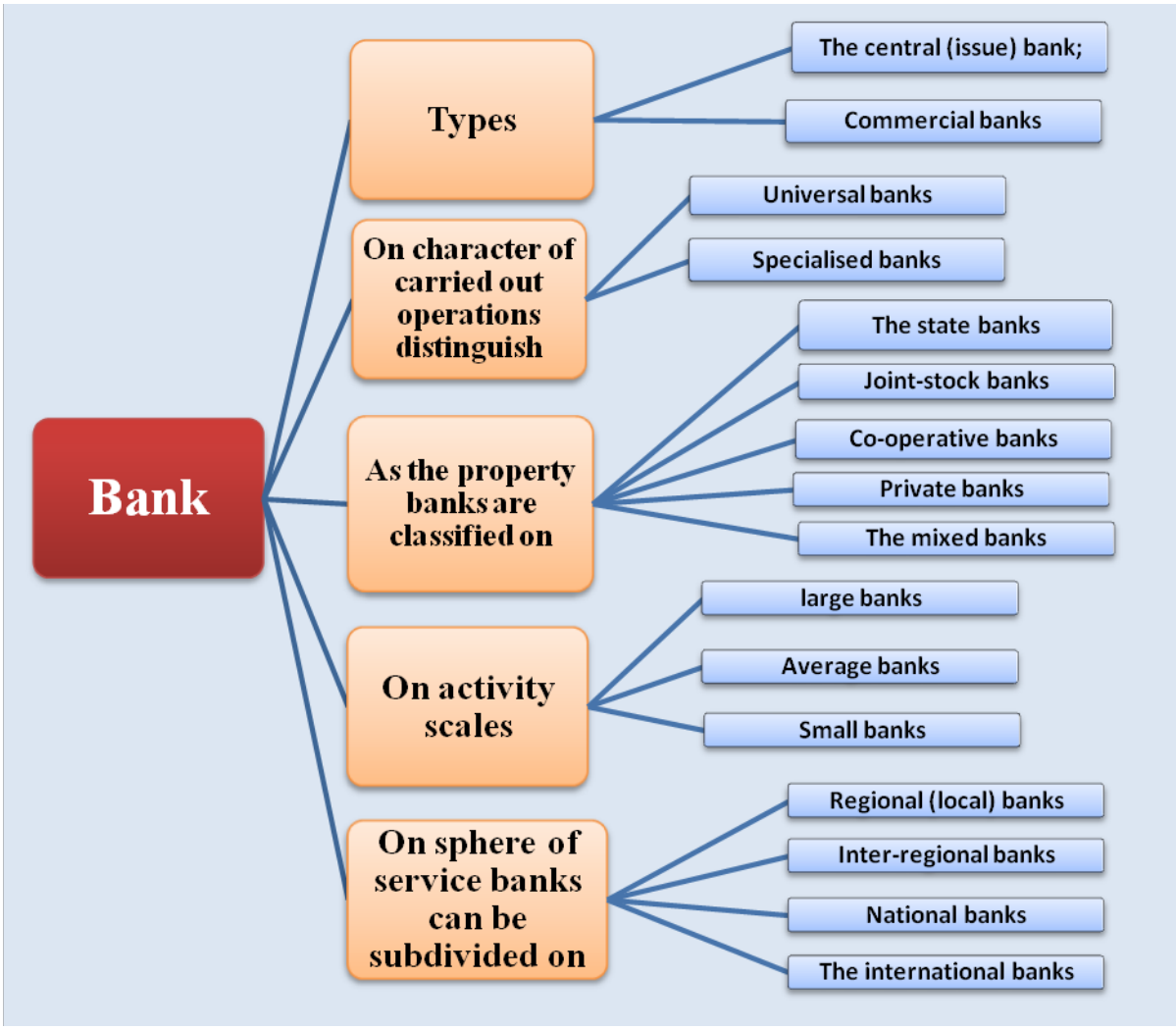


Fig.1.1.1. Structure of banks[4]

In our country the centre of credit-monetary system is the Central Bank of Republic of Uzbekistan. The central bank does not carry out operations with business firms or the population. Its clientele – commercial banks and other credit institutions, and also the governmental organizations to which it renders various services. One of the major functions of a modern central bank – carrying out national monetary policy which regulates the financial sector and national economy as a whole.

[4]The figure was made by Author.

Commercial banks are multifunctional organizations which operate in various sectors of the loan capital market. Large commercial banks give clients a full range of financial services, including credits, acceptance of deposits and etc. They differ from specialized monetary institutions which possess the limited functions. Commercial banks traditionally play a role linkage instrument of a monetary-credit system.

Depending on the carried out operations banks are differentiated to universal and specialized banks. Universal banks carry out bank activity which is not limited to:

- national economy industries;
- a railroad train of served clientele;
- quantitatively;
- regions.

A universal bank provides services to various industries while a specialized bank is connected with crediting of any certain industry of an economy, more often groups of the enterprises; for example some banks may mainly serve automobile industry.

Banks are classified on state, joint-stock, co-operative, private and mixed depending on the property classification.

In the conditions of a transition period the state pattern of ownership on banks keeps the value. However, not in such scales, as in the distribution system of managing, when only state possessed a monopoly on bank creation. Nonetheless, in today's modern conditions a state keeps the certain share in the capital in a number of banks.

Banks can be created on the state basis. In the international practice banks are full representatives of the state (can also be joint-stock banks) on financing governmental programs. The state enterprises can be shareholders of a commercial bank.

In the conditions of an economic crisis and recession of a banking system the state attempts to strengthen its influence on banks. State regulation leads not

only to a rigid monetary and credit policy, increase of specifications of reservation, liquidity, but also to formation of special credit institutes with prevalence of state ownership in the banking capital. Such banks are often called Development Banks. Through them the state has opportunity to perform target investment in an economy.

In the conditions of market economy the most typical pattern of ownership of a commercial bank is the joint-stock form. Today there are 29 commercial banks in the Republic Uzbekistan. Two of them are state-owned, 13 joint-stock banks, four banks with participation of the foreign capital and 10 private banks are.

Banks are allocated to large, average and small based on the scales of activity.

On sphere of servicing banks can be subdivided on regional (local), inter-regional, national and international. Banks which serve the local residents are regional banks. Inter-regional banks serve requirements of several regions. National banks are the banks performing activity in the country and serving mainly requirement of clients of the countries; the international banks mainly serve communications of clients of the different countries.

Today the commercial bank is capable to offer a client up to 200 kinds of various bank products and services. The wide diversification of operations allows banks to keep clients and to remain profitable even when there is adverse economic conjuncture. In all countries with market economy they remain the main operational link of credit system.

It is necessary to consider that not all daily bank operations are present and are used in practice of concrete banking establishment (for example, accomplishment of international payments or trust operations). But there is certain base "kit" without which the bank cannot exist and normally function. Such constituting operations of a bank are:

- Acceptance of deposits;
- Realisation of money payments and calculations;
- Issue of credits.

The deposit can arise in two ways: as a result of entering of cash into bank (or presentations urgent for payment debt obligations) by the client or in the course of bank crediting.

The second extensive functional sphere of action of banks – intermediary in the credit. Commercial banks carry out a role of intermediaries between economic units and the sectors accumulating temporarily free money funds, and those participants of economic turnover who temporarily need the additional capital.

The bank credit is rather convenient and in many cases the irreplaceable form of financial services which allows to consider flexible requirements of the concrete borrower and to adjust the conditions of reception of the loan.

Besides accomplishment of base functions banks offer clients set of other financial services. For example, banks perform any confidential operations for corporations and the private parties connected with assignation in management to bank on a confidential (trust) basis, purchasing for clients of securities, management of real estate, accomplishment of warranty functions etc.

Other aspect of activity of banks is connected with release and market placing of securities.

As a whole accomplishment of deposit-settlement operations, credit servicing and other important functions allow commercial banks to take a unique place in the credit system.

State of the economy depends on the quality and a variety of these services as a whole, customer satisfaction degree in particular and level of the income of the bank.

Nowadays, internet technologies are promptly developing. They are widely being used in banking sector today.

Introduction of ICT in the banks of Uzbekistan have led to origination of new types of service. All these innovations should accelerate rate of development of the banking system of the country as a whole in the near future.

1.2. Origin of bank service "Internet banking"

Modern internet technologies allow banks to erect a part of the services to new level, thereby involving new clients and reducing costs on their servicing. Recently, banks have been giving to clients access possibility to the accounts directly through the Internet for the organization of payments between the parties[5].

Management of bank accounts through the Internet, or Internet banking, is today's most interesting direction of financial decisions thanks to a wide range of the bank services presented in systems of Internet banking. Internet banking systems can be a basis of systems of remote work in the security markets and remote insurance, as they provide carrying out of calculations and the control over them from all participants of financial relations. Internet banking systems include a complete kit of the bank services given to clients except for operations with cash.

In the West, use of the Internet by banks for customer service was a logical development of a technology called Home-banking. Remote bank service in-home began in 80th with telephone bank servicing. Then there were services of remote servicing with use of the personal computer and direct connection to bank servers (PC banking). And in 1995 there were first banks which have offered clients PC banking at qualitatively new level to the full use of communication and service possibilities of the Internet – Internet banking[5].

In 1995 in the United States the first ever virtual bank — Security First Network Bank has been created. The given bank had no physical office for work with clients. Opening of the bank account and access to it was performed exclusively through a bank's website. For the first one and a half years of existence of the bank the average gain of the capital has constituted 20% a month, assets

[5] Rassolov I.M. The Internet and right – Moscow-2004.

have grown to 40 million dollars, and more than 10 thousand client accounts have been opened.

In Europe the first virtual bank was Advance Bank, affiliated structure of the Dresden bank group (Germany) which has begun the activity in 1996.

In March 2001, the Japanese government has granted the license for the opening of an online bank of corporation of Sony. Only for the first month of work in it, twenty one thousand accounts were opened. Success of the American and Japanese virtual bankers have inspired the others. Now all big banks, except standard servicing in departments, offer clients high-grade service in an online mode. The world was overflowed by a fashion on so-called direct-banking — bank services without creation of a network of departments, that is through the Internet or phone. Such tendency has objective bases under itself: popularity of purchasing and other transactions through the Internet grows, besides the globalization of ordinary bank activity[6].

Today all kinds of the bank activities performed with the use of the Internet, depending on their share (prevalence) in the market of corresponding bank services, are subdivided into the basic and additional. Thus, classification of kinds of electronic bank activity can be performed both on legal, and on technological bases:

1. From the legal point of view, taking into account norms of the current international and Uzbek bank law, to principal views of the bank activity, the following bank operations and the transaction are performed with the use of the Internet:

- ❖ Opening and conducting bank accounts with the use of the Internet as a tool of realization of the given operation;
- ❖ Realization of clearing settlements on the instructions of physical and legal bodies under their accounts with the use of the Internet as the tool of realization of the given operation;

[6] Kolesnikov V. I. Krolivetsky L.P. Banking. The finance and statistics, Moscow. 2005.

❖ foreign exchange purchase and sale in the cashless form in the world banks with use of the Internet as the tool of realization of the given operation.

To additional kinds of the bank activity performed by the use of the Internet, the following bank operations and the transaction concern:

- Attraction of cashless money funds of physical and legal bodies in contributions through the Internet;
- Placement of the involved funds on its own behalf and own expense with the use of the Internet as the tool of realization of the given operation;
- Rendering of information and consulting services with the use of the Internet.

It is necessary to notice that bank operations and the bank transactions carried out by us to additional kinds of bank activity, yet have not found wide application in the credit organizations, which are subjects of Internet banking. However, these kinds of bank services in the near future, can determine strategy of the credit organizations (banks) in the market of electronic bank services.

2. From the technological point of view all kinds of the bank activity performed with the use of the Internet, depending on the used technology of joining of the client to Internet banking system are subdivided on:

❖ Internet banking performed with the use of the personal computer connected to the Internet;

❖ Internet banking performed with use of a mobile phone or other device of remote access.

More often, it is accepted to identify concept of Internet banking service with granting to the client the possibility of direct access to the bank account through the Internet by means of the usual computer and with the use of the standard browser.

Internet banking is possibility to make all standard operations which can be performed by the client at bank office (except for operations with cash), through

the Internet[7]. Adhering to the given determination, it is possible to tell that Internet banking includes the following possibilities:

- To pay for utility bills: the electric power, gas, phone, the rent, a heat supply;
- To pay accounts for communication (an IP-telephony, cellular and paging communication, the Internet) and other services (satellite television, training, etc);
- To produce remittances, including in foreign exchange, into any account in any bank;
- To transfer funds in payment of invoices for the goods, including purchased through Internet shops;
- To buy and sell foreign exchange;
- To deposit/withdraw funds to/from a plastic card account;
- To open various kinds of accounts (urgent, savings, pension) and to transfer money funds to them;
- To receive statements about a state of the account for the certain period in various formats;
- To receive the information on the arrived payments in a mode of real time;
- To receive the information on effected payments and, if necessary, to refuse unpaid payment;
- Other additional services: a magazine subscription and newspapers, broker servicing (portfolio security purchase/sale, possibility of participation in bank unit investment trusts, participation in the FOREX market).

All listed actions were accessible even before occurrence of the Internet when banks rendered Bank-client service. By means of the computer and the modem the client could unite with special bank system (also through a modem pool) for management of the account. In this case, the special software is obligatory to be established on the computer of the client. Banks at transition to

[7] Cepro A.G. Internet and the right. Moscow. 2003.

rendering of Internet banking can use the old Bank-client system that should not lead to the big financial expenses. Thus, banks should consider following features:

First, service will be performed with the use of the new report of communication.

