

# MOBILNO BANKARSTVO: NOVI TREND U SAVREMENOM BANKARSKOM SEKTORU

mr Dušica Sanader

Predstavništvo SAS Institute  
programska oprema, Beograd  
Dusica.Sander@sas.com

## Rezime

Bankarstvo je, krajem prošlog i početkom ovog veka, prolazilo i dalje prolazi kroz značajne promene, prilagođavajući se novim okolnostima i izazovima u okruženju. Savremene informacione tehnologije su pružile mogućnost bankama da prošire svoje poslovanje i prilagode ponudu proizvoda i usluga kroz nove kanale komunikacije. Sve veća upotreba mobilnih uređaja, posebno takozvanih „pametnih“ telefona, je doprinela razvoju novog vida bankarstva, poznatog kao mobilno bankarstvo. Mobilno bankarstvo predstavlja poseban kanal elektronskog bankarstva koji omogućava da klijenti komuniciraju sa bankom putem mobilnih uređaja. Usluge i proizvodi banke su, na taj način, dostupne klijentima u bilo koje vreme i na svakom mestu, pri čemu se od bankarskog sektora očekuje da dobro razume potrebe današnjeg klijenta, pre procesa implementacije mobilnog bankarstva. Predmet istraživanja u ovom radu je mobilno bankarstvo, kao deo elektronskog bankarstva, koje je nastalo pod uticajem razvoja savremenih informacionih tehnologija. Rad objašnjava koje su osnovne karakteristike mobilnog bankarstva, prednosti koje ono donosi, ali i nedostatke sa kojima se banke i klijenti suočavaju prilikom njegovog korišćenja (ili njegove implementacije u praksi). Takođe, prikazan je i trend korišćenja mobilnog bankarstva u svetu i u našoj zemlji, kao i tendencije razvoja novih usluga.

**Ključne reči:** mobilno bankarstvo, savremene informacione tehnologije, bankarski klijenti, bankarske usluge, mobilni uređaji

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# MOBILE BANKING: NEW TREND IN THE CONTEMPORARY BANKING SECTOR

Dušica Sanader, MSc

Representative Office of  
SAS Institute, Program  
Equipment, Belgrade  
Dusica.Sander@sas.com

## Summary

In the late 1990s and early 2000s, banking has undergone and is still undergoing some considerable changes, adjusting itself to the new circumstances and challenges in its environment. Modern information technologies have granted an opportunity to banks to expand their operations and adjust their offer of products and services, placing them through the new communication channels. The increasing reliance on mobile devices, especially the so-called smart phones, has facilitated the development of a new form of banking, known as mobile banking. Mobile banking is a specific channel of electronic banking, enabling clients to communicate with the bank via mobile devices. The bank's products and services are, thus, available to the clients at any time and at any place, and the banking sector is expected to perfectly understand the needs of today's clients, before implementing mobile banking. The research in this paper focuses on mobile banking, as a segment of electronic banking, which has developed under the influence of modern information technologies. The paper elaborates on the main characteristics of mobile banking, its advantages, but also its drawbacks that the banks and their clients are facing in the process of its utilization (or its implementation in practice). Moreover, the paper presents the trends of using mobile banking in the world and in Serbia, along with the tendencies for developing new services.

**Keywords:** mobile banking, modern information technologies, bank clients, banking services, mobile devices

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## Uvod

Promene u poslovnoj filozofiji upravljanja bankarskim procesima rezultirale su drugačijim karakteristikama savremenih banaka u odnosu na tradicionalan sistem funkcionisanja u periodu od pre dvadesetak godina. Promene u bankarskom sektoru odvijaju se pod dejstvom različitih spoljnih i unutrašnjih faktora koji utiču na funkcionisanje i položaj banaka. U interne pokretače promena ubrajaju se i nedostaci vezani za postojeće strategije poslovanja u smislu njihove zastarelosti i neusklađenosti sa ciljevima bankarskog poslovanja i sa novim zahtevima tržišta. Unutrašnji faktori potiču od karakteristika poslovanja, i obuhvataju relacije među zaposlenima i njihov odnos prema poslovanju. Spoljni faktori, koji posredno utiču na promene u bankarskom sektoru, mogu se razvrstati na: političke, ekonomske, društvene i tehnološke. Ovi faktori se nalaze u okruženju i značajno utiču na tržište tražnje i ponude bankarskih proizvoda i usluga. Spoljni faktori se vezuju za tehnološke inovacije, promene u efikasnosti poslovanja konkurencije, pregovaračke moći klijenata, pojavu novih proizvoda i usluga, promene potreba i zahteva samih klijenata, kao i promene u obrazovanju stanovništva, navikama i načinu života.

Promene u okruženju su uticale i na promene u poslovnoj orijentaciji banaka. Očekivani i neočekivani rizici u poslovanju se ne mogu eliminisati, ali se njima može upravljati kroz pripreme na buduće događaje i smanjenje verovatnoće iznenađenja kroz prikupljanje i korišćenje pravovremenih informacija. Zbog toga je neophodno da svaka banka bude svesna neophodnosti i izvesnosti promena u smislu primene bankarskog marketinga i korišćenja savremenih informacionih tehnologija.

## Primena savremenih informacionih tehnologija u bankarskom sektoru

Širenje informacionih tehnologija i na sferu funkcionisanja bankarskog sektora unapredilo je tehnologiju bankarskog funkcionisanja. Primena savremenih informacionih tehnologija je ubrzala obradu velikog broja podataka, tako da broj informacija koje se mogu obraditi raste i gotovo postaje neograničen. Pored toga,

bankarsko tržište je, zahvaljujući primeni novih tehnologija, poprimilo karakteristike globalnog, jer se informacije prostiru bez geografskog i vremenskog ograničenja. Neposredna primena novih tehnologija omogućila je razvoj novih proizvoda i usluga, kao i promenu u obimu i strukturi tražnje na tržištu bankarskih proizvoda i usluga. Paralelno sa ovim procesom, pojačan je pritisak na svaku banku da poveća svoju produktivnost i efikasnost poslovanja koje vode povećanju profitabilnosti uz povećanje izvesnosti opstanka na tržištu. Razlog za uvođenje savremenih komunikacionih tehnologija u bankarskom sektoru leži u prednostima korišćenja i mogućnostima razvoja novih bankarskih proizvoda i usluga koje predstavljaju preduslov ponude adekvatnih paketa proizvoda i usluga klijentima, u okviru poslovanja bankarskog sistema. Razvoj informacionih tehnologija je doveo do strukturnih transformacija u bankama, kanalima distribucije, dinamike tržišnog nastupa, postizanja konkurentne prednosti banaka i procesima komuniciranja sa klijentima. Prednosti koje nove tehnologije donose bankarskom sektoru su višestruke i ogledaju se u smanjenju troškova poslovanja, unapređenju svesti klijenata o bankarskim proizvodima i uslugama, inovativnosti u poslovanju i ponudi standardnih i nestandardnih proizvoda i usluga, povećanju efikasnosti ponude kao i stavljanju akcenata na klijenta kao pojedinca.

Ostvarivanje konkurentne prednosti upotrebom informacionih i komunikacionih tehnologija zahteva kontinuirano investiranje u funkcionalna područja koje će omogućiti stvaranje dodate vrednosti. Promene tehnološke infrastrukture povećavaju efikasnost komunikacija i poslovanja između klijenta i banke. Da bi komunikacija i poslovanje bili efikasni, neophodno je da klijenti i banke prate nastale promene, da ih prihvataju i da im se prilagođavaju. Uvođenje novih tehnoloških rešenja dovodi i do promena u načinu obavljanja komunikacionih aktivnosti kao i načina građenja odnosa između klijenata i banke. Navedene prednosti su uticale na pojavu i postepeno razvijanje elektronskog bankarstva.

## Introduction

The changes in the business philosophy of managing bank processes have resulted in different characteristics of modern banks, compared to the traditional system of their functioning twenty or so years ago. The changes in the banking sector have been taking place under the influence of various external and internal factors impacting the functioning and position of banks. Internal triggers of changes include drawbacks related to the existing business strategies in terms of their obsolescence and divergence from the objectives of banking business and new market demands. Internal factors arise from the characteristics of operations themselves, and include relations among employees and their attitude towards business. External factors, indirectly affecting the changes in the banking sector, can be classified into: political, economic, social and technological. These factors are to be found in the environment and substantially impact the market supply and demand of the banking products and services. External factors are related to technological innovations, changes in the efficiency of the competitors' operations, bargaining power of the clients, occurrence of new products and services, changed needs and requests of the clients themselves, and changes in education, habits and lifestyle of the population.

The changes in the environment have also impacted the changes in the business orientation of banks. The expected and unexpected business risks cannot be eliminated, but they can be managed through preparation for future events and reduction of probability of surprises by means of collecting and using timely information. To this end, it is necessary for every bank to be aware of the necessity and certainty of changes in terms of using bank marketing and modern information technologies.