Secondly, it will be necessary to raise safety of information transfer. In the third, the system should provide possibility of carrying out of transactions in the conditions of electronic commerce, i.e. possibility of a merchandise payment or the services purchased on the Internet.

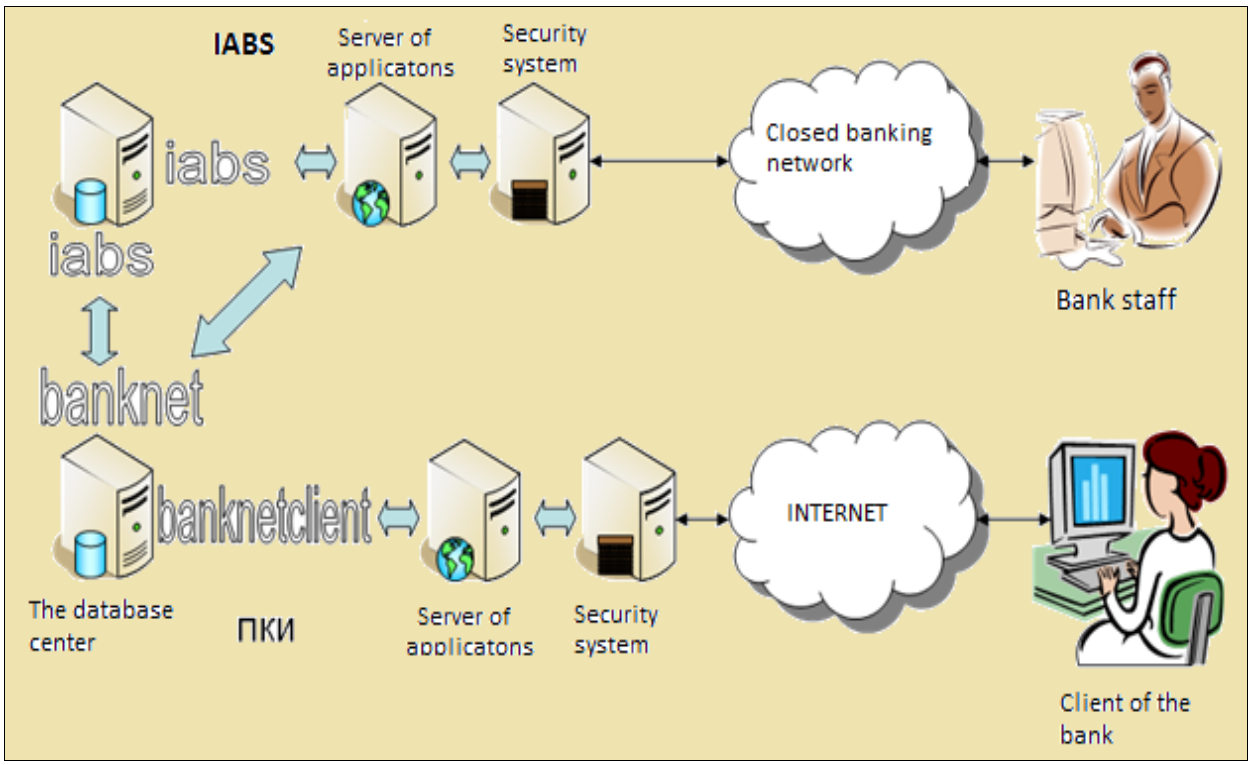


Fig1.2.1. The Block diagramme of RBS the "Internet banking"[8]

Internet banking has some advantages in comparison with Bank-client service. Besides that the client receives new possibilities at work with the account through the Internet, instead of direct modem connection, this activity becomes much easier and more accessible to it. The client does not need to dial to a modem pool of bank, it is enough to have Internet connection. And the most important thing: the client does not need to establish the special software on the computer. It

[8] http://www.images.google.com.

can perform all necessary operations and payments by means of the browser at filling of standard web-forms (sometimes Java-applets can be used for this purpose).

In turn, the Internet banking performed with the use of a mobile phone, in conformity is subdivided by classification into WAP-banking and SMS banking.

WAP-banking represents remote management bank accounts of the user, performed by means of a mobile phone equipped with the special software on the basis of the report of wireless data transmission.

Recently, in process of development of the mobile Internet, the numbers of banks are opening access possibility to the bank account of the clients by means of the cellular telephones supporting WAP. At the present, the majority of banks give only access possibility to the information on transfer of funds under accounts. Possibility to perform payments under the set list of correspondents, to deposit money funds into card accounts, to register payments under accounts in bank is much rarer[9].

SMS banking allows a client to receive the operational information about:

- Receipt of the funds to the account;
- Write-off of the funds from the account;
- Balance of the account;
- Bank operations conducted during the day.

SMS banking is a part of Mobile-banking access with the information level, allowing sending and receiving SMS - messages with the information on current remainders and movement of the funds under depositary accounts, including under card accounts of holders of bank plastic cards UZKART.[10]

1.3. Competitive advantages of Internet banking before traditional bank services

[9] Collins R. S. Business and E-commerce: possible ways of rapprochement. Moscow. 2005.
[10] http://www.bank.uz.

With the introduction of "Bank-client" system by global banks the process of realization of operations of legal bodies with the bank account has considerably become simpler: the accountant of the enterprise having the personal computer with the modem, has had an opportunity to work with the bank account, without leaving walls of the office. Only thing necessary for this purpose is to install the special program and to receive a diskette with digital signatures in a bank. In some banks servicing "Bank-client" system provides installation of the special ciphering block in the computer of the client. In this case the role of the carrier of digital signatures is carried out not by diskettes, but special cryptographic cards[11].

Using "Bank-client", it is possible not only to pay the accounts, but also to find out about balance, movement under the account, the list of receipts for a day. Important advantage of the use of the given system is that the fresh information can be received as often as it is necessary, and all in some minutes. Besides, use of "Bank-client" allows to abstract, to a certain extent, from the factor of territorial affinity at a bank choice. Instead the attention can be transferred on the most important parameters of banking establishments - reliability, profitableness, availability of interesting services, their quality, cost and etc.

However, even such a progressive system is quickly replaced by new technologies. The matter is that, in practice, during the use of "Bank-client" system, it is not always possible to reach the efficiency in reception of the fresh information. This restriction is determined by the necessity of reaching a call to the modem, established in a bank, which cannot serve more than one client for one communication session. Therefore, even under condition of constant escalating capacities of a modem pool with growth of the number of clients of a bank, there is more and more difficultly to provide instant communication. Besides, escalation of capacities of "Bank-client" system at the expense of purchasing telephone lines and computer equipment is expensive enough and ineffective solution. Besides for time which has been conducted on a line, it is necessary to pay - and much enough if the bank is in the other city. And to get access to the account from the house or a hotel

[11] Zazhigalkin A.V. International legal electronic commerce adjustment. Sankt-Petersburg.2005.

room is impossible. The best decision has been found connecting banking technologies with modern possibilities of the Internet[12].

Table 1.3.1.

Advantages and disadvantages of introduction of RBS system through the Internet for commercial bank[13]

Advantages	**Disadvantages**
Saves time of operators for acceptance and handling of documents of clients	Demands costs for acquisition or system creation, its introduction and training of employees
Allows to unify work with documents of clients and provision by their various reference information	Demands costs for servicing (including communication channels with high throughput at servicing of a great number of clients)
Acts as a powerful factor in the competition for customers	
Allows to receive additional means in the form of a payment for use of system by clients	

Improvement of reports of safe data transmission has allowed to come to simple and effective decision - to transferring monetary transactions to the Internet. The new technology, as already has been specified above, has received the name "Internet banking" abroad, though often it is called online (or home) banking. In Uzbekistan, banks use their own names for promotion of this service, such as «Online banking», "Internet-client-bank", "Internet bank" and others. Some banks taking marketing research into account have decided to name remote Bank services under other names. For example, "Universal Bank" has decided to provide online services to its clients under the name “HAYDA!”. And it has already triggered interest among clients to this service.

The important advantage of Internet banking for clients is the absence of necessity to buy the additional equipment for transition to work on the new system. It also allows to include physical persons among to the users of Internet banking, who can use their personal computers to pay utility bills, phone bills and the purchased goods, without being pushed in lines of a savings bank and at any time.

[12] Lavrushin O. I. Banking. An express rate. The education guidance. Moscow.2007.
[13] The table was made by Author.

Besides, the use of Internet banking has a number of unique advantages inaccessible with the use of "Bank-client" system. Besides accomplishment of standard bank operations, the user can sell or acquire securities, currencies to perform operations in FOREX market, to translate means for depositary, card accounts or to use other bank services, and to perform it as fast as possible, in any time of the day and from any place of the world. Working through the Internet, users can manage their accounts, use e-mail and the world resources of the Internet simultaneously[14].

Table 1.3.2.

Advantages and disadvantages of introduction of RBS through the Internet for the client of a bank[15]

Advantages	**Disadvantages**
Allows to work with the accounts, without leaving office or home	Sometimes demands the additional equipment and higher qualification of users of the computer
Provides more complete protection of the information on accounts, rather than by fax or phone	Often demands some time for a training for a new profession of employees for work with electronic documents
Allows to receive various reference information from a bank in an online mode	As a rule, banks levy a big fees for using such system
Allows the client to choose bank, without paying special attention to territorial affinity	

Management of bank accounts through the Internet, or in another way Internet banking, is the most dynamical and representative direction of financial Internet decisions, owing to most wide range of the financial and banking services presented in the systems of Internet banking. Similar systems can be a basis of systems of remote work in the security market and remote insurance since they provide carrying out of calculations and the control over them from all participants of financial relations.

Use of systems of Internet banking gives a number of advantages: first, time at the expense of a necessary exception is essentially saved to visit bank personally; secondly, the client has possibility 24 hours a day to supervise own

[14] Kolesnikov V. I. Krolivetsky L. Banking work. Moscow-2010.
[15] The table was made by Author.

accounts and, according to the changed situation on financial markets, instantly to react to these changes (for example, having closed contributions to bank, having purchased or having sold currency, etc.). Internet banking systems are irreplaceable for tracing operations with plastic cards - any write-off of funds from the card account is operatively reflected in statements under the accounts, prepared by systems that promotes an increase of the control from the client behind the operations[16].

Possibility to work with plastic card accounts allows to use Internet shops in Uzbekistan, and as well as abroad at absolutely safe level – it is enough to transfer the required sum to the card through the Internet banking system, and then by means of this card to pay any service or the goods in Internet shop on a web site. Thus, under cards-accounts in system there will be Statements from which it is possible to specify what sum of means are accessible to be written off from the card, for what and etc.

Having mentioned a safety issue of financial transactions, and in particular safety of transactions in Internet banking systems, it is possible to tell with confidence that modern technologies of hardware-software protection are in the level, providing a guarantee on confidentiality of operations and safety of funds. But the most important thing, banks are interested in safety of means – the service providers of Internet banking answering not only for safety of the finance of the clients, but also for the means and reputation first of all[17].

Growing popularity of Internet banking, not only in the West, but also in Uzbekistan, confirms once again that there was a steady and solvent demand on this nonconventional kind of banking services.

Thus, advantages of Internet banking makes this service attractive for both domestic banks and their clients. Its use will essentially allow to reduce time of transactions, involvement of new clients in bank operations; first of all physical

[16] Grizova A.I. New payment technologies. The Directory edition. Moscow-2011.
[17] Balabanov I.T. Electronic commerce. Sankt-Petersburg -2001.

persons, and by that to lower volume of cash circulation, and also to improve banking system at the expense of a competition.

Disadvantage of Internet banking is rather low level of protection in comparison with "bank-client" system or documentary registration of transactions. Although, Secure Sockets Layer (SSL) technology is the Internet safety standard, it, owing to its prevalence, is well-known to potential burglars and cannot warrant the same level of safety as "client-bank" system, which works in the closed networks that do not have Internet connection.

Safety of systems of Internet calculations is a key point. From a technical aspect, all systems used today provide sufficient degree of protection that in turn proves to be true practice. However, banks and their clients periodically face facts of fraud. Certainly, bankers do not like to share the similar information with the public, and there are objective reasons for it. All known facts of fraud have appeared to be possible not because of weakness of algorithms or their realization, but because of the human factor. For this reason banks recommend to clients not only to limit access to key carriers, but also to produce regeneration of keys at change of authorized representatives, and also immediately to block access to system when key carriers are lost[18].

Let's notice that in Uzbekistan safety of such systems are much higher than in the West. In particular, for operation realization it is necessary to confirm the document by means of the digital signature or other means. At the same time the western banks allow to carry out operations, using for confirmation only the password, that is an one-factorial variant of protection. Although today they are implementing more serious methods of protection based on two-factorial authentication.

However, Uzbekistan is also moving on the direction of developing such protection systems. The banking industry in our country has always been the most advanced in respect to the use of technological decisions. So, today there is a

[18] Ljubarsky E. «Internet banking has come to Russia», http://www.Lenta.ru.

process of standardization of a policy of the information security, aimed to an increase of level of safety of the banking system.

2. THE CONDITION AND THE ANALYSIS OF DEVELOPMENT OF INTERNET BANKING IN UZBEKISTAN

2.1. The market of internet technologies and a tendency of its development

Today for banks exists two basic ways of introduction of system of Internet banking: application of hardware and software which implements directly all stages of work of the user through the Internet in the bank and the use of another's technology as a service. Naturally, each approach has both the advantages and disadvantages.

When connecting the system as a service, the bank can use a technological complex of the operator, rendering service to its clients. It is obvious that the bank in that case should not acquire additional servers and implement additional software. Realization and maintenance of work of the system is performed by the means of the operator. But even in this case it is impossible to do without completely additional software — it requires the module for integration of services of Internet banking with the automated bank system.

Introduction of own system assumes availability of certain base, both in the technical plan, and concerning qualified personnel. While the technical aspect is solved easily enough today — to choose and order the necessary equipment is not a problem, the situation is much more difficult when it comes to hire qualified personnel. Even the introduction of the ready system will demand considerable efforts. Certainly, the companies-developers can execute adjustment of the system and lead its support, however for the various reasons such approach is not interesting to all.

Successful introduction yet does not say that the system is completely ready to work. That is why it is recommended to hold its testing for real clients. Usually for this purpose several most active and loyal clients are chosen for cooperative testing of the system. Only after its successful end it is possible to start mass connection of clients and promotion of Internet servicing on the market. In practice, even after successful testing of system with five clients, it started to give out errors when large quantities of clients got connected. Fortunately, technical support services quickly react to similar problems, helping to solve them within a few minutes but if process is delayed longer, it can seriously damage the reputation of a bank.

Developers or services-providers of a bank's Internet systems are those without whom it would be impossible to imagine rapid development of the Internet banking. Certainly, there are banks which developed systems under their needs, taking into account the specific features of their services. Generally those are large national banks. However, the overwhelming majority of banks use the standard systems offered by professional firms-developers. For example, not all banks (especially small or average) are capable to create their own management information system (the automated control system).

There are usually 4-5 developers in the market of suppliers of the systems of Internet banking in Uzbekistan. The main share of incomes is still occupied by such companies as «Fido-Business» and «Intelligent Solutions».

Table 2.1.1 shows the quantity of systems being in commercial operation in 2011 and 2012. Calculation of quantity of banks in which Internet banking systems are implemented is carried out by suppliers based on «installation points». For example, if the system is established in separate branches of the bank, each branch is considered a separate point of installation in this case. Branches of big banks are frequently much more than other banks of the region, and introduction of Internet banking in a branch is comparable with introduction of the similar system on the average or small bank. Also it is necessary to consider that one bank can acquire

two systems of Internet banking from different developers, for example for servicing physical and legal bodies to use systems from different developers.

Apparently from the table, 28 systems of Internet banking in banks and their branches from developers have been implemented until 2013. The greatest share from the total quantity of the market of external developers of the system as of the end of 2012 belongs to «Fido-Biznes» – 39%.

Table 2.1.1.

Quantity of systems of Internet banking from the developers who are in commercial operation in banks and branches[19]

The developer	Quantity of systems being in commercial operation on the end of 2011, piece	Quantity of systems being in commercial operation on the end of 2012, piece	Share from total quantity of the market of % (the end of 2011)	Share from total quantity of the market of % (the end of 2012)	Dynamics of development for the last year, %
“Fido-Biznes”	7	11	43,8	39	157,1
“Intelligent-Solutions”	4	8	25	29	200
Others	5	9	31.2	32	180
Total	16	28	100	100	

The total quantity of introductions for a year has grown by 57% and has constituted 11. In 2013, the given tendency should continue. At the moment the "Internet banking" and "Client-bank" by Fido-Biznes is being implemented and in other banks and branches.

On the second place of external developers of the Internet banking as of the end of 2012 is «Intelligent Solutions» – 29 %.

Rather low cost of licenses and services in introduction, and the subsequent support are the doubtless pluses of home producers:

- Cost of the license of the home producer on the average is at least 10 times less than that of a foreign analogue;

- Constant «right on the hand availability» of the developer of the system;

[19] The table was made by Author.

- Complete accounting of the legislation of Uzbekistan.

The main disadvantages of domestic solutions for the Internet banking software are technological details. It is poor scalability of a number of solutions and low productivity at a significant amount of inquiries.

Other than that, functionality is smaller in comparison with the foreign technological solutions. It is due to the fact that the majority of domestic software products "has grown" from the classical "Bank-client" system, intended for work with legal bodies, as it was already mentioned earlier.

As a whole, it is possible to allocate 2 schemes on which a bank can acquire the software for Internet banking. The first is direct sales — the developer proposes the solution with a discount of 10%, and charges up to 20% of the cost of licenses for technical support. The second scheme is renting — the supplier of the solution gives licenses for almost free of charge, but cost of technical support in this case raises at least to that level which justifies "free" licenses.

Key advantage of foreign developers is the experience of foreign suppliers of the software in the market of retail financial services. It is because of its early origination abroad, not alike in Uzbekistan and has become integral part along with the aged formulated laws. Accordingly the class of the solutions directed on optimization of servicing of retail clients is very wide and completely meets the requirements of the market. As for the advantages, we have to note really deep integration of all modules in foreign software products, all of them are constructed on a uniform platform with uniform architecture. That is why good scaling and high efficiency can be reached.

Summarizing, we can note that for small and average banks domestic software products for Internet banking appear to be more preferable since the necessity of completions is brought to minimum, and solution cost is low. For really big and largely scaled projects it is necessary to pay attention to foreign products, having relied on experience of their suppliers and technological base. Nevertheless, it is important to weigh all pros and cons in this case as well: practically, already today many Uzbek solutions do not yield to foreign ones on

functionality, thus they are "initially ground" under the legislation of Uzbekistan. Anyway, it is necessary to consider a number of factors when choosing appropriate software. The key one is taking the legislation of Uzbekistan into account, technological and functionality of the solution, and also an aggregate value of ownership of a system. However, the greatest attention should be paid to availability of operating experience of a product while making a decision choice.

Today, we can obviously assume that in the near future the Uzbek market of Internet banking is subject to progressive changes - both quantitative and qualitative.

Table 2.1.2.

The Uzbek banks supporting Internet banking[20]

№	Bank	System
1	"Uzpromstrojbank"	«FIDO-BIZNES»
2	"Asaka"	«FIDO-BIZNES»
3	“National Bank”	OTHER
4	«Invest Finance Bank»	«INTELLIGENT SOLUTIONS»
5	"Agrobank"	«INTELLIGENT SOLUTIONS»
6	"Mikrokreditbank"	OTHER
7	“Xalq Bank”	«INTELLIGENT SOLUTIONS»
8	"Ipotekabank"	OTHER
9	"Kishlok курилиш bank"	«FIDO-BIZNES»
10	"Trastbank"	OTHER
11	«Asia Alliance bank»	«FIDO-BIZNES»
12	"Alokabank"	«FIDO-BIZNES»
13	"Uzbek-Turkish bank"	OTHER
14	Turonbank	«FIDO-BIZNES»
15	"Universal Bank"	OTHER
16	"Savdogar"	«FIDO-BIZNES»
17	"Ipak Йўли"	«INTELLIGENT SOLUTIONS»
18	"Orient Finans"	OTHER
19	"Ravnaq-Bank"	«FIDO-BIZNES»
20	"Credit-standard"	«FIDO-BIZNES»
21	"Kapitalbank"	«INTELLIGENT SOLUTIONS»
22	«Samarkand»	«FIDO-BIZNES»
23	"Hamkorbank"	«FIDO-BIZNES»
24	"Davrbank"	«INTELLIGENT SOLUTIONS»
25	“Amirbank”	OTHER
26	"Turkiston"	OTHER
27	«Hi-Tech Bank»	«INTELLIGENT SOLUTIONS»

[20] The table was made by Author.

In the near future there should be serious changes in a segment of personal Internet banking. Growth of solvent demand from the population, activization of a non-bank competition for savings and payments of physical persons, an entrance of several banks with high-grade services of Internet banking to the market will urge on activity of other banks in this segment. Release of the solutions focused exclusively on physical persons, by leading developers of the systems of Internet banking, should become a powerful push in the market development.

Development of technologies of Internet banking should proceed as well. This development should go in two directions: firstly, in expansion of functionality of current solutions, addition of perspective services (WAP, SMS), creation of trading platforms and industrial Internet auctions; and secondly, in development of new platforms such as handheld computers, digital communicators (smart phones) and mobile phones.

However, the change of strategic installations of bankers concerning the Internet banking should become the main tendency of market development in the near future, marking transition from strategy «that was», to "effective utilization" strategy. Today it is not yet enough to have any sort of service which can be classified as Internet banking in a bank portfolio. Both corporate and private clients require qualitative services of Internet banking (and diverse for different segments), which gives a complete kit of services on management of finances through the Internet. And this will demand from banks at least a change of the looks towards Internet banking.

On the other hand, effective utilization of the Internet banking is impossible without accurate economic elaboration of projects on introduction and further promotion of Internet-services. Here correct understanding of a role of Internet banking has special value for a concrete bank. Internet banking is the virtually automated operational hall of a bank (not another additional service) which can bring a real profit. Therefore for a bank it is very important to have strategy of development of the virtual front-office. It is important to include strategy of

development of remote bank service as one of the important directions of development of business of a bank. And yet in the near future Internet banking should become one of the key services, quality and terms of service on which will be determining factors for clients at decision-making on a bank choice.

Nowadays, the Internet banking market is on its peak of demand. Alhough it is not new, but is still far from saturation. Lately, the attitude of players towards Internet banking has changed. If earlier it was faster service of image for big banks, now the credit organizations have estimated all economic gains of virtual dialogue with clients.

If originally there were only two big banks actively working in this market - «InfinBank» and « Ipak Yuli bank» have been among the first to provide Internet banking service in Uzbekistan, now the number of players has considerably increased.

At present, Internet banking system "InfinOnline» can be used by clients of organisation – physical persons. In a mode of real time they can manage urgent and savings contributions, that is perform opening, replenishment, contribution closing, carry out operations with credit accounts – repayment and the request for the credit, register payments for services of operators of mobile communication, Internet providers, public utilities and other services.

The digital signature acts as a guarantee of safety of remote interaction between the bank and a client.

The bank "Ipak Yuli" suggests using a system of personal bank self-service for legal bodies – "Ipak Yuli online". Procedure of connection of the client to "Ipak Yuli online" is as simplified as possible. Thus, the new system provides access to all opened accounts in native currency and other currencies, to depositary accounts in bank "Ipak Yuli".

During the last years the quantity of the banks, rendering the remote servicing of accounts through the Internet has dramatically increased. In the summer of 2011, about every third bank supported Internet banking. In 2012, the

systems of RBS have been established in more than half of all banks of Uzbekistan. This year no bank will remain without adoption of the similar systems.

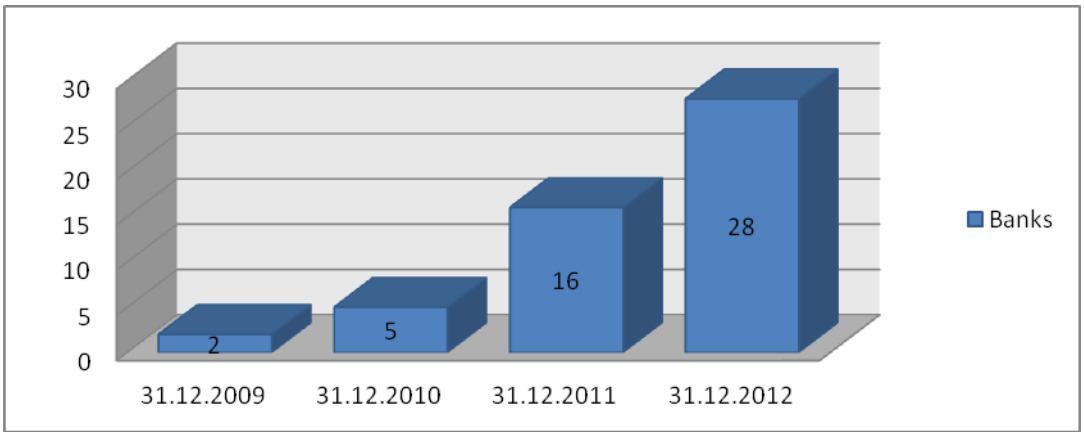


Fig.2.1.1. Dynamic of introduction “Internet-Banking” service in Uzbek Banks[21]

The central bank of Uzbekistan has published the data about introduction of systems of remote servicing in banking sector of the Republic based on the results of 2012. According to this data, for January 1st, 2013 the total quantity of users of RBS has constituted 108 496. That is 1,9 times more than on the beginning of last year (56 735). Among those, 69 326 clients (or 63, 9%) – users of mobile banking (including SMS banking), 39 170 (36, 1%) – use Internet banking (including "Bank-client" system)[22].

Now more than 90% of all Uzbek banks use the systems of bank-client type. Considering that the Internet-bank-client systems give incomparably big functionality, and also does not demand a software installation on the party of the client, it is possible to speak about huge market potential of similar systems.

2.2. The comparative analysis of services of Internet banking and the tariffs represented by the Uzbek banks

[21] The figure was made by Author.
[22] http://www.ictnews.uz/ru/2013/02/19/banking

Internet banking is now the most widespread financial Internet-service in all global banks: in Russia 77% of banks, already offer the clients the management service of a bank account through the Internet. While Internet trading services render 55% of the banks, and the Internet-acquiring - 32%. In the near future, 15 % of banks are planning to provide Internet banking services to their clients; 33% - Internet trading, 31% - the Internet-acquiring (fig. 2.2.1).