## Implementation of modern information technologies in the banking sector

The expansion of information technologies to include the functioning of the banking sector has advanced the technology of banking. The

implementation of state-of-the-art information technologies has accelerated the processing of huge amounts of data, so that the quantity of information that can be processed continuously increases, having become almost unlimited. Moreover, the banking market has, owing to the implementation of new technologies, acquired the characteristics of a global one, given that the information is spreading without any geographical or time limitations. The direct implementation of new technologies has enabled the development of new products and services, as well as the change in the volume and structure of demand at the market of banking products and services. In parallel with this process, there has been an intensified pressure on each bank to increase its productivity and business efficiency leading to higher profitability and higher certainty of its survival at the market. The reason for introducing modern communication technologies into the banking sector lies in the advantages it brings and the potential for developing new banking products and services as a precondition for offering adequate packages of products and services to the clients, within the functioning of the banking system. The development of information technologies has caused structural transformations in banks, distribution channels, market approach dynamics, competitive advantage of banks, and communication with the clients. The advantages brought by new technologies to the banking sector are multiple, including the reduction of business costs, raised awareness of clients about the banking products and services, innovative operations, offering of both standard and non-standard products and services, increased efficiency of that offer, and the focus on a client as an individual.

Achievement of competitive advantage by means of information and communication technologies requires continuous investment in the functional areas that would enable additional value to be generated. The implementation of technological infrastructure increases the efficiency of communication and operations between the client and the bank. In order for communication and operations to be efficient, the clients and the bank must monitor the occurred changes, accept them and adjust in accordance with them. The introduction of new

## Pojam elektronskog bankarstva

Elektronsko bankarstvo se definiše kao skup raznovrsnih načina izvođenja finansijskih transakcija upotrebom informacionih i telekomunikacionih tehnologija. Elektronsko bankarstvo je vid bankarskog poslovanja, koji obezbeđuje pružanje bankarskih usluga pravnim i fizičkim licima, uz korišćenje računarskih mreža i telekomunikacionih medija. Na razvoj elektronskog bankarstva su primarno uticala dva faktora:

- Visok nivo razvoja računarskih tehnologija, koje su pogodne za primenu u bankarskom sektoru, što je rezultiralo koncentracijom visoko stručnih i obrazovnih kadrova u bankama.
- Razvoj finansijskog sistema, koji karakteriše veliki broj nebankarskih i bankarskih institucija.

Međutim, visoke cene opreme, neusklađeni zakonski propisi, neadekvatan i neravnomeran razvoj tehnologije kao i visoki troškovi marketinga rezultirali su sporom automatizacijom transakcija u bankarstvu. Razvoj i primene kriptografije, upotreba javnih računarskih mreža, kao i trendovi u informacionoj i komunikacionoj tehnologiji, doprinele su kreiranju novih metoda poslovanja u bankama. Svi navedeni faktori su, vremenom, uticali na značajno afirmisanje elektronskog poslovanja. Nove tehnologije podrazumevaju tehnološke promene u funkcionisanju banaka, kroz uvođenje novih postupaka i tehnologija poslovanja koje sobom nose nove mogućnosti (elektronski novac, platne kartice, telefonsko bankarstvo, internet bankarstvo, mobilno bankarstvo). Zato banke, u cilju pridobijanja novih i zadržavanja postojećih klijenata, koriste elektronsko poslovanje kako bi:

- Unapredile poziciju i povećale ugled u okruženju, usled prihvatanja inovacija,
- Pružile adekvatan odgovor na uvođenje inovativnih usluga drugih konkurentskih banaka,
- Razvile masovne usluge prilagođene specifičnim potrebama klijenata i
- Smanjile troškove poslovanja kroz uštede usled racionalizacije poslovnih procesa.

Usled realizacije velikog broja transakcija, i rizika njihove efikasne obrade, sredinom

šezdesetih godina dvadesetog veka, dolazi do automatizacije transakcija i uvođenja računara u redovno poslovanje bankarskog sektora. Vršila se zamena gotovine i čekova elektronskim novcem. Prvi oblici elektronskog novca su zasnovani na plastičnim karticama koje su omogućile plaćanje u prodavnicama, ali i podizanje novca na određenim terminalima. Savremene tehnologije su doprinele pojavi mrežnog elektronskog novca, gde se transfer vrši preko telekomunikacionih mreža.

Osamdesetih godina prošlog veka javljaju se i prvi telefonski servisi, bankomati ali i personalni računari. Najveći uticaj na poslovanje banaka je imala pojava mobilnih telefona i interneta. Svaki novi kanal je uticao na povećanje očekivanja u pogledu većeg kvaliteta bankarskih usluga. S obzirom da se postepeno ukida materijalizacija poslovnih transakcija (više se ne registruju na papiru, već u okviru baze podataka), novi kanali su omogućili i da klijent ima pristup svakoj pojedinačnoj transakciji u vreme i na mestu gde on to poželi. Za takav način poslovanja, banke počinju da koriste termin elektronsko bankarstvo.

Elektronsko bankarstvo omogućava bolje korišćenje bankarskih usluga i proizvoda, po principu samousluge. Savremeni klijenti, usled brzog tempa života, žele da bankarske transakcije obavljaju u što kraćem periodu, pa i po cenu većih troškova. Elektronsko bankarstvo ima prednosti u odnosu na klasično jer:

- Smanjuje troškove transakcija,
- Obezbeđuje brži obrt sredstava,
- Obezbeđuje uštedu vremena,
- Omogućuje obavljanje transakcija sa bilo kog mesta,
- Pruža stalan uvid u stanje na računima i promet po svakoj partiji računa.

Automatizacija bankarskog poslovanja je obezbedila korišćenje usluga 24 sata dnevno. Pored toga, internet je omogućio veliki protok informacija, a samim tim bolje, brže i jeftinije korišćenje bankarskih proizvoda i usluga. Samouslužno bankarstvo, kao poseban vid inovacije, omogućava korišćenje bankarskih usluga bez ljudske intervencije na strani banke. Prednosti korišćenja elektronskog bankarstva za banku i klijente su dati u tabeli broj 1.

technological solutions also introduces changes to the manner of conducting communication activities and the manner of building relations between the clients and the bank. The stated advantages have affected the origination and gradual development of electronic banking.

## Electronic banking

Electronic banking is defined as a group of various methods for conducting financial transactions by means of information and telecommunication technologies. Electronic banking is a form of banking enabling the provision of banking services to natural persons and legal entities, by using computer networks and telecommunication media. The development of electronic banking was primarily influenced by two factors:

- Intense development of computer technologies, suitable for implementation in the banking sector, having resulted in a concentration of highly competent and professional personnel in banks; and
- Financial system development, characterized by a large number of banking and non-banking institutions.

Nevertheless, the high-priced equipment, non-harmonized laws and regulations, inadequate and inconsistent technological development along with the high costs of marketing, have resulted in a slow automation of transactions in banking. Development and implementation of cryptography, usage of public computer network, as well as the trends in information and communication technology, have contributed to the creation of new business methods in banks. All the above stated factors have, over time, contributed to the substantial promotion of electronic banking. New technologies imply technological changes in the functioning of banks, through the introduction of new procedures and business technologies, generating new possibilities (electronic money, payment cards, phone banking, Internet banking, and mobile banking). Therefore, banks, with a view to attracting new clients and keeping the existing ones, rely on electronic banking to:

- Advance their position and increase their reputation in the business environment, as a result of having accepted innovations;

- Provide an adequate response to the introduction of innovative services by other competitive banks;
- Develop mass services adjusted to the specific needs of their clients; and
- Reduce business costs due to the rationalization of business processes.

Due to the realization of a huge number of transactions, and the risk of their efficient processing, in the mid-1960s the automation of transactions took place and the introduction of computers into the regular operations in the banking sector. Cash and cheques were replaced by electronic money. The first forms of electronic money were based on plastic cards enabling payments in shops and stores, but also the withdrawals of cash on certain terminals. Modern technologies have contributed to the occurrence of network electronic money, with transfers being conducted via telecommunication networks.

In the 1980s the first telephone services occurred, along with ATMs and personal computers. The biggest impact on banks' operations was exerted by the occurrence of mobile phones and the Internet. Each new channel increased the expectations concerning the quality of banking services. Given that the materialization of business transactions has been gradually eliminated (they are no longer registered on paper, but within a database), new channels have enabled the clients to have access to each individual transaction at any time and at any place. Soon enough, the banks started to refer to this form of operations as electronic banking.

Electronic banking enables better utilization of bank products and services, according to the self-service principle. Contemporary clients, due to their hectic lifestyle, wish to perform banking transactions as soon as possible, even at a higher cost. Electronic banking, thus, has the following advantages over the classic banking, because it:

- Reduces transaction costs;
- Facilitates quicker turnover of funds;
- Saves time;
- Enables transactions to be performed at any place;
- Grants constant insight into the account balance and turnover in respect of each account number.

Tabela 1 - Prednosti elektronskog bankarstva

Banka	Klijent
Veći ugled i imidž na tržištu	Niži troškovi pristupa i korišćenja usluga
Brže reagovanje na promene u okruženju	Dostupnost 24x7x365 i ušteda u vremenu
Veći tržišni prodor bez prostornog i vremenskog ograničenja	Brzina transakcija
Korišćenje interneta radi oglašavanja prodaje novih finansijskih proizvoda	Digitalni zapis transakcije

Izvor: Gurau C., Online Banking in Transition Economies: the Implementation and Development of Online Banking Systems in Romania, The International Journal of Bank Marketing, (20), 6 str. 285-296, 2000.

Za ocenu stanja elektronskog bankarstva u Srbiji neophodno je izvršiti poređenje sa situacijom u ovoj oblasti u razvijenim zemljama. U razvijenim zemljama procenat učešća elektronskog bankarstva u platnom prometu je veoma visok (npr. u Francuskoj se ovo učešće kreće od 70% do 80% ukupnog platnog prometa), a u Srbiji je znatno niži (u celini se oko trećina platnog prometa obavlja kroz elektronsko bankarstvo, dok je ovo učešće znatno manje kada se posmatra aktivnost fizičkih lica). U odnosu na druge segmente u zemlji, elektronsko bankarstvo je relativno dobro razvijeno, i što je još značajnije, pokazuje tendenciju daljeg intenzivnog razvoja (po vrstama proizvoda i po tehnološkom nivou mogućnosti korišćenja).

## Kanali elektronskog bankarstva

Bankarstvo podrazumeva postojanje distributivne mreže preko koje klijent može da ostvari informacioni i poslovni kontakt sa bankom. S obzirom na značajne troškove korišćenja i održavanja svakog kanala ponude, banke biraju kanal koji obezbeđuje najbolji odnos troškova i prihoda. Banka može da komunicira sa klijentom putem ekspoziture, ATM sistema (bankomati), POS sistema, homebanking-a (telefonskog bankarstva), on-line bankarstvom (PC bankarstva), WEB TV bankarstvom, SMS bankarstvom, internet bankarstvom i mobilnim bankarstvom. Prvi i najrasprostranjeniji oblik komunikacionog kanala u tradicionalnom bankarstvu je ekspozitura. Razgranata mreža ekspozitura podrazumeva povećanje tržišnog udela, ali i veće troškove u smislu većeg broja zaposlenih, viših

troškova opreme i drugih fiksnih i varijabilnih troškova. Međutim, iako novi komunikacioni kanali preuzimaju primat u komunikaciji sa klijentom, ekspozitura je i dalje neophodna kao osnovni oblik za održavanje kontakata sa klijentima, kako zbog klijenata koji nisu informatički opremljeni i pismeni, ali i zbog potrebe banaka, radi obavljanja poslova koji zahtevaju personalne kontakte osoblja banaka sa klijentima (npr. potpisivanje

ugovora, savetodavne usluge i slično).

Mogućnost korišćenja sredstava van banke i plaćanje bez gotovine se javlja pojavom POS sistema (point of sale), a bankomati omogućavaju raspolaganje novcem po principu samousluge. Telefonsko bankarstvo (Homebanking) se definiše kao sistem za direktno korišćenje bankarskih usluga od kuće, jer omogućava neposredan transfer sredstava, informacija i naloga putem informaciono-komunikacione mreže, bez pisanja pratećih dokumenata. On-line bankarstvo podrazumeva obavljanje bankarskih transakcija uz korišćenje specijalnog softvera. WEB TV bankarstvo, vid elektronskog bankarstva, omogućava povezivanje televizije i interneta u jednu celinu, a namenjeno je klijentima koji nemaju računar. Upravljanje Web-om se vrši pomoću daljinskog upravljača i jednostavnih komandi, koje omogućuju plaćanje računa, kupovinu i realizaciju ostalih bankarskih transakcija. SMS bankarstvo se razvilo na bazi usluga mobilne telefonije. Uz odgovarajuće podatke koje klijent dostavi banci, banka omogućava vlasniku mobilnog telefonskog broja da putem poruka bude informisan o uslugama i proizvodima banke, kao i stanju na računima, izvršenim plaćanjima i slično. Internet bankarstvo predstavlja obavljanje bankarskih transakcija posredstvom interneta. Za ovaj vid bankarstva nije potreban poseban softver i podaci nisu uskladišteni na klijentovom hard disku. Pristup banci i računima je moguć sa bilo kog mesta, uz internet priključak. S tim u vezi, internet bankarstvo je najjeftiniji oblik bankarskih usluga, koji je dostupan 24 sata dnevno, bez prostorne ograničenosti. Osnovna slabost ovog oblika bankarstva je nedostatak sigurnosti i

The automation of banking operations has enabled 24/7 utilization of services. Moreover, the Internet has enabled a massive flow of information, and consequently, better, quicker, and cheaper usage of bank products and services. Self-service banking, as a special form of innovation, enables banking services to be used without the need for human resources on the part of the bank. The advantages of using electronic banking for the bank and the clients are outlined in Table 1 below.

Table 1 - Advantages of electronic banking

Bank	Client
Higher reputation and status at the market	Lower costs of accessing and using services
Quicker reaction to the changes in the environment	24x7x365 availability and time saving
Bigger market penetration without space or time limitations	Quick transactions
Using the Internet to advertise the sales of new financial products	Digital transaction records

Source: Gurau C., Online Banking in Transition Economies: the Implementation and Development of Online Banking Systems in Romania, *The International Journal of Bank Marketing*, (20), 6 pp. 285-296, 2000.

For the purpose of assessing the position of electronic banking in Serbia, it is necessary to compare the situation in this field with the developed countries. In the developed countries the percentage accounted for by electronic banking in the payment turnover is very high (e.g. in France it ranges from 70% to 80% of the total payment turnover), whereas in Serbia this percentage is substantially lower (overall, about one third of the payment turnover is conducted via electronic banking, although this share is much lower when observing only the activity of retail clients). Compared to other segments, the electronic banking in Serbia is well developed, and, more importantly, there is a tendency for its further intensive development (according to types of products and the technological level of possibilities for their usage).

### Electronic banking channels

Banking implies the existence of a distribution network through which clients may establish information and business contacts with the bank. Given the considerable costs of usage and maintenance of each supply channel,

banks are choosing the channel providing the best cost of sales to revenues ratio. A bank can communicate with the client through branches, ATMs system, POS system, home banking (telephone banking), online banking (PC banking), WEB TV banking, SMS banking, Internet banking and mobile banking. The first and prevailing form of a communication channel in traditional banking is a branch. The widespread network of branches implies an increase in the market share, but also higher

costs due to the bigger number of employees, higher equipment costs and other fixed and variable costs. Nevertheless, even though the new communication channels have been taking precedence when it comes to the communication with the clients, branches are still necessary as the main form of maintaining contacts with the clients, both for the sake of clients who are not IT equipped or literate, and for the sake of banks, for the purpose of conducting operations requiring

personal contacts between the bank's personnel and the clients (for instance, signing contracts, consulting services, etc.).

The possibility of using funds outside of the bank and of cashless payment appeared with the occurrence of point-of-sale (POS) system, whereas the ATMs enabled the clients to have their money available according to the self-service principle. Phone banking (or home banking) is defined as a system for direct usage of bank services from home, given that it enables a direct transfer of funds, information and orders via an information-communication network, without any written accompanying documents. Online banking refers to bank transactions being conducted by means of special software. WEB TV banking, a form of electronic banking, enables the television and the Internet to be connected into one whole, and is targeted at the clients who do not have a computer. The client surfs the Web by means of a remote controller and simple commands, enabling the payment of bills, purchases and realization of other banking transactions. SMS banking has developed based on the services provided by mobile phone operators. After the certain data are submitted



privatnosti (opasnost da ključne finansijske informacije o klijentu budu otkrivene). U današnje vreme, dvadeset i šest godina nakon pojave prvog personalnog računara i šesnaest godina od pojave Svetske mreže (WWW: World Wide Web), prosečna svetska populacija koja intenzivno koristi internet obuhvata oko 17% ukupnog stanovništva. Raspon korisnika se kreće od oko 4% u Africi do gotovo 69% u Severnoj Americi, ili 76% u Švedskoj. Prosečna internet populacija u Evropi čini oko 39% ukupnog stanovništva. Navedene činjenice doprinose kreiranju niza inovacija u bankarskom sektoru, kako bi banke mogle da odgovore na rastuće potrebe klijenata (virtuelne poslovnice, specijalni softverski programi koji brinu o budžetu klijenata i drugo).

## Mobilno bankarstvo

Mobilno bankarstvo je najnoviji trend u razvoju elektronskog bankarstva. Mobilno bankarstvo predstavlja nov kanal koji omogućava plaćanje putem mobilnog telefona, tablet-a i drugih uređaja koji su opremljeni specijalnim softverom za mobilni pristup internetu. Najnovija generacija mobilnih uređaja takozvanih „pametnih“ telefona, koji poseduju mogućnost povezivanja na internet, omogućavaju klijentima da pristupe banci i izvrše željene transakcije. Mobilnom tehnologijom, banka omogućava klijentima kontrolu nad sopstvenim transakcijama, a najveća prednost se ogleda u mobilnosti (komunikacija bilo gde i bilo kad) i u jednostavnoj upotrebi.