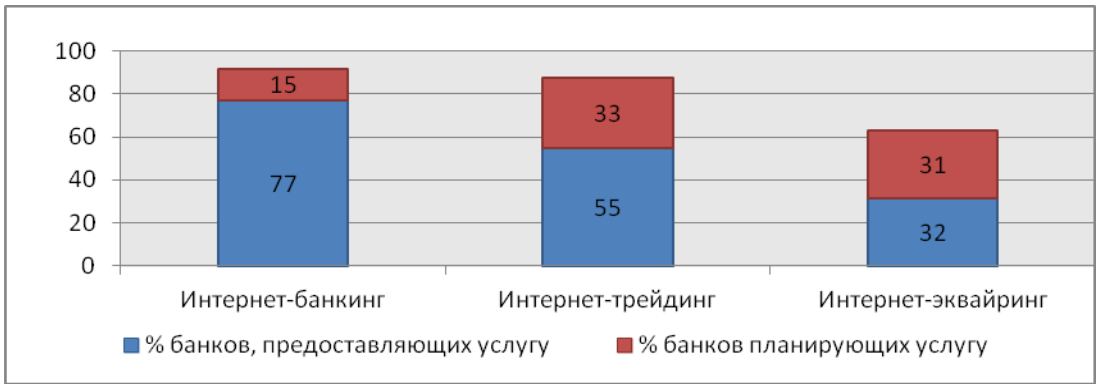


Fig.2.2.1. The market of Internet-services of the Russia[23]

Today the market of Internet-services in Uzbekistan is limited only to Internet banking. The share of services of Internet trading is significantly small. But already in short-term prospect, as the general director «E-Services House» Ildar Sadykov marks, the situation in electronic commerce sphere in Uzbekistan will change. The Internet in Uzbekistan became lately accessible, not only in capital city but also in regions. It gives the big possibilities for electronic commerce development in the country[24].

For the last years the market of information-communication technologies (ICT) in Uzbekistan has faced were serious positive changes. In the republic the strong and at the same time flexible legislative base for development of IT, in particular in electronic control sphere, is created. According to the State committee for communication, informatization and telecommunication technologies of Republic Uzbekistan, the number of users of the Internet services in Uzbekistan has exceeded 9,815 million as of January 1st, 2013. Following number in 2011

[23] http://www.cnews.ru/ - the Edition about high technologies.
[24] http://www.cnews.ru/ - the Edition about high technologies.

constituted 8,8 million users. Growth in 2012 has constituted 11, 54%. General speed of using the international information networks has increased by 61,0% in comparison with the last year and has constituted 7780 Mbit/sec.

Today there are some centers in the republic for registration of an electronic digital signature (EDS). Systems of electronic document circulation in Legislative house Oliy Majlis of Uzbekistan, the Ministries for Foreign Affairs and the Economy are being improved. System of electronic document circulation began implementation in the state institutions, but it is already operating fully in many commercial enterprises. Seminars for civil officers are being held on various directions of application of IT in public administration and the society.

Besides, the further improvement of legislative base in the field of electronic trading is necessary. The statement of the order of preparation of contracts in the electronic form and other sample forms of the documents applied in electronic commerce became the last step to it in the republic.

The given provision is developed with a view of realization of laws of Republic Uzbekistan «About electronic commerce»[25], «About electronic payments»[26], «About electronic document circulation» and according to the paragraph 1 of the Decree №21 of Cabinet of Ministers «About measures on electronic commerce development» from January, 30th, 2007 [27]. Development of legislative base about EDS should promote electronic commerce development in our country.

The purpose of the document are provision of a legal order of registration and fulfillment of actions in the field of electronic commerce, determination of requirements to contracts in the electronic form, and also an establishment of legal conditions on confirmation of authenticity of the electronic document with application of the EDS[28].

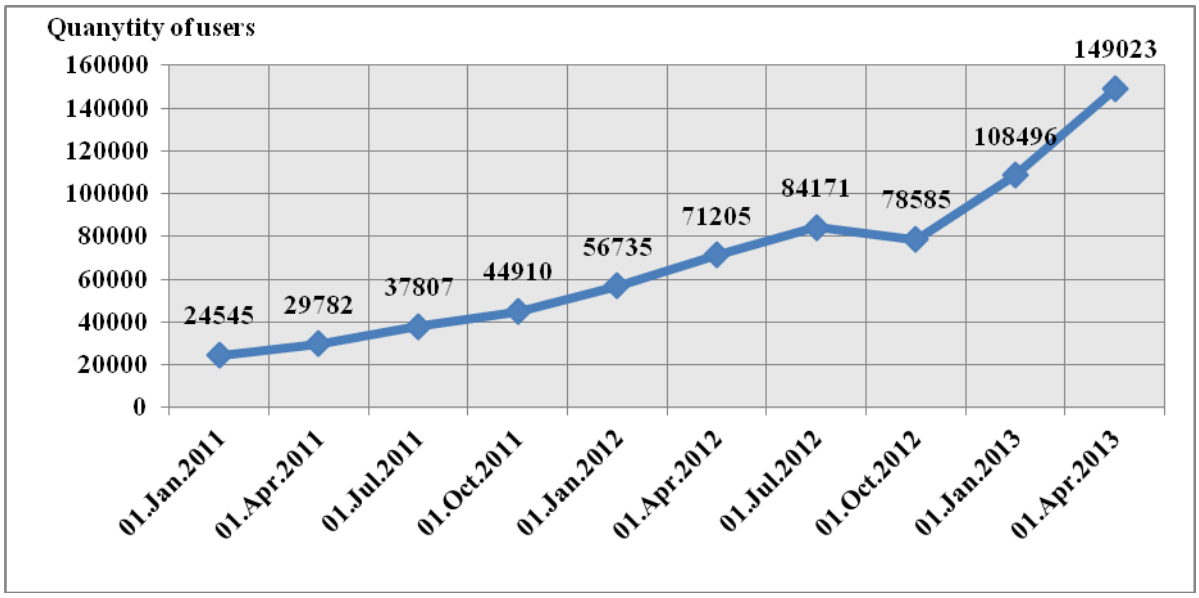
[25] Law of the Republic of Uzbekistan dated on 4/29/2004, the number of № 613-II “On Electronic commerce”.
[26] Law of the Republic of Uzbekistan dated on 12/16/2005, the number of № 3RU-13 “On electronic payments”.
[27] Decree of the Cabinet of ministers of Uzbekistan dated on 30 January 2007, the number of 21 “On the development of e-commerce”.
[28] http://www.gazetabirja.uz/index.php?option=com_content&task=view&id=1967.

Many banks already using separate decisions of Internet banking, are going to provide high-grade virtual servicing which will include also, Mobile-banking. Nowadays, only few Uzbek banks have similar system, however, in the next few years, this list seems to increase significantly.

However, not many banks can boast with good internet banking. While the Uzbek banks owing to low adaptability to manufacture and the big costs of this project do not go further a kit of primitive functions. The exception is constituted by the large players who for a long time have debugged corresponding systems. As the most professional are considered "SAM.online" from "Samarkand", "HAYDA!" from "Universal Bank", RBS in "Ravnaq-bank", "IpakYuli-bank", and "Aloqabank".

If remote servicing for physical persons only develops, legal bodies already have for a long time possibility to manage the account in the distance. Earlier there were systems kind of type bank-client which have grown into Internet-banking, which absorbed all their functionality, and allowed to perform many operations independently. As a result of it, the list of the services given by Internet banks for legal bodies, is almost identical today and covers the majority of their requirements.

2012 has occurred (in comparison with 2011y.) visible changes in the Internet-banking market, this market is growing at a very fast rate. It is visible at least on growth of quantity of users (look to fig. 2.2.2).



Pic.2.2.2. Total quantity of RBS users in Uzbekistan[29]

The quantity of RBS users in Uzbekistan as of January 1st, 2013 has amounted to 108,49 thousand.

According to the Central bank site, for last year this figure was doubled almost – on 191, 23%. On the beginning of last year RBS used 56, 73 thousand clients of banks.

According to the results of last year more than 69,32 thousand clients of banks used mobile and SMS banking (growth for a year has constituted 125,67 %) and 39,17 thousand clients used the "bank-client" system and Internet-banking (growth – 50,56 %).

[29] The figure was made by Author according to www.ictnews.uz.

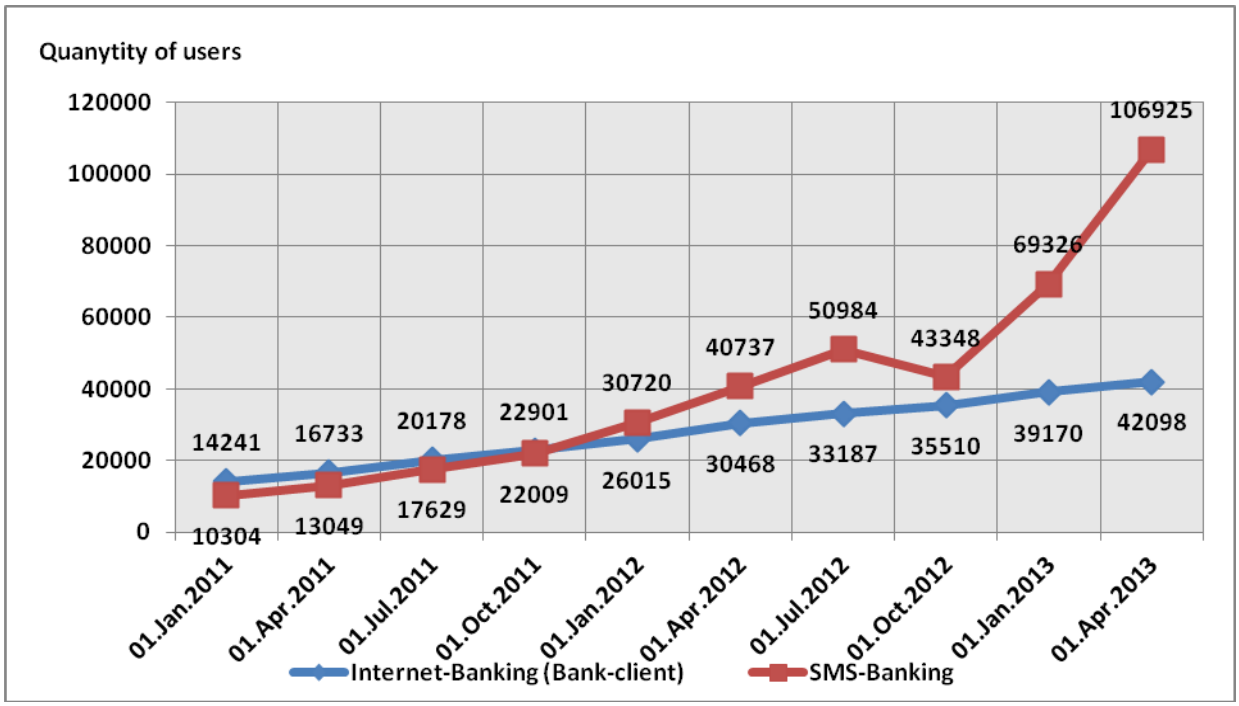


Fig.2.2.3. Quantity of RBS users in Uzbekistan by all kinds of systems[30]

It is necessary to note sharp of number of mobile and SMS banking users in the third quarter of the last year falling (on 7636), caused by the suspension of the service in July, the largest mobile operator MTS-Uzbekistan. In the fourth quarter the situation was corrected, and the statistics curve has spread again upwards (look to fig. 2.2.3).

The greatest quantity of users of remote servicing is at NBU – 34, 29 thousand (4 227 – Internet-banking and "bank-client", 30, 07 thousand – SMS and Mobile-banking).

In second and third place "IpotekaBank" and "Mikrokreditbank" - 30, 41 thousand (3158 and 27, 25 thousand) and 15,45 thousand (2 385 and 13,06 thousand) users, in that order.

Table 2.2.1

Quantity of RBS users for April 1st, 2013[31]

№	Bank	Internet-Banking and Bank-Client	SMS-Banking and Mobile-Banking	Total
1	“Milliy Bank”	4 227	30 071	34 298

[30] The figure was made by Author according to www.ictnews.uz.
[31] The table was made by Author after research from the internet.

2	“Uzpromstroy bank”	2 042	1 348	3 390
3	“Agro bank”	1 765	749	2 514
4	“Ipoteka Bank”	3 158	27 255	30 413
5	"Mikro-kredit bank"	2 385	13 062	15 447
6	“Xalq Bank”	1 204	-	1 204
7	“Savdogar bank”	459	-	459
8	“Qishloq Qurilish bank”	1 239	8 692	9 931
9	“Turon bank”	981	613	1 594
10	“Hamkor bank”	4 147	4 767	8914
11	“Asaka bank”	1 503	8513	10 016
12	“Ipak yo’li”	3 229	2 042	5 271
13	“Uzbek-Turkish bank”	177	128	305
14	“Trust bank”	1 352	970	2 322
15	“Aloqa bank”	1 226	1 789	3015
16	“KDB bank”	217	498	715
17	“Turkiston”	227	25	252
18	“Saderat Iran”	11	12	23
19	“Samarqand bank”	6 302	429	6 731
20	“Universal bank”	258	425	683
21	“Kapital bank”	2 803	3 907	6 710
22	“Ravnaq bank”	64	33	97
23	“Davr bank”	704	-	704
24	“Kredit Standart”	34	215	249
25	“Infin bank”	1 028	431	1 459
26	“Amir bank”	52	38	90
27	“Asia Alliance Bank"	610	329	939
28	“HiTech bank”	298	82	380
29	“Orient Finance”	396	502	898
	Total	42 098	106 925	149 023

On foreign countries, in particular in Russia almost all banks notice that the basic demanded bank Internet-services at physical persons is reception of the information on remainders and statements under accounts, fee of the enterprises with use of templates of payments (utility bills), transfer of means between own accounts, work with card accounts. In those banks where service of work with the fixed deposits is implemented, this service is also one of popular. In Uzbekistan, for now, it's hard to say exactly what services are in demand among users of Internet banking services Since banks find such information banking secrecy.