Karakteristike mobilnog bankarstva su:

- Mogućnost širokog korišćenja: Klijent može da koristi usluge u obavljanju transakcija, nezavisno od svoje trenutne lokacije.
- Neposrednost: Obavljanje aktivnosti je moguće u bilo koje vreme, što je veoma značajno za usluge koje su vremenski kritične i zahtevaju brzo reagovanje (berzanske usluge).
- Automatsko i trenutno povezivanje sa bankom: Pametni telefoni imaju pristup internetu, što obezbeđuje klijentima korišćenje usluga kad god i gde god žele.
- Proaktivne funkcionalnosti: Savremene informacione tehnologije omogućavaju

klijentima da izaberu uslugu ili proizvod o kojima bi želeli da budu informisani (najčešće putem SMS-a).

Mobilno bankarstvo uključuje široki spektar usluga koje klijenti mogu da koriste, a koje se mogu svrstati u tri osnovne grupe:

- Uz pomoć mobilnih uređaja, klijenti mogu da koriste usluge i proizvode vezane za račun koji poseduju kod banke. Klijenti mogu da obavljaju transakcione bankarske usluge putem mobilnih uređaja, vezane za račun koji klijent poseduje kod banke. Pod ovim uslugama se ne podrazumevaju samo transakcije, već i druge usluge koje klijent obavlja sa bankom. U skladu sa navedenim, bankarske usluge koje je moguće obavljati putem mobilnih uređaja su: transferi novca, trajni nalog za plaćanje računa, prenos novca na podračune, prijavljivanje polise osiguranja i slično.
- Brokerske usluge su, takođe, dostupne klijentima putem mobilnih uređaja. Usluge se odnose na kupovinu ili prodaju finansijskih instrumenata (npr. hartije od vrednosti, akcije i slično).
- Finansijske informacije u smislu informativnih poruka, koje mogu biti ponuđene klijentu samostalno ili zajedno sa brokerskim i transakcionim bankarskim uslugama. Pod ovim uslugama se podrazumevju informacije vezane za račune klijenata (upiti stanja, poslednje transakcije, informacije o kreditnim karticama, lokacije ekspozitura i bankomata) i informacije vezane za finansijska tržišta (kursna lista, tržišne kamatne stope, izveštaji o akcijama, informacije o bankarskim proizvodima i ponudama).

## Tehnologija koja omogućava mobilno bankarstvo

Mobilno bankarstvo podrazumeva razvoj tehnologije i korišćenje različitih kanala. Korišćenje mobilnog bankarstva je moguće putem:

1. Govorna pošta (eng. „Interactive Voice Response“). IVR kanal omogućava interakciju klijenta i banke kroz pozivanje IVR broja koji prati meni sa različitim opcijama biranja poruka i čitanja informacija.
2. Poruke (eng. „Short Messaging Service“).

to the bank, it enables the user of the concerned mobile phone number to get informed via SMS messages about the bank's services and products, about the account balances, conducted payments, etc. Internet banking implies that the banking transactions get performed via the Internet. This form of banking does not require special software and the data are not stored at the client's hard disc. It is possible to access the bank and the account from any place, provided the Internet connection. Therefore, the Internet banking is the cheapest form of banking services, available 24 hours a day, without any limitations in terms of space. The main weakness of this type of banking is the lack of safety and privacy (the danger of key financial information on a client being disclosed). Today, twenty six years since the first personal computer and sixteen years since the World Wide Web, the average population in the world intensively using the Internet accounts for about 17% of the total population. The percentage of users ranges from about 4% in Africa to almost 69% in North America, or 76% in Sweden. The average Internet population in Europe accounts for about 39% of the total population. The stated facts contribute to the creation of a series of innovations in the banking sector, so that the banks could respond to the growing needs of the clients (virtual branches, special software programs taking care of the clients' budget, etc.).

## Mobile banking

Mobile banking is the latest trend in electronic banking development. Mobile banking is a new channel enabling payments via mobile phones, tablets and other devices equipped with the special software for mobile Internet access. The latest generation of mobile devices, the so-called smartphones, granting Internet access, enables the clients to access the bank and perform desired transactions. By means of mobile technology, the bank enables its clients to control their own transactions, the biggest advantage being mobility (communication at any time and any place), and simple usage.

The characteristics of mobile banking are as follows:

- Widespread usage: The client may use the services in performing transactions,

regardless of his current location.

- Immediacy: It is possible to perform these activities at any time, which is very significant for time-critical services requiring swift response (stock exchange services).
- Automatic and real-time connection with the bank: Smartphones can access the Internet, which enables the clients to use the services whenever and wherever they want.
- Proactive functionalities: Modern information technologies enable the clients to select a service or product about which they would like to be informed (mostly by SMS).

Mobile banking offers a wide range of services to the clients, which may be classified into three main groups:

- Via mobile devices, the clients may use the products and services related to the account they own with the bank. The clients may perform transactional banking services via mobile devices, in respect of the account they own with the bank. Such services do not refer just to transactions, but also to other services that a client performs with the bank. In line with that, the banking services that may be performed via mobile devices include: money transfers, standing orders for payment of bills, transfers of money into sub-accounts, reporting of insurance policies, etc.
- Brokerage services are also available to the clients via mobile devices. The services refer to the purchase or sale of financial instruments (e.g. securities, shares, etc.).
- Financial information in terms of informative messages, that may be offered to the client independently or together with brokerage and transactional banking services. These services refer to the information related to clients' accounts (balance inquiries, latest transactions, information on credit cards, locations of branch offices and ATMs), and information related to financial markets (FX rates, market interest rates, reports on shares, information on banking products and offers).

## The technology enabling mobile banking

Mobile banking implies developed technology and usage of different channels. It is possible to use mobile banking via:

Ovaj kanal daje mogućnost slanja tekstualnih poruka preko SMS centra na osnovu kojih banka odgovara porukom koja sadrži specifične informacije.

3. Bežični pristup (eng. „Wireless Access Protocol”). Koncept korišćenja WAP kanala je sličan internet bankarstvu. Klijenti putem WAP pretraživača na mobilnom uređaju dobijaju potrebne informacije u vezi sa bankarskim proizvodima i uslugama.
4. Samostalne klijentske mobilne aplikacije (eng. „Standalone Mobile Application Clients”). Navedena aplikacija omogućava klijentima da obavljaju kompleksne bankarske transakcije sa visokim stepenom pouzdanosti i bezbednosti.

## Ciljna grupa mobilnog bankarstva

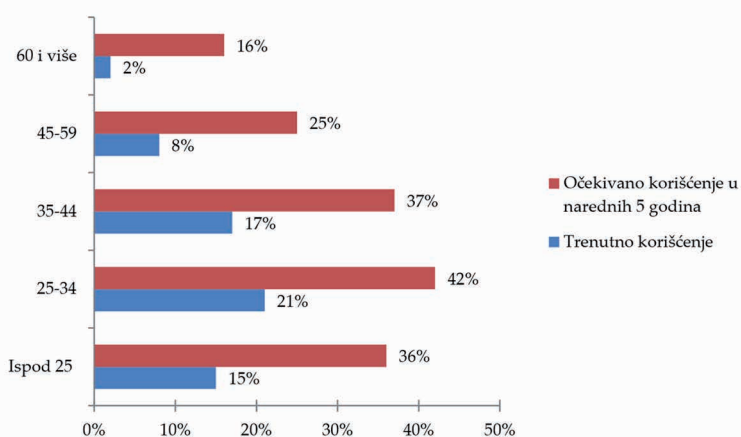
Banke nastoje da određene aspekte poslovanja sa klijentima alociraju sa ekspozitura, kao klasičnog oblika komunikacije sa klijentima, na alternativne kanale. Cilj je da mobilno bankarstvo koristi što veći broj klijenata. Međutim, korišćenje mobilnog bankarstva zavisi od klijenata, to jest njihove starosne grupe i spremnosti za korišćenje informacionih tehnologija.

Ciljna grupa stanovništva za korišćenje mobilnog bankarstva obuhvata sledeće kategorije klijenata:

- Mladi, koji predstavljaju klijente u starosnoj grupi do 25 godina, koji svakodnevno koriste savremene informacione tehnologije, a naročito novije verzije mobilnih uređaja. Ovi klijenti, iako nisu najvažniji za banku sa finansijskog aspekta, predstavljaju buduću bazu klijenata u dugoročnoj marketing strategiji.
- Zaposleni, starosne grupe od 26 do 60 godina, koji su uglavnom nosioci mobilnog bankarstva. S obzirom na njihovu potrebu da budu stalno u pokretu, oni su idealna ciljna grupa za ovakav način komuniciranja sa bankom.

- Stariji od 60 godina, uglavnom penzioneri, su grupa klijenata koju banke žele da aktiviraju za korišćenje mobilnog bankarstva, radi smanjenja troškova poslovanja ekspozitura. Banke očekuju porast u korišćenju mobilnih uređaja za bankarske aktivnosti u narednom periodu (slika 1). Očekivanja su da klijenti svih starosnih grupa povećaju korišćenje mobilnih uređaja u svrhu obavljanja bankarskih aktivnosti.

Slika 1. Starosne kategorije klijenata i korišćenje mobilnih uređaja za bankarske aktivnosti u odnosu na ukupnu bankarsku aktivnost



Izvor: European Financial Management and Marketing Association (EFMA) 2011., McKinsey mobile-banking survey for 150 European banks, [www.mckinsey.com](http://www.mckinsey.com)

## Prednosti mobilnog bankarstva

Mobilno bankarstvo obezbeđuje povećanje prodaje i smanjenje troškova za banku. Cilj svake banke je smanjenje troškova po transakciji, kako bi i banka ostvarila veći profit, ali i klijenti imali manje troškove. Analiza pokazuje da su troškovi po transakciji najveći ukoliko se obavljaju u ekspozituri banke, a najniži u slučaju korišćenja internet bankarstva (Boyes G., Stone M., 2003).

Priprema personalizovanih poruka za klijenta, uz odgovarajuću ponudu, povećava mogućnost prodaje različitih bankarskih proizvoda i usluga (nove usluge, premium usluge i slično). Sa druge strane, upotreba mobilnog bankarstva obezbeđuje automatizovan proces, bez učešća zaposlenih banke.

Mobilno bankarstvo obezbeđuje prednosti u odnosu na tradicionalne načine obavljanja aktivnosti sa bankom kroz:

- Pružanje specifičnih usluga kojima se obezbeđuje lojalnost klijenata.
- Rešavanje vremenski kritičnih situacija u

1. Interactive Voice Response. The IVR channel enables the interaction between clients and the bank by calling an IVR number opening a menu with different options for dialing messages and reading information.
2. Short Messaging Service. This channel enables the sending of textual messages via an SMS centre, based on which the bank responds in the form of a message containing specific information.
3. Wireless Access Protocol. The concept of using WAP channel is similar to the Internet banking. Through the WAP browser on their mobile devices, the clients receive required information concerning banking products and services.
4. Standalone Mobile Application Clients. This application enables the clients to perform complex banking transactions with high levels of reliability and security.

## The target group of mobile banking

Banks tend to relocate certain business segments from branch offices, as classic forms of communication with the clients, to alternative channels. The objective is for mobile banking to be used by as many clients as possible. However, the usage of mobile banking depends on the clients, i.e. on their age group and readiness to use information technologies.

The target group of the population when it comes to using mobile banking includes the following categories of clients:

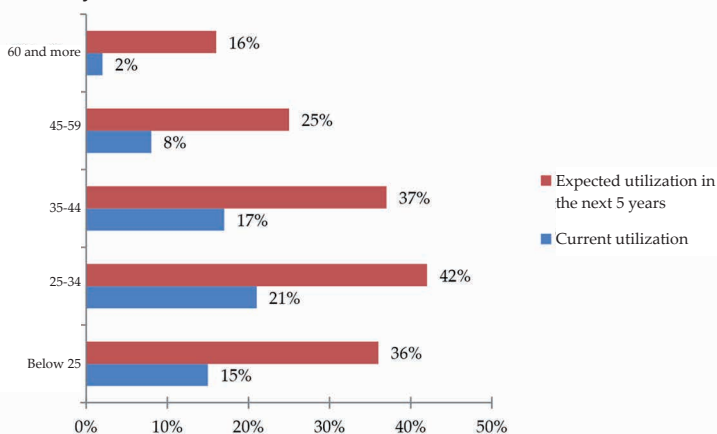
- Young people, i.e. clients in the group up to 25 years of age, who use information technologies every day, especially the latest versions of mobile devices. These clients, although not the most important for the bank from the financial aspect, represent the future basis of clients in the long-term marketing strategy.
- Employed people, i.e. clients in the group between 26 and 60 years of age, who are mostly the users of mobile banking. Given

their need to constantly be on the move, they are the ideal target group for this form of communication with the bank.

- People above 60 years of age, mostly pensioners, are a group of clients that banks want to activate in terms of mobile banking, with a view to reducing operations costs in branches.

Banks are expecting an increase in the usage of mobile devices for banking activities in the forthcoming period (Figure 1). The clients in all age groups are expected to increase their usage of mobile device for the purpose of performing banking activities.

Figure 1. Age groups of clients and utilization of mobile devices for banking activities in relation to the total banking activity



Source: European Financial Management and Marketing Association (EFMA) 2011., McKinsey mobile-banking survey for 150 European banks, [www.mckinsey.com](http://www.mckinsey.com)

## Advantages of mobile banking

Mobile banking facilitates increased sales and cost reduction in the bank. Each bank's objective is to reduce costs per transaction, in order for the bank to achieve bigger profit, and for the clients to have lower costs. The analysis has shown that costs per transaction are the highest if the transactions are performed in the bank's branch office, and the lowest in case of using Internet banking (Boyes G., Stone M., 2003).

Preparation of personalized messages for the client, with the appropriate offer, increases the probability of selling different bank products and services (new services, premium services, etc.). On the other hand, the usage of mobile banking provides an automated process, without any participation of the bank's employees.

smislu brzih reakcija za određene transakcije.

- Prava rešenja za donošenje spontanih odluka i potrebe koje ne podrazumevaju angažovanje velike količine novca (vesti, twitter, facebook...).
- Povećanje efikasnosti klijenata u obavljanju dnevnih rutina.

Kroz mobilno bankarstvo i mobilne tehnologije banka ima bolji uvid u ponašanje klijenata pri korišćenju bankarskih proizvoda i usluga. Na primer, ukoliko klijent koristi karticu prilikom plaćanja, uvek je informisan kada je transakcija izvršena i za koji iznos je zadužen račun. Takođe, banka može da obavesti klijenta o stanju kredita, datumu kada rata dospeva za plaćanje ili da je račun dospeo za plaćanje, i nizu drugih transakcija i informacija od značaja za klijenta. Sa druge strane, klijenti imaju uvid u svoje depozite i plaćanja koja dospevaju.

Tabela 2. Prednosti mobilnog bankarstva

Prednosti bankarskog sektora	Prednosti za klijenta
Povećanje tržišnog učešća	Brz uvid u račune
Smanjenje troškova poslovanje	Smanjenje troškova
Pridobijanje novih klijenata i depozita	Korišćenje bankarskih usluga i proizvoda u realnom vremenu
Personalizovan kontakt sa klijentom	Dobijanje personalizovanih poruka
Bolja pozicioniranost na tržištu	Dobijanje informativnih poruka od banke

## Nedostaci mobilnog bankarstva

Globalno posmatrano, u današnje vreme milioni klijenata koriste mobilne uređaje za obavljanje bankarskih usluga. Informacione, komunikacione i transakcione usluge su u tesnoj vezi sa rizikom koji banke i klijenti preuzimaju. Rizici su veoma specifični jer su vezani sa veoma brzim promenama u tehnologiji, integracijom aplikacija sa postojećim informacionim sistemima banaka kao i otvorenim telekomunikacionim mrežama. Nedostaci kao što su nebezbednost, nelagodnost, visoki troškovi korišćenja (usled cena interneta na mobilnom uređaju) su često ograničavajući faktori za široku upotrebu mobilnog bankarstva.

Bezbednost u korišćenju mobilnih uređaja za mobilno bankarstvo se ogleda u fizičkoj sigurnosti mobilnog uređaja (krađa), sigurnosti

otvaranja bankarske aplikacije (nepostojanje lozinke), autentifikacije uređaja od strane provajdera usluga, preinicijacije transakcije, zaštita podataka koji se transmituju i koji se čuvaju na mobilnom uređaju. Nedostupnost i preopterećenost sistema utiču na nelagodnost u korišćenju mobilnog bankarstva. Sa tehničke strane, postoje i problemi vezani za:

- Korišćenje širokog spektra različitih aplikacija, koje nisu autentifikovane i zaštićene na istom mobilnom uređaju,
- Neobezbeđene Wi-Fi konekcije,
- Viruse koji se šire mrežom.

Istraživanja pokazuju da oko 51% klijenata nema poverenje u sigurnost obavljanja bankarskih usluga na mobilnim uređajima, a oko 74% klijenata veruje da je korišćenje mobilnih kanala povezano s mogućim brojnim rizicima. Takođe, oko 88% klijenata smatra da postoji mogućnost prevarnih radnji putem mobilnih uređaja.

Pored klijenata i banke preuzimaju rizike mobilnog bankarstva:

- Operativni rizik. Radi se o potencijalnom gubitku usled nedostatka sigurnosti, implementacije i održavanja sistema, ali i rizik od zloupotrebe proizvoda ili usluga od strane klijenata.