Having moved the majority of operations to the World Wide Web, banks receive enormous decrease in the cost value of transaction. Cost of operations is reduced in times. Banks are so interested in development and introduction of

channels of remote access that should stimulate the clients to use Internet banking via reduced tariffs[32].

Tariffs of internet banking in banks are very different and usually include three components: the connection fee, monthly fee and the commissions for any carrying out of payments. The connection fee less often used by banks and collected primarily for the provision of the technical components of the system. Some banks already offer it for free, such as "Aloqabank" and "Universal bank". The cost of installation and registration key for Internet banking in the "Ipak-Yuli" bank is 10$.

It would seem, Internet banking saves to banks significant funds for customer service, first of all on the qualified labor. Strangely enough, In Russian banks this condition conventional by bank community not always forms a basis that tariffs of transfers for Internet clients differed from which act for clients in the banking departments. Moreover, now tariffs on online transfers in bank in one and a half time above, than on the transfers performed through departments. Such high tariffs, for the moment, are connected with the need to cover their cost of implementing the system.

Clearly, one of the most important indicators of user experience with online banking client is how long does it take for you to make the transaction and update customer account. Some banks promises to make client transaction within one bank day, and others within several minutes if operation is made within bank day, that is till 16.00.

2.3. The introduction of the "Internet banking" system on example of OJSC "Aloqabank"

Open Joint Stock Commercial “Aloqabank” was established according to the Decree Cabinet council of Republic of Uzbekistan № 502, dated on October, 12th

[32] Kalyatin V.O. The right in Internet sphere. – Moscow.2008.

1994 «About measures on development, reconstruction of telecommunication networks of Republic of Uzbekistan and improvement of their operational quality»[33].

OJSC «Aloqabank» is:

• A member of Uzbekistan Banking Association;

• A member of Currency Exchange of the Republic of Uzbekistan;

• A participant of Fund «Guaranteeing the savings of population in banks»;

• A participant of Republican stock exchange «Tashkent»;

• A member of the state payment system of Uzbekistan;

• A member of international payment system S.W.I.F.T.;

• A member of international payment system VISA;

• A member of The Association of lessers of Uzbekistan.

The Bank is providing large-scale bank services to enterprises of real sector of economy, small business and private businesses entities as well as to the population through its 14 branches, 22 mini-banks, 95 operation cash offices, 45 international money transfers and 39 exchange offices placed in Tashkent City, Republic of Karakalpakstan and regions.

As of reporting period total number of shareholders of Open Joint Stock Commercial «Aloqabank» is 3 902, from which 682 are entities and 3 220 are individuals.

The following are the authoritative shareholders of the Bank:

• State Committee for communication, informatization and telecommunication technologies of the Republic of Uzbekistan;

• Joint Stock Company «Uzbek telecom»;

• State Unitary Enterprise «Centre of electromagnetic compatibility»;

• Information and Communication Technologies Development Fund;

• Tashkent University of Information Technologies;

• Insurance Company «Alskom»;

• State Commission for radio frequencies of the Republic of Uzbekistan;

[33] OJSC “Aloqabank”. Annual report - 2012

• Open Joint Stock Company «O’zbekiston pochtasi»;

The Bank is providing high quality financial services to enterprises, organizations, small business and private business entities as well as to the population carrying out activities in different branches and fields of national economy.

As a result of taken measures, specifically paying particular attention to the introduction of modern bank technologies and new bank services, as of January 1, 2013 the number of Bank’s clients made up 177 350, including:

- The legal organizations - 6 235;

- The separate businessmen who are carrying out activity, not taking the status of the legal person - 4 748;

- Investors of the population - 38 047;

- Users of plastic cards - 126 490;

- Users of the international VISA of plastic cards - 1 830.

As a result of activities carried out to increase capitalization degree of the Bank, authorized capital of the Bank made up UZS 74.7 billion and total capital indicator has increased to 132.1 % for the year and made up UZS 105.3 billion. Regular growth of authorized capital of the Bank for recent 5 years evidences particular attention paid by the Bank’s shareholders to extend and develop activities of the Bank.

OJSC «Aloqabank» has regularly been performing activities in the development of information technologies, i.e. moving to the next stage of automation, improving telecommunications infrastructure and the complex of technical facilities. Furthermore, the Bank is taking measures to make the software and database systems compatible stage by stage; to form the single information platform provided stable and continuous operation of all the systems.

During reporting period, the Bank took several steps in introducing modern information communication technologies in the banking activity.

Bank, on purpose to create convenience to its clients, along with improvement of traditional services of bank, enters the remote services of bank,

such as «Bank-Client», "SMS Banking" and «Internet-Banking». Now, number of the user of such services is 2 423 (look to fig. 2.3.1).

In particular, the modern telecommunication complex maintenance of information security of the bank and international standards were applied.

One of the most important strategies of OJSC "Aloqabank", the constant provision of providing services using the latest banking innovations.

Rapid development of information technology essentially changes conditions of representation of bank services all over the world. A growing number of banks open up opportunities for account management and operations at the stock market using the Internet technology. One of such systems in OJSC "Aloqabank» is «Internet-banking".

System "Internet-banking" is intended for granting to clients of bank, services in remote management of bank accounts. Within the limits of these services the client has possibility:

1. To send in bank various financial documents;
2. Receive information from the bank about the status of their accounts and transactions performed;
3. To carry out various payments through bank;
4. To exchange reports of information with bank.

The system provides a mechanism for the electronic digital signature (EDS) on financial documents clients, which is used as an analog of a personal signature of the client, and the mechanism for secure communication in the transmission of data over the Internet for information security.

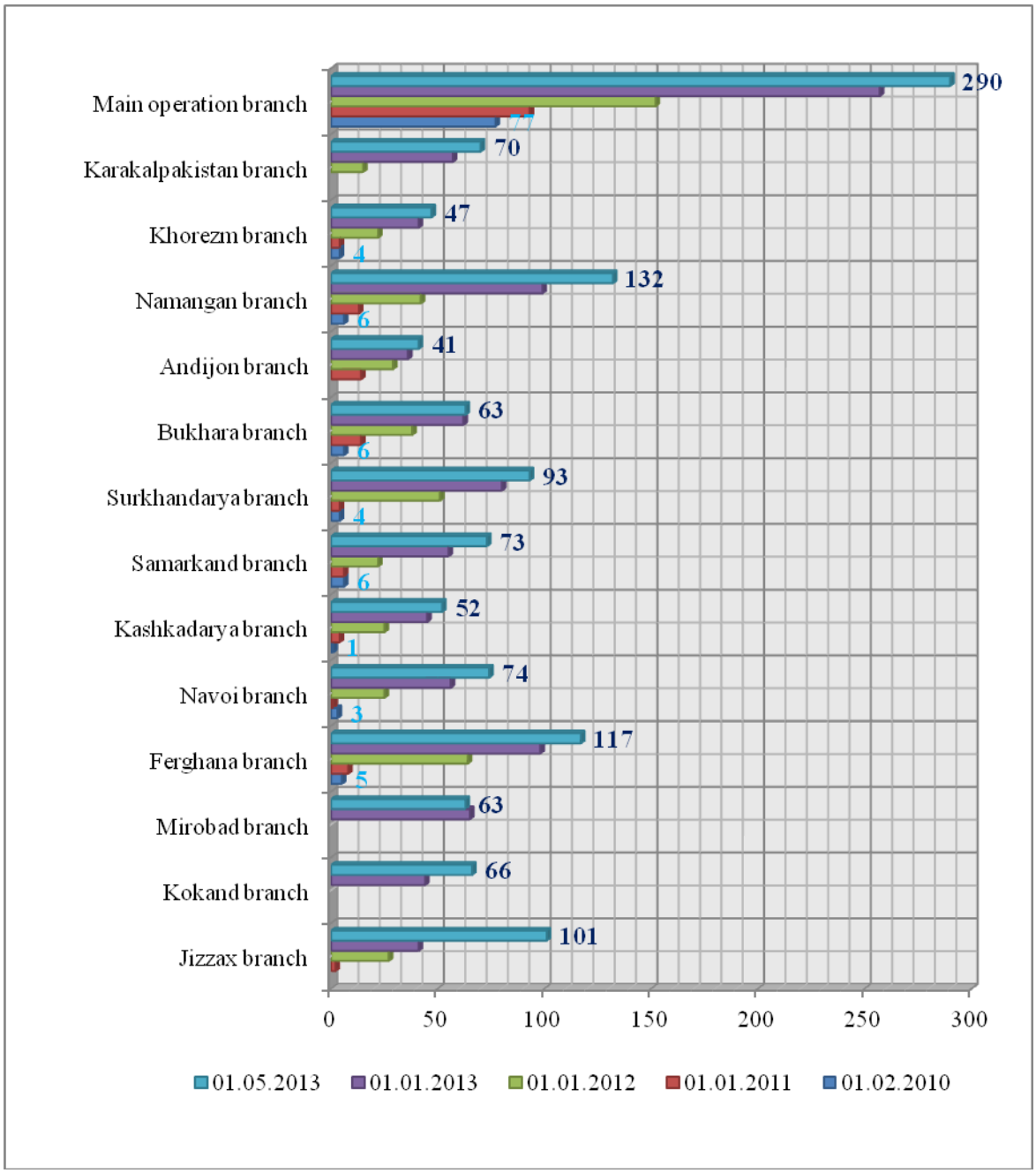


Fig. 2.3.1. Quantity of RBS users of OJSC “Aloqabank”[34]

Internet-banking can simultaneously support several branches of the bank.

The Users of Internet-banking system are clients of bank and bank employees (the manager of system, the manager of bank and the operator).

Client of the system works with the automated workplace (AWP) "Registrar for clients" and AWP «Internet-Banking for clients», representing Java-applets.

[34] The figure was made by Author.

The automated workplace «the Registrar for clients» is intended for preliminary registration of the client in system, and also for management of EDS keys of the client.

In Internet-banking system the client passes following stages in the work:

Registration of the new client in Internet-banking system.

Registration procedure includes two stages:

1. **Preliminary registration of the client** — independent preliminary registration of the client in an automated workplace «the Registrar of clients»;

2. **Registration of the client at bank office —** definitive registration of the client at visiting of office of bank.

Preliminary registration of individuals, resulting in the first load html-page containing a brief description of the procedures for registering a new client and after 15 - 30 seconds (depending on the speed of Internet access) loaded ARM "Registrar for private clients," designed in the shape of the Master.

For preliminary registration the variant the **New client** gets out

Step 1. At this stage enter the basic information on the client;

Step 2. Data input to the identity of the client at this point, enter the information about the customer's identity;

Step 3. Enter contact information about the client.

Registration of the client at bank office

For final registration, the client must personally visit the office of the bank. With him should have a printed signature public key certificate (or recorded public key identifier), a document certifying the identity of the client, as well as other documents required by the bank at the conclusion of the contract.

After a presentation the client of the certificate or the identifier of open key EDS, the manager of Internet-banking system will execute following actions:

• On the identifier of open EDS key will find in system the information of the client, will check up and in case of need will modify it;

• Will unpack and will give to the client for the signature the contract on service of the client in Internet-banking system;

• Will definitively register the client in system.

After registration end at office of bank the client can work in Internet-banking system.

Input of the client in an automated workplace «Internet-banking».

The basic work of the client is carried out in an automated workplace "Internet-banking"

For loading ARM «Internet-banking» after connecting to the Internet the open Web-browser and go to the main page.

On the main page click under the reference **"Internet-banking"** therefore at first the starting html-page will be loaded and then the automated workplace "Internet-banking", which first window. Then for authentication of the client push the button "**Logon".**

When authentication is successful, the screen ARM "Internet-banking" will show the summary of changes since the last entry. The screen will show the table of your last session, "your documents" sent to the bank and your " new received messages".

3. THE INTERNET-BANKING: PROBLEMS AND PROSPECTS

3.1. Possibilities of the use of the foreign experience for development of the Internet-banking in Uzbekistan

Today the Internet-banking is developing all over the world. Banks see the Internet as the big commercial potential and the possibility of transferring the business on qualitatively new level.

Let's address to the foreign experience of development of the Internet-banking which will help the banks of Uzbekistan to apply it into practice, taking into account the features of the banking system of Uzbekistan.

The Internet-banking is developing with the most dynamical rates in Europe as well. The most advanced positions in this direction are occupied by Deutsche banks[35].

Internet banks give their clients all spectrum of banking services in a real time mode. Those services include realization of accounting and other standard bank operations, and brokerage services as well. Clients are also offered the access to the economic and financial data in an online mode, which are considered to be the most visited sections of a banks' websites.

We can easily state that in Europe, the USA and Japan the Internet-banking has already got accustomed. In Europe, Internet-banking services are now used by about 60 million people, in the USA - 25 million. Only in 2011, less than 60 million people in Europe and 40 million in the USA used to manage their finances through the Internet (fig. 3.1.1).

This kind of financial activity uses the greatest popularity in Canada – 64,8%, the Netherlands - 60,7%, France – 56,6%, Sweden - more than 53% of active Internet users here proceed their bank transaction by the means of remote access. Sweden is followed by the USA - from 40% to 47% of active Internet users, Great Britain - less than 52%, Australia – 44,2%. In total, about 37% of active Internet users in the world execute transactions through the global network.

[35] Yepisheva I. Experience of development the Internet - banking by Deutsche Banks and possibility of its application in other countries. Moscow:-2001.

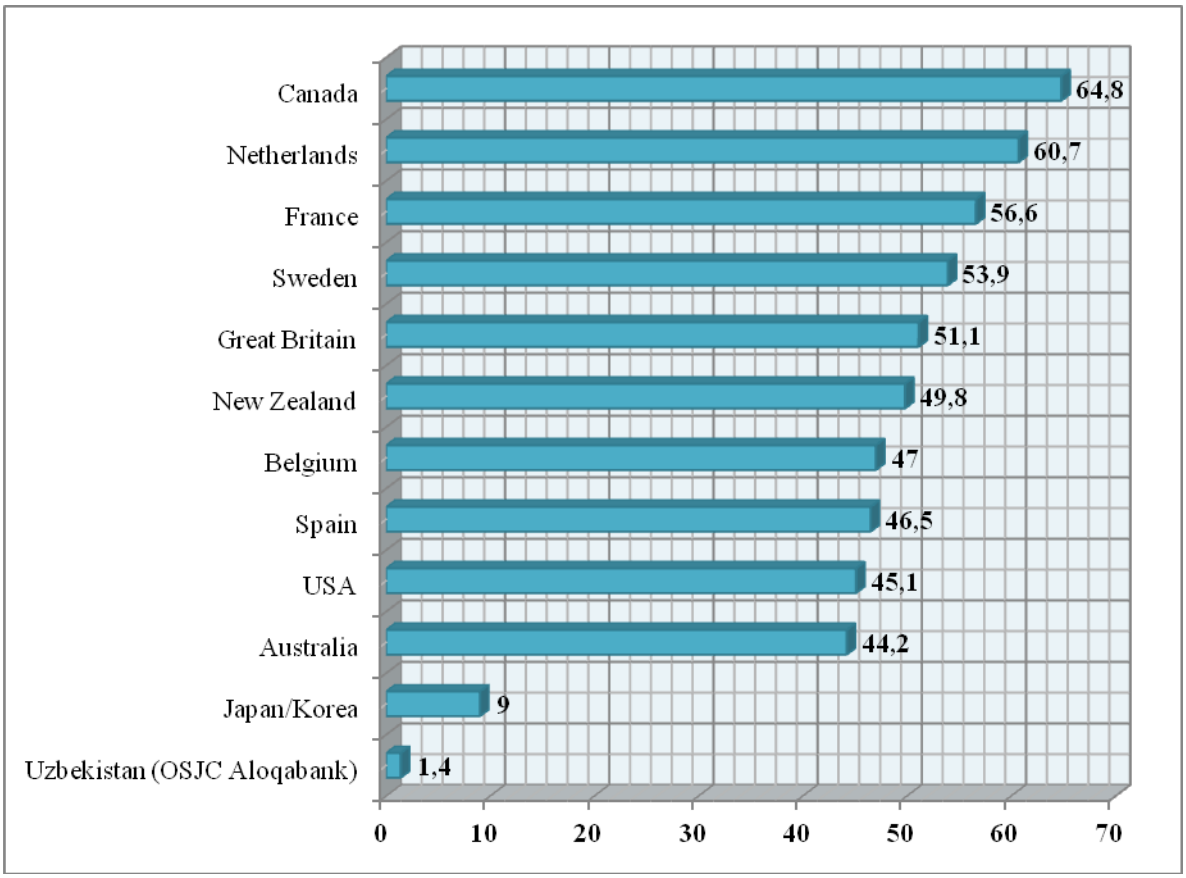


Fig. 3.1.1. Penetrations of Internet-banking into the various countries[36]

In the USA, online-banking has developed very gradually. For example, the Citibank which has always differed from competitors with the aspiration for innovations (the first-ever Automated Teller Machine (ATM) has been placed in operation by Citibank) has started its own system "Home Bank" in 1984. After a year it has been renamed to "Direct Access", and until 1995 this service could only be used by the inhabitants of New York. Access to the accounts of the users of Citibank through the Internet was given in 1997, and the spectrum of provided services have been constantly extending since then. In 2000, the system has got the name "Citibank Online". Within the ten years of time the system has undergone a huge way of development. At Citigroup, the big scales of use of Internet technologies: only in the USA the quantity of users of Citibank Online exceeded 1,6 million people, and the bank operates in 102 countries of the world[37].

[36] The figure was made by Author
[37] Collins R. S. Business and E-commerce: possible ways of rapprochement. Moscow .2010.

Today in the countries of the Western Europe and America E-banking services are used by more than 50% of all elderly population, and amongst the adult Internet users this figure reaches 90%[38].

However, despite the growth of the popularity of the Internet-banking, this type of service concedes to the traditional methods of provision of services of banks to clients. This conclusion can be made proceeding, in particular, from the fact that banks are continuing to develop the networks of branches, despite the large expenses connected with them. During 2009 for 2011 growth of investments of banks in building and updating the branches was almost 10% a year.

The Internet-banking is gradually winning positions in the financial markets of Asia. In Malaysia the Internet-banking is used by less than 2% of the clients of all banks, in Taiwan the similar indicator is equal to 7%, in Hong Kong - 8%. Japan, Singapore and South Korea lead with 9%.

One more way to simplify the operation of the remote banking is the mobile banking. The client can send inquiries about changes of the bank account and payment of small funds by means of SMS from the mobile phone. However, we can observe a decrease of activity in this sphere: if the volume of investments of the European banks in the systems of mobile banking was $73 million in 2001, it decreased considerably in 2007 - to $49 million.[39]

Although, Uzbekistan is still far away from having high-grade Internet-banking systems, bankers are diligently studying experience of foreign colleagues. The main issue is to observe balance between security of a system and simplicity of executed operations. Ideally a protected system will be so difficult that nobody will use it. However the main vulnerable element is the human, and as bankers admit, it is necessary to be engaged not only in the safety of the system, but also in the "education" of clients. Thus, the advanced foreign experience of development of the Internet - banking will help the Uzbek banks to apply it into the practice, taking into account features of the banking system of Uzbekistan.

[38] http://ru.wikipedia.org/wiki/Интернет-банкинг.
[39] Lavrushin O. I. Banking. An express rate. The education guidance. Moscow.2007.

3.2. Risks of the Internet-banking: Security measures

With high probability, it is possible to assume that at least the quarter of the Uzbek legal bodies registered on the beginning of 2013 is using the systems of RBS regularly – paper payment orders are gradually decreasing. According to the chairs of the big banks, today the means of RBS has become an integral part of the bank services, and presumably will endure the Golden Age in the coming two-three years time. Meanwhile, one of the most serious problems of this type of service is the high risk of theft of funds of clients by the means of computer technologies. And in a this kind of situation financial and credit institution spend too weak explanatory work in the clientele environment, aimed at strengthening of security measures.

Intruders of the future are the programmers and experts in network attacks. Basically, they are psychologists and the illusionists, who are able to nicely copy an electronic reality and to forge mutual relation schemes between people, for the purpose of gaining access to the confidential information.

The basic technologies of safety in modern payment systems are:

- Enciphering of the data by means of the SSL-protocol.
- Use of the confused and cross system of logins and passwords (with constant change).
- Use of the virtual keyboard in systems of Internet-banking.
- Use of the electronic digital signature to prove the identity of the owner of the account. But this technology contradicts the methodology of anonymity in a number of payment systems.
- Use of the system of temporary passwords for confirmation of financial operations.

There is no doubt that the most interesting object of attack by the electronic cyber attackers - legal entities. Private Person’s scams are usually not interested in

- their balances are not large enough. However, the separate accounts wealthy citizens come under attack - but on a specific tip-off. Moreover, the "work" with legal entities good that accounting on working days necessarily active. Consequently, there is a chance for hacking.

By the number of such attacks, the situation cannot be called an epidemic, but dozens of incidents in the last month in the police has already committed. By volume of the damage they can be significant - in real practice, for example in Russian banks, most of theft by RBS is about 250 thousand rubles. However, cases with 500 thousand - $ 1 million also have a place to be.

In majority of cases organized theft of money even with non-retrievable secret keys in online attacks (when the USB-token is set in a working computer). Most problems occurs when a computer account is not only equipped with one permanently installed USB-token, but the system block is not turned off at night, and only translated into a "sleep" mode, while remaining connected to the channel access.

The first mass incidents of attacks on online users RBS became apparent in early 2010. Penetrate to the computer viruses isolated during the recess of the RBS system (for example, lunch staff, working with internal documentation), and after adaptation to the set on the victim client software and read the basic parameters of such operations, start making their own payment orders to send to the bank.

This is usually viruses Trojans with the remote access to the console RBS. Trojans of this type are crafts constructors which is full of the Internet. But the quality of the malware that they produce, is highly dependent on the skills of users and the level varies from student to crafts of quality copies which are suitable for targeted attacks.

However, to protect customers against new virus threats bank can also improve its security system. For example, you can set individually for each entity, above which a standard EDS would require additional confirmation by an authorized communication channel with the use of one-time passwords via SMS,

or, alternatively, a voice on a particular mobile phone number (and such a conversation should be recorded).

A good option for the security of bank charges is to use a separate mobile PC with legal operating system and installed updates, which will work in a restricted mode - only for bank payments. All additional software, except Firewall and anti-virus removed from there, and physical access to him is limited: it is retrieved from the safe only for the duration work. Perfect operating system for such a decision will still be Linux (in this environment is much less viruses) or Windows 7 (there are more embedded systems security). Moreover, corporate Firewall (besides personal) must to allow this computer output exclusively to banking access points, in a pre-prescribed and allowed electronic banking systems. And the only at working time - in the any weekends, evening and night access to the network for exactly this machine is fully closed.

You should not neglect the quality and safety systems. For example, entities should use two EDS is more or less important according to the amount of payment obligation. In this scheme, the first digital signature belongs to the director (or special Comptroller), the second - the chief accountant. It is desirable that these people have not sat together in the same room. In general, the quality of the RB can support multiple combinations using two or more digital signature, from the operator, who is preparing the documents and simply confirms the validity of their origin, to the director and chief accountant, who can sign documents with certain thresholds transfers.

3.3. Prospects of development of the Internet-banking

Internet banking system are essential for monitoring transactions carried out with the use of bank cards - any debit from card account quickly reflects in account statements, prepared by the systems, which also contributes to the control of the customer for their operations.

Growing popularity of Internet banking once again confirms the existence of a stable and effective demand for this new type of non-traditional banking services.

Systems of the Internet-banking are not only attractive to clients of bank, but also for bankers. These systems allow to attract more customers (and their money) thanks to the convenience of work or the reduced load on the operational divisions. Thus, in contrast to the transfer of documents on paper followed by their import into the automated banking system, the documents come ready-made having passed all the necessary checks, and the bank clerks only need to check them.

It is obvious that key advantage of the Internet-banking is access possibility to the account at any time and from any place. Thanks to this possibility the client does not need to visit bank for payment performance any more or extract receptions. All can be made without leaving from a workplace and having near at hand only the computer with access to the Internet. In other words, all conditions are created that the client was engaged in the business, instead of spent a lot of time for work with bank. In general, it is enough to client to appear in bank only to open the account, to be registered in system of remote service and to take card for the salary. All other operations can be performed from a personal computer, and the money receives in the nearest banking machines.

The Internet-banking as one of banking directions has high potential for the further development and wide prospects. Considering the rapid development of high-tech banking products of new generation are regular plans to develop Internet Banking as a virtual financial supermarket of banking products for physical and legal bodies. Speech goes about creation of high-grade electronic office with carrying out possibility through the Internet of every possible financial operation. In the future, Internet banking could turn into a single virtual space of financial

products and services, necessary and convenient for both individuals and for large companies.

Judging by the dynamics of the observed processes, the prospects for Internet banking is quite favorable. Considering that in Europe, the share of banking transactions performed through the internet reached a 25%, our government is planning to increase this indicator up to 10-15% in the coming years.

The main task of Internet Banking is unloading the front offices. There should pass only those operations which cannot be made out of bank walls: signing of credit contracts, delivery of a card and etc.

Today, banks can pay basically bills through the internet-banking for utilities and services for mobile operators. But in the development of Internet-banking the main trends are several:

- Repayment of the consumer credit;
- Money transfers;
- Replenishment of plastic cards;
- Issuing consumer credits.

Surely, in general it will not be possible to manage without bank branches: if it is a question of work with cash. Of course still have to drive up to the Customer to the bank to open an account and deposit money to there.

There is still remaining the most important problem in the power of the domestic Internet-banking - distrust of this service from banking clientele. The basic and general complexity for all banks in advancement the Internet-banking consists in low readiness of a considerable part of clients to using the Internet as a control path the means. Or the client uses the Internet in general a little, or doubts about the security of online transactions, or do not know all the features of the system.

With the increased use of the Internet and increase the financial activity of the population internet service move from the category of exclusive services in the standard category, as it was earlier with plastic cards. Only in Tashkent potential

customers of Internet banking is currently estimated at 50-100 million people and during the next five years may increase to several million people. In view the geographic extent of Uzbekistan Internet banking has good prospects in the region. Because residents of the provinces will have the opportunity to operate with bank accounts in Tashkent with all its benefits. Obviously, much will depend on the development of regional telecommunications and Internet promotion in Uzbekistan.

Growth of number of users of the Internet-banking is limited by quantity of users of the Internet. Today, according to various estimates, the number of Internet users in Uzbekistan on the basis of 2012 reached 9,815 million[40]. As the number of Internet users will increase the number of users of Internet banking. Could be organized entirely an online customer service, but so far for remote opening of the bank account is not generated a complete legal field. With increasing public confidence in the banking system and improving the legislative base the bank can satisfy the most urgent needs of the modern customer.