- Strategijski rizik. Ukoliko

banka jasno ne definiše ili donese loše ili kontradiktorne poslovne odluke, ili ukoliko se ne prilagodi promenama u okruženju, mobilno bankarstvo može izazvati kontraefekte po rezultate banke.

- Pravni rizik. Mobilno bankarstvo može da otvori mogućnosti nepoštovanja ili izbegavanja zakona (npr. pranje novca). Zato banka mora da obrati pažnju na identifikaciju klijenta i da prati njegovo poslovanje.
- Reputacioni rizik. Ukoliko mobilno bankarstvo nije u skladu potrebama i na nivou očekivanja klijenata (često nedostupni sistemi), može da dovede do negativnih reakcija klijenata.

Nedostaci mobilnog bankarstva tiču se zaštite informacija i provere identiteta klijenata. Nedostaci sistema zaštite i zloupotrebe na internetu, odsustvo privatnosti, dovode do toga

Mobile banking generates certain advantages compared to traditional ways of conducting bank-related activities, by means of the following:

- Provision of specific services earning the clients' loyalty.
- Solving of time-critical situations in terms of swift reactions related to certain transactions.
- Right solutions for spontaneous decisions, and needs not requiring the engagement of large amounts of money (news, Twitter, Facebook, etc.).
- Increase in the clients' efficiency in performing daily routines.

Owing to mobile banking and mobile technologies, banks have better insight into the behavior of their clients when it comes to using banking products and services. For instance, if a client uses his card to effect a payment, he is always informed about when the transaction was performed and which amount was debited from his account. Also, the bank can inform the client about the balance of his loan, the date on which his installment matures for payment or on which his bills mature for payment, including many other transactions and other information relevant for the client. On the other hand, clients have insight into their deposits and due payments.

Table 2. Advantages of mobile banking

Advantages for the banking sector	Advantages for the client
Increasing the market share	Quick access to the accounts
Reducing business costs	Cost reduction
Acquiring new clients and deposits	Using bank services and products in real time
Personalized contact with the client	Receiving personalized messages
Better positioning at the market	Receiving informative messages from the bank

## Disadvantages of mobile banking

At the global level, millions of clients today use mobile devices to perform banking services. Information, communication and transaction services are closely related to the risks undertaken by banks and their clients. The risks are rather specific, given that they are linked to extremely fast changes in technology, integration of applications with the existing IT

systems in banks, and open telecommunication networks. Disadvantages like unsafety, uneasiness, high costs (due to the mobile Internet prices), are often the limitation factors for the widespread usage of mobile banking.

Safety in using mobile devices for mobile banking is reflected in physical safety of the mobile device (theft), security of opening the banking application (no password required), authentication of the device by the service provider, pre-initiation of transactions, protection of data transmitted and stored at the mobile device. Inaccessible and overloaded systems account for the uneasiness in using mobile banking. From the technical perspective, there are also problems related to:

- The usage of wide range of different, unauthenticated and unprotected, applications on the same mobile device;
- The unsecured Wi-Fi connections;
- The viruses spreading across the network.

Research has shown that about 51% of the clients do not trust the safety of performing banking services via mobile phones, whereas about 74% of the clients believe that using mobile channels is related to many potential risks. Moreover, about 88% of the clients believe that there is potential for fraudulent activities via mobile devices.

In addition to the clients, banks also undertake the risks of mobile banking:

- Operational risk. This refers to potential losses due to the lack of safety, system implementation and maintenance, but also to the risk of products or services being abused by the clients.
- Strategic risk. If a bank does not clearly define its business decisions or otherwise makes poor

or contradictory ones, or if it fails to adjust to the changes in its business environment, mobile banking may be counter-effective for the bank's results.

- Legal risk. Mobile banking may generate some possibilities for disrespect or circumvention of the law (e.g. money laundering). Thus, the bank must pay attention to the identification of clients and monitor their operations.

da banke i zakonodavni sistem moraju zajedno da definišu strategije koje rešavaju probleme u korišćenju savremenih informacionih tehnologija. S tim u vezi, banka mora da proceni rizik i troškove zaštitnih mera i kontrola koji su neophodni za adekvatno upravljanje i nadzor nad aktivnostima mobilnog bankarstva.

Kako bi se mobilno bankarstvo pravilno koristilo, potrebno je da budu ispunjeni određeni preduslovi sa strane klijenata, banke, mobilnih operatera i zakonske regulative:

- Stanovništvo mora da ima ekonomsku moć (potrošačka moć, štednja, bankarski račun), informatičko znanje za upotrebu aplikacija za elektronsko poslovanje, ali i da poznaje sistem i pravila elektronskog plaćanja.
- Banka mora da pruži visok kvalitet usluga kroz fokus na klijenta uz dobro obučeni i profesionalan kadar.
- Zakonska regulativa treba da bude jasna i sveobuhvatna, kroz donošenje Zakona o zaštiti podataka i prenosa istih, kaznenih odredbe protiv zloupotrebe, kako bi se povećala sigurnost i bezbednost obavljanja mobilnog bankarstva. Takođe, regulative treba da podržavaju razvoj mobilnog bankarstva u smislu brzog donošenja odluka koje omogućavaju bankarskom sektoru uvođenje novih usluga (npr. Zakon o elektronskom potpisu).
- Razvijena telekomunikaciona mreža, stepen pokrivenosti mrežom, brzina interneta putem mobilnih uređaja su preduslovi za razvoj mobilnog bankarstva.

## Mobilno bankarstvo u svetu

Predstavljanje iPhone, kao prvog „pametnog“ mobilnog uređaja 2007. godine, uticalo je na promenu poslovne filozofije bankarskog sektora. Ukupan broj mobilnih uređaja 2011. godine je premašio pet milijardi uređaja, uz trend daljeg rasta. Već u 2011. godini, 19% klijenata koristilo je mobilno bankarstvo kao uslugu i način komuniciranja sa bankom. Klijenti najčešće koriste mobilno bankarstvo za proveru stanja računa, pregled transakcija, transfer novca između svojih računa i SMS obaveštenja. Međutim, banke često nude i dodatne usluge.

Banke u Severnoj Americi, Evropi i Australiji

u velikom procentu imaju razvijeno mobilno bankarstvo. „JPMorgan Chase Bank“ iz SAD-a se smatra bankom koja je najviše razvila mobilno bankarstvo kroz aplikacije za pametne telefone, jakoj mobilnoj veb stranici i dvostranim SMS porukama.

Banke u Rusiji, Poljskoj, Francuskoj, Španiji, Belgiji i Danskoj nude usluge koje podrazumevaju mobilno bankarstvo bez obzira koji mobilni uređaj klijent koristi. Na primer, „Societe Generale Bank“ iz Francuske daje mogućnost svojim klijentima da prate svoj budžet na iPhone ili iPad aplikacijama, dok „Bankinter“ i neke druge španske banke nude usluge slanja novca na druge mobilne uređaje, s tim da se novac može podići na bankomatu sa karticom, korišćenjem koda dobijenog SMS porukom. Tržište Danske je napredno u korišćenju mobilnih uređaja i bankarstva: 93% odraslih koristi mobilne uređaje od kojih 71% koristi mobilno bankarstvo za komunikaciju sa bankom. U skandinavskim zemljama, mobilni uređaji predstavljaju najvažniji kanal komunikacije banke sa klijentima. Smatra se da je mobilno bankarstvo upravo najzrelije u zemljama severne Evrope (oko 76% finških građana koriste mobilno bankarstvo). U cilju boljeg i svakodnevnog korišćenja mobilnog bankarstva, banke sa ovog područja su izgradile uspešnu marketing strategiju: koristiti mobilno bankarstvo zato što je pogodno za korišćenje.

Velike Turske banke poput „Isbank“, „Garanti Bank“, „Akbank“ i „Turk Ekonomi Bankasi“ su razvile mobilnu tehnologiju za potrebe implementacije mobilnog bankarstva. Većina turskih banaka nudi klijentima jedan od tri osnovnih mobilnih kanala: SMS poruke, veb-sajtovi formatirani za mobilne uređaje i aplikacije razvijene za određene mobilne platforme.

Većina hrvatskih banaka ima u ponudi mobilno bankarstvo, a oko 5% građana koristi bankarske aplikacije na pametnim telefonima ili tabletima. U Makedoniji tri banke imaju u ponudi mobilno bankarstvo („Stopanska banka“, „NLB Tutunska banka“ i „Komerrijalna banka“), međutim, građani nemaju poverenje u novi vid bankarstva. Klijenti banaka u Sloveniji su široko prihvatili uslugu mobilnog bankarstva, i skoro sve banke koje posluju na slovenačkom tržištu ovu uslugu imaju u svojoj ponudi.

- Reputational risk. If mobile banking is not in line with the needs and expectations of the clients (frequently inaccessible systems), that might cause some negative reactions on the part of the clients.

Disadvantages of mobile banking are related to the protection of information and client identity checks. Weaknesses in the protection system, Internet abuses, and lack of privacy have resulted in banks and legislative systems having to define together the strategies for solving problems in the usage of state-of-the-art information technologies. To this end, a bank must assess the risk and costs of protection measures and controls required for adequate management and supervision of mobile banking activities.