So, for the Uzbek Internet banking is one of the most perspective markets developments. The study enables us to put forward a number of recommendations to strengthen the development of this market in Uzbekistan:

1. For today the primary goal of domestic Internet-banking is a gain of trust of users. For this it is necessary to actively popularize the Internet banking. Most banks do not provide access to their systems in a demonstration mode, while this would reduce the degree of distrust the user to work through the Internet. By today only the Samarkand Bank provides this service in Uzbekistan (fig. 3.3.1).

2. Necessary to actively promote Internet banking technology in general economic and specialized press. That is, to create all-Uzbek an Internet portal and forum which dedicated to the Internet banking system, based on Central Bank of Uzbekistan, where would be centrally represented the information about the sector of the market, statistics, the dynamics of its development, etc.

[40] http://www.uzdaily.uz

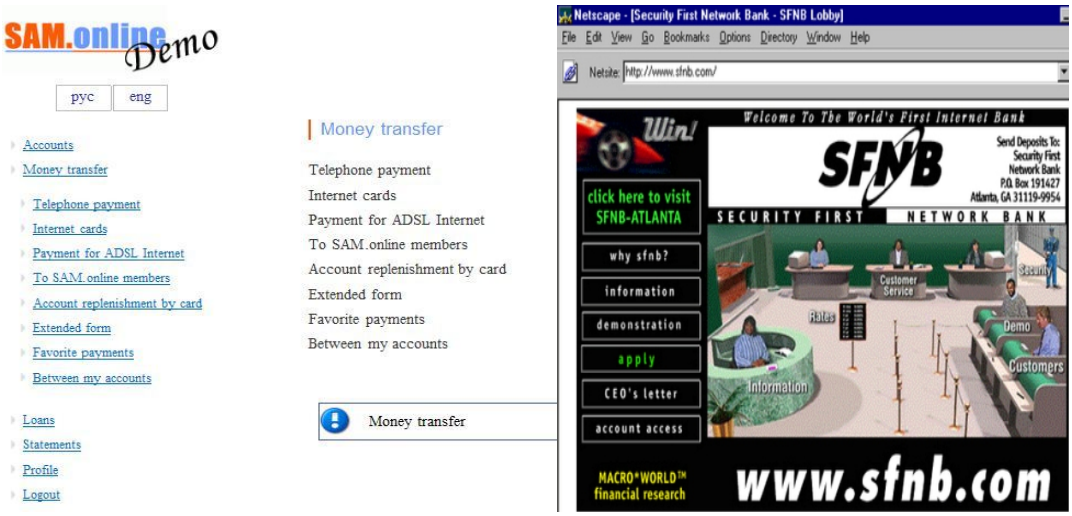


Fig. 3.3.1. Demo versions of Internet-banking in “Samarkand Bank” and “Security First Network Bank”[41]

3. Authentication technology using SMS - Authentication technology via SMS is based on the principle of one-time password. OTP advantage over static password is that the password is cannot be reused. An attacker intercepting data from a successful authentication session cannot use the copied password to gain access to the protected information system.

Working principle

First we need to register the phone number on the organization's server, to the resources which we want to access. Then, while trying to authenticate a registered phone number will receive an SMS with a one-time password to enter the system.

Another version is possible. Besides registration the phone number you need to know the special code. when you type this a registered phone number will receive an SMS with a one-time password to enter the system.

As an example, consider the authentication algorithm through SMS program - RSA Mobile.

The scheme of granting of access to the registered user is quite simple. When entering on Web-portal, protected means of RSA Mobile, you enter the name and password, then the system is looking for a phone number that matches

[41] www.samarkanbank.uz, www.sfnb.com.

the number, and sends it to a one-time access code as an SMS message. The user enters a code, and gets access to the requested resource. The tests showed that the access code is delivered to the destination in less than 6 seconds (Fig. 3.3.2).

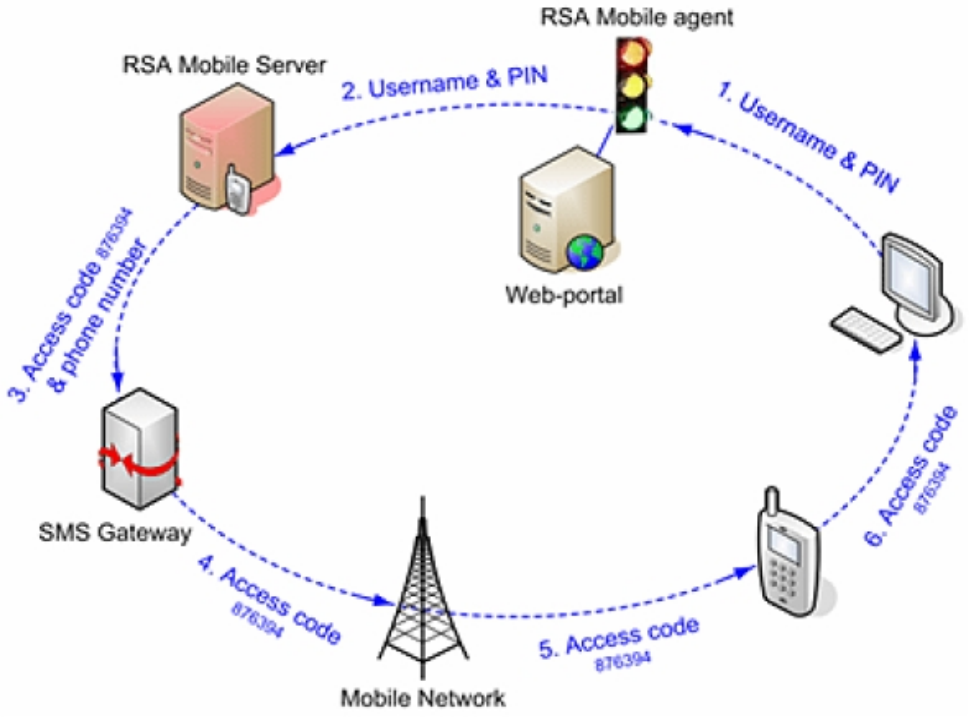


Fig. 3.3.2. The Technology of authentication through SMS[42]

Advantages authentication through the SMS:

- No need to carry a special device or install any software.
- A one-time password is only valid for one session.

4. With the development of 3G, Uzbekistan is rapidly gaining popularity the mobile Internet. According various statistics at the end of 2011, the total number of Internet users onto the network through mobile devices has exceeded 4.3 million people[43]. And for today this indicator has approached on a mark of 6 million users. This tells us about another establishment and expansion perspective view of "Mobile banking", which is one of the forms of Internet Banking. "Mobile banking" exists in domestic banks, but only in the form of a simple "SMS-banking". With its help you can only receive current information about: receiving

[42] http://community.indeed-id.com
[43] http://www.api.uz/news/info/ict/1925

funds to the account, funds are debited from the account, the balance of the account; held during the day banking operations. According to the website of the Central Bank over 69.32 thousands of bank customers for the last year used SMS-banking (year growth of 125.67%). And as of 1 April, 2013 the number of users reached 106,925 customers. These figures show a crescendo of SMS-banking. But we must not limit only with SMS-banking, we must introduce a complete mobile banking with the functions of Internet banking. This year, the second step in order to achieve full Internet banking has made "Hamkorbank". Before, only Samarkand Bank represented such service (Figure 3.3.3).

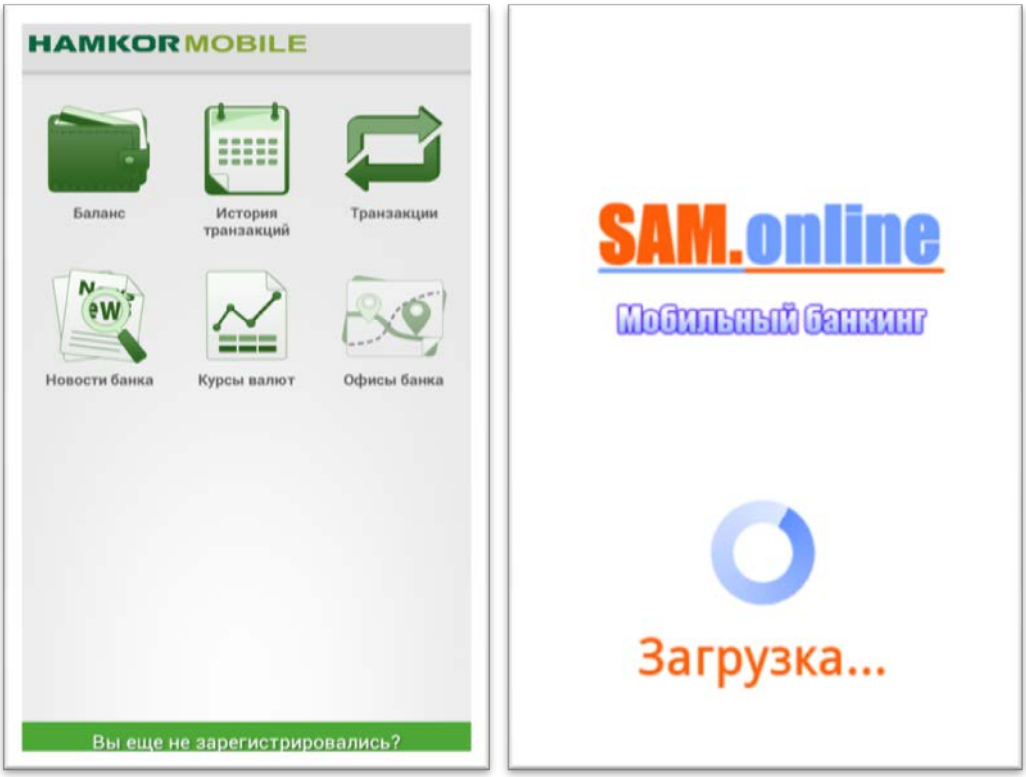


Fig. 3.3.3. Android programs for Mobile-banking in “Hamkorbank” and “Samarkand Bank”[44].

But we have to talk openly, yet these programs are not up to par. Before developing the software for mobile banking we must first study the main advantages of analogous foreign programs, and then develop the program.

[44] The figure was made by author

5. To successfully overcome the distrust users, need a solid legislative basis for Internet banking. Although the adoption of the Law of Uzbekistan "On electronic digital signature" allowed banks to provide their services through the Internet. The lack of regulation of their activities in this sphere with the CBU cannot establish clear and simple "rules of the game" in the Internet market. Establishment of a clear regulatory framework for banks operating in the market of internet banking, undoubtedly, will increase the trust of the users in this type of business.

New features of Internet banking makes it one of the most dynamically growing banking services in the world. There is every reason to believe that banks will simply not be able do without the providing of Internet services, otherwise they will lose customers Nowadays the speed is of great importance providing banking services, which is possible if the account management in real time from any location. After two or three years, Internet banking services will become the standard for most banks, when the major requirements of the customers will convenience, mobility and efficiency.

Most courageous analysts are already agreeing in opinion that the Internet Banking can be regarded as the most useful invention since the appearance of the phone. In any case, we can already evaluate the possibilities of Internet banking.

4. SAFETY OF VITAL ACTIVITY

4.1. Rational organization of work place

The complexity of production processes and equipment changed the functions of the person in modern industry: increased responsibility of tasks; increased volume of information perceived by the working and the performance of the equipment. A person's work has become more difficult, increased load on the nervous system and increased physical load. In some cases, the man has become the least reliable link of the system «man-machine». There is a task of providing reliability and safety of persons at work. Solves this task ergonomics and engineering psychology.

Ergonomics (from the Greek ergon work and nomos - law) is the scientific discipline that studies the human in terms of its activities related to the use of machines. The goal of ergonomics - optimisation of conditions of work in the system "man-machine". Ergonomics defines the requirements of the person to technology and to the conditions of its functioning. The ergonomics of the equipment is the most generalised index of properties and other characteristics of equipment.

The connection of the man with the environment and the parametres of the workplace. Working place, this is the area in which the committed work of the performer or group of performers. Jobs may be individual and collective, universal, specialised and special.

General requirements, which must be observed when designing jobs, the following:[45]

• adequate working space for the person;

• optimum position of the body of the worker;

• sufficient physical, visual and auditory communication between man and machine;

[45] Belovs V. Health: The Higher school.2003.

• optimal allocation of working space in the room;

• the permissible level of action of factors of production conditions;

• the optimal placement of the information and the motor field;

• availability of means of protection from hazards.

Design should provide the zone of optimum and easy reach of the motor field of the workplace and the optimal area of the information field of the workplace. Angle of view in relation to the horizontal should be 30-40 degrees. The choice of working arrangements should take into account the efforts expended by the man, the magnitude of the movements, the need for movement, the pace of operations. The choice of working postures should take into account the physiology of man and parametres of working places determined by the choice of the position of the body at work (standing, sitting, a variable). Jobs for work «sitting» are organised in an easy job and middle severity, and the severe - working posture - "standing".

In the design of equipment and organisation of a job it is necessary to foresee the possibility of regulating the individual elements, in order to ensure the optimum position of the operator.

The design of the equipment must ensure that it meets the anthropometric and bio mechanical characteristics of the individual on the basis of accounting change dynamics of the amount of heat when you move, the range of motion in joints.

For the account in the design of equipment anthropometric data should:

• determine the contingent of people for whom is designed equipment;

• select a group of anthropometric characteristics;

• install the percentage of working, which must meet the equipment;

• determine the boundaries of the interval size (efforts), which should be implemented in the hardware.

When designing the use anthropometric dimensions of the body, and take into account the differences in the sizes of the body of men and women, nationality, age, professional. To determine the boundaries of the intervals, which

take account of the percentage of the population, the system is used pertseteley. Design of the equipment should provide the ability to use at least for 90 % of consumers.

To work in a position "sitting" are used by various operating seats. Distinguish workers seat for long and short term use. General requirements for the seat of long use of the following: the seat should ensure position, minimising the statistical work of muscles; create conditions the possibility of changes in working postures; not to obstruct the activities of the systems of the body; to ensure the free movement relative to the working surface, have adjustable parameters; have the floor upholstery. For short-term use is recommended hard chairs and a different type of stools.

In the conditions of growing mechanization and automation of production processes is of special significance means of display of the information about the object of management. Widespread use of the received information model, that is organised according to certain rules information about the status of the object of control.

The information models of the following requirements:[46]

• The content of the information model should adequately display the object of management;

• Information model should provide the best information balance;

• The shape and composition of the information of the model must be consistent with the labour process and possibilities of man for the reception of the information.

Practice makes it possible to outline the sequence of the development of an information model: definition of the objectives of the system, the sequence of their decisions and sources of information; drawing up a list of control objects and their characteristics; the distribution of objects on the degree of importance; the distribution of functions between automation and man; the choice of coding of

[46] Muravy L.A. Ecology and health and safety: the Manual for students of High schools.2002.

objects and drawing up of the overall composition models; determination of Executive actions of man.

In the process of constructing information model are determined by the location of the media in the workplace, are selected dimensions of marks and the layout of. Displaying means are placed in the field of view of an observer with the account of optimum corners and observation areas. Dimensions signs monitoring are determined taking into account maximum accuracy and speed of perception of the information, as well as the brightness of the character, magnitude contrast, the use of colour. Optimum brightness are considered to be the value at which the maximum contrast sensitivity. The value of it will be greater, the smaller the size of the object of discrimination. Optimal area size contrast is 60-90 %. In the work of the eyes is a place of a certain inertia, which requires taking into account the time of exposure of the optic signal and the time intervals for the sense of separate signals the following one after the other. In most cases, the exposure time of the signal should be no less than 50 MS. Each variety of indicators has its area of use: indicators backlit used for the display of high-quality information that requires an immediate response of the operator; gauges are used for the reading of the measured parametres; integral indicators for combining information immediately on several parametres.

The structure and dynamics of the controlled object are usually with the help of a chip. In some cases the scoreboard used to display information and perception of the team of operators.

In the design of the workplace should take into account the rules of the economy's movements: when using two hands of their motion should be simultaneous and balanced; movement should be smooth and rounded, rhythmic and customary for working. The design of the equipment shall take into account the rules relating to the speed and accuracy of workers ' struggles. For example, the most rapid movement to itself; in the horizontal plane of the hand speed more than in the vertical; the accuracy of movements better in a sitting position, than standing, etc. Controls, used in the workplace must comply with the General

requirements of ergonomics: and direction of the management bodies must comply with the movement associated with him indicator; the compliance of the location of the management bodies of the sequence of work of the operator; ease of use; the creation of the bodies of the Board of mechanical resistance and etc. In addition, for each type of bodies of pressure corresponds to a specific area of use and the special requirements of the size, form, effort, etc.

The automated workplace of the operator-Communicator (the operator in the control room) in the General case are used:

- means of mapping the information of individual use (imaging units, signalling devices, and so on);

- means of control and input of information (remote the display, keyboard control, separate controls, and so on);

- devices of communication and transmission of information (modems, telegraphic and telephone sets):

- the device documentation and storage of information (printing devices, magnetic recording and so on);

- auxiliary equipment (means of office equipment, the storage media, the device of local lighting).

At the automated working place should be provided with information and constructive compatibility used by technical means, of anthropometric and physiological characteristics of the person.

At optimization of the procedures of interaction between operators of telecommunications workers with technical means in the conditions of automation ergonomic factors act as the main determining the probability-time characteristics and the intensity of the work. These factors are sensitive to variations of individual properties of the operator.

Working the furniture should be comfortable for the execution of planned operations. The design of the working furniture: table, chairs is of great importance for the creation of healthy environments and highly productive work. Working the

furniture is designed with consideration of anthropometric data of human, technical, aesthetic and economic factors.

In the complete set of the working furniture of great importance is the design of the production of a chair, as it depends on the attitude of the employee and, therefore, energy consumption and the degree of its strain. Operating the seat must have the required dimensions, the relevant anthropometric data of the person and be flexible. The most comfortable chairs and seats with adjustable back tilt and height of seat. Changing the height of the seat from the floor and back angle, you can find the most appropriate labour process and the individual characteristics of the employee.

As a rule, all the surface of the written and desktops should be at the level of the elbow in the position of a person. When choosing the height of the table should be considered a man sits during work or stands.

The inconvenient of the table height reduces the efficiency of work and causes rapid fatigue. The lack of sufficient space for the knees and feet cause constant irritation of the employee. Minimum operating table height should be not less than 725 mm. As practice shows, for the working medium height the height of the desktop is accepted 800 mm. For the employee of another growth you can change the height of the working chair or the position of the boards so that the distance from the object processing before the eyes of the working height is equal to approximately 450 mm.

Accommodation of the technical means and the chair of the operator in the working zone should provide easy access to the main functional nodes and units of equipment for conducting technical diagnostics, preventive inspection and repair; the ability to quickly occupy and to leave the work area; the exception of accidental actuation means of control and input of information; comfortable working posture and position of rest. In addition, the scheme of accommodation should meet the requirements of integrity, compactness and technical and aesthetic expressiveness of the working postures.

The display must be placed on a table or stand so that the distance of observation on the screen does not exceed 700 mm (optimal distance of 450 - 500 mm). Display screen height must be located so that the angle between the centre of the screen and horizontal line of sight was 200. Horizontal viewing angle of the screen should not exceed 600. The remote display to be placed on a desktop or stand so that the height of the keypad in relation to sex was 650 - 720 mm. When placing the remote control on a standard desktop height of 750 mm it is necessary to use the seat with height adjustable seat (450 - 380 mm) and the footrests. Document (form) for entry operator data it is recommended to have at a distance of 450 - 500 mm from the eyes of the operator, predominantly on the left, with the angle between display screen and the document in the horizontal plane shall be 30 40 degrees. The tilt angle of the keyboard should be equal to 15 degrees.

Display screen, documents and keypad display should be located so that the difference of brightness surfaces, depending on their location relative to the source of light, not more than 1:10 (the recommended value 1:3). At nominal values of brightness of the image on the screen 50 - 100 CDS/M2 illumination of the document should be 300 - 500 Lux.

Working place should be equipped in such a way that the movement of an employee would be the most efficient, least tedious.

The device documentation and other, rarely used by technical means, it is recommended to concentrate on the right from the operator in the zone of maximum reach and means of communication to the left, to free the right hand for the entries.

4.2. Emergencies

In theory SAFETY EMERGENCIES - is a set of events, the result of the onset of which is characterised by one or more of the following signso[47]

a) Danger to life and health of a significant number of people;

b) The material violation of the ecological balance in the area of the emergency;

The failure of the life support systems and control, full or partial cessation of economic activities;

d) Significant material and economic damage;

e) The need to involve large as the usually external to the area of emergency forces and means for the salvation of men and the elimination of consequences;

e) Psychological discomfort for large groups of people.

It is characteristic that emergency arises outwardly suddenly, suddenly. Specification of definition of the emergency is achieved by introduction of quantitative measures of the dangers.

The classification of emergencies.

For reasons of emergencies are of natural, man-made, man-made, environmental, and social.

To the natural (natural) emergency situations are dangerous natural phenomena or processes that have extraordinary in nature and lead to a breach of everyday life more or less significant groups of the population, loss of life destruction of material values. These include earthquakes, floods, tsunamis, volcanic eruptions, mudflows, landslides, avalanches, hurricanes and Smer-Chi, massive forest and peat fires, snow and avalanches. The numbers of natural disasters are also droughts, long-term heavy rains, strong stable frosts, epidemics, epizootics, epidemics, mass distribution of pests of agriculture and forestry. Natural disasters can happen: as a result of rapid movement of the substance earthquakes, landslides); in the release of enterprise within the earth's energy

[47] Muravy L.A. Ecology and health and safety: the Manual for students of High schools. 2002.

(volcanic activity earthquakes) at increasing the overall level of rivers lakes and seas floods tsunamis) under the influence of an unusually strong wind ahurricanes cyclones. Some natural disasters fires avalanches landslides, etc. may arise as a result of the actions of the people themselves but their consequences are always the result of the action of the forces of nature. For each natural disaster characterised by the presence of intrinsic in the affecting factors, adversely affecting human health.

Natural disasters are a tragedy of the entire state and especiallyo for those areas where they occur. As a result of natural disasters are affecting the economy of the country since the collapse of production of the enterprise the destruction of material values and most importantlyo there are losses among the peoplee killed their housing and property. In addition, natural disasters pose extremely adverse conditions of life for the population, which may be the cause of outbreaks of infectious diseases. The number of people affected by natural disasters can be considerable and the nature of the lesions is very diverse. Most people suffer from floods (40 % of the total damage), hurricanes (20 %), earthquakes and droughts (15 %). About 10 % of the total damage is on the other types of disasters.

A number of Soviet and foreign experts, citing data on the losses in major disasters assume that in the future in connection with the growth and concentration of population similar in the force of the disaster will be accompanied by an increase in the number of casualties in the tens of times.

Man-made emergency situations is considered a sudden failure of machines, mechanisms and units during their operationи accompanied by serious violations of the production processc the explosions the formation of fire radioactive chemical or biological infections of large territories a group of damage destruction of people. To technogenic emergencies are accidents at industrial facilities constructione as well as on railм airo roado pipeline and water transport as a result of which the firesa the destruction of civil and industrial buildingsa there was a danger of radioactive contaminationя chemical and bacterial contaminationт there was the spreading of the oil products and aggressive poisonous liquid on the

surface of earth and water and there are other consequences endangering human health and the environment.

The nature of the consequences of technogenic catastrophes depends on the type of accident, its scale and characteristics of the enterprise, where the crash occurred (on the means of transport and the circumstances in which the accident occurred.

Anthropogenic emergency situations are the consequence of the erroneous actions of the personnel. This class of emergency can occur at the same objects that and man-made emergency situations. The difference consists only in the fact that man-made emergency situations are not connected with the human factor directly.

The emergency ecological character may include: intensive degradation of the soil and its pollution by heavy metals (cadmium, lead, mercury, chromium, etc.) and other harmful substances, polluting the atmosphere of harmful chemical substances noise electromagnetic fields acid rain the destruction of the ozone layer, etc.

To the social emergency relate the events taking place in the society robbery violence) ethnic conflicts accompanied by the use of force contradictions between the States with the use of weapons.

THE CONCLUSION

It would seem that since the last global recession banks have begun paying particular attention to optimization of their expenses. Today, after the mass job cuts, reduction of expenses for commercial banks is, first of all, the development of all kinds of remote banking services.

The most important task for banks is to minimize streams of client arrivals at bank offices who proceed payments of small sums, utility bills, remittances and other types of transactions with the assistance of bank clerks.

Based on my thesis, we can allocate the following advantages and disadvantages of the Internet-banking in the future:

Advantages*:*

1. Remote control of the bank account: Internet-banking allows to exercise full-scale administration of the account from any computer connected to the Internet. Thus, a client is bound neither to a physical location of a bank, nor to the computer at an office, as in the case with the client-bank system.

2. Thanks to the "thin" client software application, procedure of an establishment of access to the account becomes simpler. For this purpose, it is necessary for a client to know only the login and the password, which have been provided to him/her by the bank.

3. Loading on the bank's internal servicing decreases. Since the majority of the operations which are carried out by the client in the system are run automatically, there is no need in the involvement of a bank clerk in these operations. Thus, operational expenses are reduced.

Disadvantages*:*

1. Relatively lower level of protection in comparison with the system of "client-bank" or documentary registration of transactions. Although, Secure Sockets Layer (SSL) technology is the Internet safety standard, it, owing to its prevalence, is well-known to potential burglars and cannot warrant the same level

of safety as "client-bank" system, which works in the closed networks that do not have Internet connection.

2. High initial capital investments. Introduction and application of an Internet-banking system for average bank requires, as a rule, from one to five million US dollars.

All aforementioned arguments for and against the system allows to draw the following conclusion: the Internet-banking is one of the most perspective markets for development in the banking industry of Uzbekistan. The conducted research allows us to put forward a number of recommendations for the intensification of development of the given market in Uzbekistan:

1. The primary goal of the Internet-banking services in Uzbekistan for today is to gain trust of users.

2. For successful overcoming of mistrust of users, a solid legislative base for the Internet-banking is necessary. Creation of an accurate standard base for the banks working in the market of Internet-banking will undoubtedly allow raising trust of users to the business.

3. Creation of Internet-banking systems is a challenging job from the technical point of view. Global experience shows that banks prefer to use the specialized software developed by the third firms, rather than creating of their own. Surprisingly, today in Uzbekistan there are large companies which are engaged in the development of the bank software. Consequently, domestic banks do not address to the foreign companies regarding the purchase of the software and they save considerable amounts of money.

On the basis of the analysis of the global and national markets of the Internet-banking, we have discussed the scheme of the service and the ways of intensification of the sphere in Uzbekistan. Our research have shown that the market for the Internet-banking, as well as the market of electronic commerce as a whole, is one of the most perspective ways of development and integration of Uzbekistan into the world economic system.

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