In order for mobile banking to be used properly, there are certain preconditions that have to be met by the clients, banks, mobile operators and legislations:

- The population must have the economic power (consumer power, savings, bank account), the IT knowledge for using the electronic business application, but it must also be familiar with the electronic payment system and rules.
- The bank must provide high-quality services by focusing on the client and having well-trained and professional personnel.
- Laws and regulations must be precise and comprehensive, including the Law on Data Protection and Transfer, and penalty clauses against potential frauds, in order to increase safety and security of performing mobile banking operations. Furthermore, regulations should support mobile banking development, in terms of quick decision-making process, enabling the banking sector to introduce new services (e.g. Law on Electronic Signature).
- Developed telecommunications network, high level of network coverage, and mobile Internet speed, are the preconditions for the development of mobile banking.

## Mobile banking in the world

The unveiling of iPhone, as the first “smart” mobile device in 2007, brought about the change in business philosophy of the banking

sector. The total number of mobile devices in 2011 surpassed five billion, with a continuous upward trend. Already in 2011, 19% of clients used mobile banking as a service and channel of communication with the bank. The clients most frequently use mobile banking to check their account balance, review transactions, transfer money from one account to another, and receive SMS notifications. However, banks often offer additional services.

Banks in North America, Europe and Australia have developed mobile banking to a large percentage. JP Morgan Chase Bank in the USA is considered to be the bank which has developed mobile banking to the largest extent, via smartphone applications, powerful mobile webpage and bilateral SMS messages.

Banks in Russia, Poland, France, Spain, Belgium and Denmark offer services relying on mobile banking regardless of the type of mobile device used by a client. For instance, Societe Generale Bank from France enables its clients to keep a follow-up of their budget via iPhone or iPad applications, whereas Bankinter and some other Spanish banks offer the services of money transfer to other mobile devices, enabling cash withdrawals on ATMs using a card and a code received via an SMS. The Danish market is advanced when it comes to using mobile devices and banking: 93% of adults use mobile devices, 71% of which use mobile banking to communicate with the bank. In Scandinavian countries mobile devices are the most significant channel of the bank’s communication with the clients. Mobile banking is considered to be most mature in the countries of northern Europe (about 76% of the Finnish citizens use mobile banking). With a view to promoting better and everyday usage of mobile banking, banks in this region have developed a successful marketing strategy: use mobile banking because it is convenient to use.

Large Turkish banks, such as Isbank, Garanti Bank, Akbank, and Turk Ekonomi Bankasi, have developed mobile technology for the purpose of mobile banking implementation. Most Turkish banks offer to their clients one of the three main mobile channels: SMS messages, websites formatted for mobile devices, and applications developed for certain mobile platforms.



Mobilno bankarstvo ima dugu istoriju u Japanu. Još 1999. godine, mobilni uređaji sa intereset pristupom su omogućavali klijentima određene usluge (provera računa, transfer novca). Današnje japansko bankarstvo karakteriše pristup finansijskim proizvodima, proširenim bankarskim uslugama kao što su grafička prezentacija budžeta, prikaz navike u potrošnji, kupovina on-line, lociranje najbližeg bankomata i slično. Stanovništvo Kine i Indije pokazuje interesovanje za mobilno bankarstvo. Broj klijenata koji koriste mobilno bankarstvo je porastao za 36% u 2011. godini u odnosu na 2009. godinu, dok se učešće ekspozitura smanjilo za 29%.

U skladu sa svetskim trendovima, upotreba mobilnih uređaja počinje da raste i u afričkim zemljama. Međutim, samo korišćenje istih za obavljanje bankarskih usluga je na niskom nivou, jer klijenti afričkih banaka nisu mnogo zainteresovani za ovakav vid bankarstva.

## Mobilno bankarstvo u Srbiji

Banke u Srbiji ne zaostaju za bankarskim sektorom Evrope, jer primenjuju najsavremenije tehnologije mobilnog bankarstva.

Procenjuje se da oko 76% stanovnika Srbije poseduje mobilne telefone nove generacije, od kojih 13,3% koristi pametne telefone. Trenutno oko 50.000 ljudi u Srbiji koristi usluge mobilnog banarstva.

Prva banka koja je uvela mobilno bankarstvo u Srbiji je „Banca Intesa“. Usluga „Intesa Mobi“ omogućava plaćanje u svakom trenutku i na svakom mestu. Aplikacija koju klijent dobije od banke važi samo za prijavljeni mobilni uređaj, što značajno povećava sigurnost i zaštitu obavljenih transakcija.

I druge banke nude svojim klijentima mobilno bankarstvo. „Credit Agricole Srbija“, „Komercijalna banka“, „Raiffeisen banka“ su uvele servis „PlatiMo“ koji omogućava jednostavan način korišćenja mobilnog bankarstva (plaćanje računa, kupovinu roba i usluga putem interneta i kontakt centra, dopunu pripejd broja i slično). Banke koje koriste „PlatiMo“ servis su se potrudile da se komunikacije obavljaju preko zaštićenog kanala, a ujedno klijentu nude jednostavnost upotrebe, kvalitet i brzinu na svim mobilnim uređajima.

Nedostatak ovog vida mobilnog bankarstva je ograničenost na jednog mobilnog operatera.

„UniCredit bank Srbija“ nudi klijentima „m banking“ uslugu, koji je dostupan svim mrežama domaće mobilne telefonije, a dostupan je i u inostranstvu. „Societe Generale Srbija“ je razvila „SOGE m-bank“ aplikaciju, kao deo SOGE home-bank Premium. SOGE m-bank je dostupan za različite mobilne uređaje.

„ProCredit banka“ je izradila platformu eBanker koji omogućava razne usluge putem mobilnih uređaja, a „Hypo Alpe-Adria-Bank“ omogućava korišćenje mobilnog bankarstva kroz aplikaciju koja se može preuzeti sa Google Play marketa „Hypo Srbija M-Banking“.

„Mbanking“ usluga mobilnog bankarstva „Erste bank“ je trenutno dostupna za korisnike mobilnih telefona sa Android i iOS operativnim sistemima. „Erste bank“ je otišla i korak dalje, pa je korisnicima dostupna opcija „Slikaj i plati“ koja omogućuje da klijenti plate račune bez prepisivanja podataka sa uplatnice.

„OTP banka Srbija“ nudi „m-Banking“ kroz preuzimanje aplikacije sa Android platforme ili Java aplikacije. Aplikacija se zatim aktivira putem koda i reguliše sigurnosnim PIN-om. M-Banking se može koristiti u svim mobilnim mrežama.

„Banka Poštanska štedionica“ podrazumeva Java, iPhone, Android i Blackberry operativni sistem za korišćenje mobilnog bankarstva. Sigurnost je, takođe, rešena putem PIN broja.

Interesantno je da je 2013. godine „Telenor doo“ (telekomunikaciona kompanija) kupila licencu od „KBC banke“ sa ciljem otvaranja Telenor banke u 2014. godini. Celokupna transakcija je sprovedena s ciljem da Telenor banka postane prva banka za on-line i mobilno bankarstvo, sa malim brojem ekspozitura. Plan je da se ponude osnove bankarske usluge klijentima putem mobilnih uređaja, a zatim da se odnosi sa klijentima prošire i na druge vidove poslovanja kroz direktno bankarstvo, sinergijske usluge, u cilju povećavanja lojalnosti klijenata. Očekivanja su da klijenti fizički komuniciraju sa bankom samo prilikom otvaranja računa, a da ostale usluge obavljaju putem mobilnih uređaja.

Ipak, zanimljivo je da oko 40% srpskih banaka još uvek nisu uvele mobilno bankarstvo, ali je u planu uvođenje istog u narednom

Most Croatian banks have mobile banking in their offer, with about 5% of citizens using bank applications on smartphones or tablets. In Macedonia three banks have mobile banking in their offer (Stopanska banka, NLB Tutunska banka, and Komercijalna banka), although the citizens do not trust the new form of banking. The clients of banks in Slovenia have widely accepted the services of mobile banking, and almost all banks operating at the Slovenian market have this service included in their offer.

Mobile banking has had a long history in Japan. Back in 1999, mobile devices with the Internet access enabled certain services to the clients (checking of balances, money transfer). Today's banking in Japan is characterized by a quick access to financial products, expanded bank services including graphical presentation of the budget, review of spending habits, online purchases, location of the closest ATM, etc. People in China and India have demonstrated their interest in mobile banking. The number of clients using mobile banking has increased by 36% in 2011 compared to 2009, whereas the share of branch offices decreased by 29%.

In line with the global trends, the usage of mobile devices has started to increase in African countries as well. However, the usage of these devices for banking services is negligible, given that the clients of African banks are barely interested in that form of banking.

## Mobile banking in Serbia

Banks in Serbia do not lag behind the banking sector of Europe, taking into account that they apply the state-of-the-art mobile banking technology. According to the estimates, about 76% of people in Serbia own new generation mobile phones, 13.3% of which uses smartphones. Currently, about 50,000 people in Serbia uses mobile banking services.

The first bank which introduced mobile banking in Serbia was Banca Intesa. "IntesaMobi" service enables payments to be effected at any time and at any place. The application given to the client by the bank is valid only on the registered mobile device, which substantially increases security and protection of conducted transactions.

Other banks also offer mobile banking

to their clients. Credit Agricole Serbia, Komercijalna Bank, and Raiffeisen Bank have introduced the service "PlatiMo", providing a simple way to use mobile banking (payment of bills, purchase of goods and services via the Internet and call center, top-ups for prepaid numbers, etc.). The banks using the "PlatiMo" service did their best to enable communication through a protected channel, at the same time offering their clients simplicity of usage, quality and speed on all mobile devices. The drawback of this form of mobile banking is its limitation to just one mobile operator.

UniCredit Bank Serbia offers to its clients the "m-banking" service, available in all networks of domestic mobile operators, and also available abroad. Societe Generale Serbia has developed the "SOGE m-bank" application, as part of the "SOGE home-bank Premium". SOGE m-bank is available on various mobile devices.

ProCredit Bank has developed the eBanker platform, enabling various services via mobile devices, and Hypo Alpe-Adria Bank offers mobile banking by means of an application to be downloaded from Google Play store, called "Hypo Serbia M-Banking".

M-banking service of Erste Bank is currently available to the users of mobile phones with Android and iOS operative systems. Erste Bank has gone one step further, offering its clients the option to "Snap a Photo and Pay", enabling them to pay their bills without having to copy the data from the payment order.

OTP Bank Serbia offers m-Banking by an application downloaded from the Android platform or Java application. The application is then activated by a code and regulated through a safety PIN. M-Banking can be used in all mobile networks.

Postal Savings Bank accepts Java, iPhone, Android and Blackberry operating systems for the purpose of using mobile banking. Safety is also managed by means of a PIN.

Interestingly enough, in 2013 Telenor d.o.o (telecommunications company) bought the license from KBC Bank with a view to opening Telenor Bank in 2014. The entire transaction was aimed at Telenor Bank becoming the first bank for online and mobile banking, with just a few branch offices. The plan is to offer the basic banking services to the clients via mobile devices,

periodu. Međutim, pored dobre tehničke opremljenosti i inovativnosti koje banke nude, potrebno je da klijenti shvate prednosti savremenih tehnologija, koje im znatno olakšavaju poslovanje sa bankarskim sektorom.

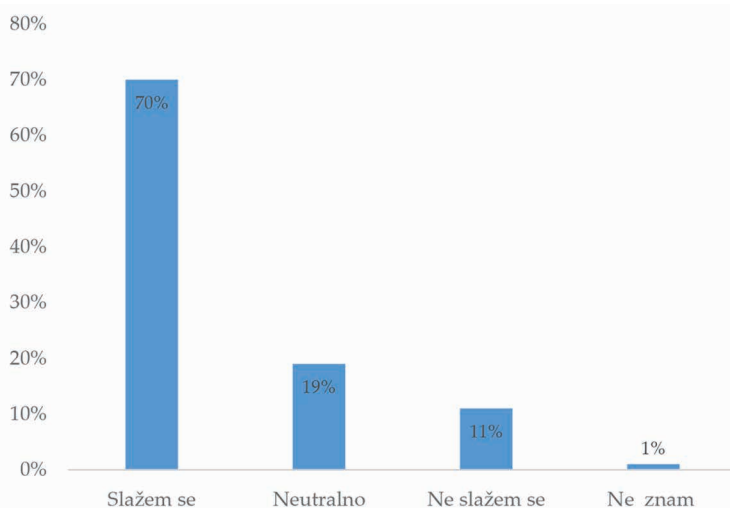
## Tendencije u razvoju mobilnog bankarstva

Banke u svetu veruju da će mobilni uređaji transformisati bankarski sektor u sledećih pet godina, jer će im omogućiti porast prihoda i sniženje troškova, ukoliko prilagođavaju proizvode i usluge klijentima. Prema Forrester istraživanjima (Wannemacher P., Ensor B., 2013.) mobilno bankarstvo će biti u sve većem porastu. Banke čak klasifikuju klijente mobilnog bankarstva na klijente koji poseduju pametne telefone i klijente koje imaju druge uređaje. U 2012. godini, oko 70% vlasnika pametnih telefona je koristilo ove uređaje za mobilno bankarstvo. Nasuprot tome, manje od 25% ostalih klijenata vrši plaćanja putem mobilnog uređaja. Istraživanja pokazuju da 85% banaka planira da plasira aplikaciju za mobilno bankarstvo u narednih 12 meseci, a 87% ima za cilj da otvori mobilni sajt. Trenutno je omogućeno da se mobilnim uređajem dobiju tradicionalne bankarske usluge (provera stanja na račun, pregled transakcija, sprovođenje jednostavnih transakcija), ali 70% banaka ima u planu da uvede i napredne funkcionalnosti u narednih dvanaest meseci. Istraživanja pokazuju i da su banke optimistične i u vezi sa profitom koji će ostvariti uvođenjem mobilnog bankarstva. Više od 50% banaka vidi porast prihoda od svih proizvoda i usluga, dok ostali ne očekuju promene u prihodu. Međutim, samo

nekoliko vodećih banaka reaguje na izazove razvoja mobilne telefonije i uređaja značajnim investiranjem u zaposlene i tehnologiju.

Slika broj 2 prikazuje stavove banke u vezi mobilnog bankarstva: 70% banaka pozitivno gleda na mobilno bankarstvo i njegov uticaj na poslovanje, dok 11% smatra da mobilno bankarstvo neće uticati na bankarsko poslovanje.

Slika 2 - Odgovor na anketno pitanje o uticaju razvoja mobilnog bankarstva na celokupno bankarstvo u narednih 5 do 10 godina



Izvor: Report The Future of Bank Branch Network, December 2012., [www.zeb.com.ua](http://www.zeb.com.ua)

Očekivanja su i da se smanji broj ekspozitura kao kanala komunikacije sa klijentima u korist elektronskih kanala. Banke južne Evrope planiraju da smanje broj zaposlenih za 8% i broj ekspozitura za 13%, dok banke iz severne Evrope očekuju da se broj poseta ekspozituri smanji za 40% do 2016. godine. Takođe, istočnoevropske banke imaju u planu da smanje broj ekspozitura za 56% i smanje broj zaposlenih u istim za 10% do 2016. godine sa ciljem fokusa na elektronsko bankarstvo. Slika broj 3 prikazuje smanjenje učešća ekspozitura kao kanala komunikacije sa bankama u korist mobilnog i internet bankarstva.

and then to expand the customer relations to include other forms of business through direct banking, synergy services, in order to increase the loyalty of clients. The clients are expected to physically communicate with the bank only when opening their accounts, the rest of the services being performed via mobile devices.

Nevertheless, it is interesting to note that about 40% of the Serbian banks still have not introduced mobile banking, although they are planning to do so in the forthcoming period. However, despite sound technical equipment and innovativeness demonstrated by banks, the clients need to realize the advantages provided by modern technologies, making their operations with the banking sector substantially easier.

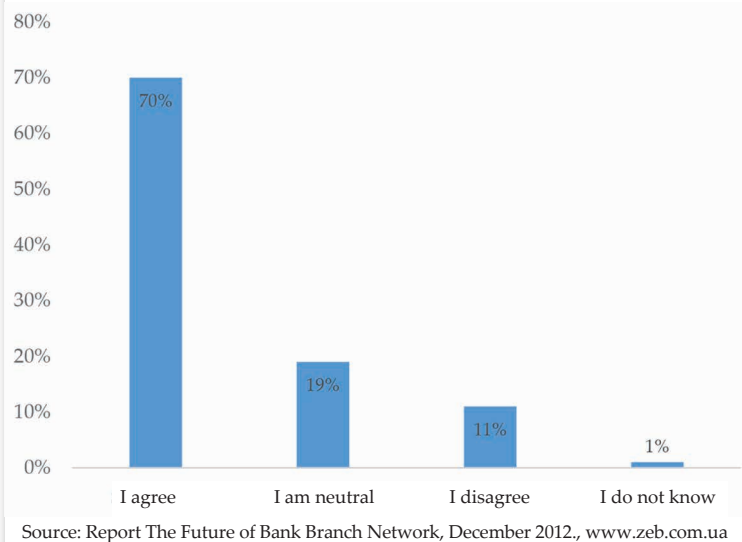
### Tendencies in the mobile banking development

Banks in the world believe that mobile devices will transform the banking sector within the next five years, because they will bring them higher revenues and lower costs, as long as they adjust their products and services to the clients. According to the Forrester research (Wannemacher P., Ensor B., 2013), mobile banking will be constantly increasing. Banks have even started classifying their mobile banking clients into those owning smart phones and those owning other devices. In 2012, about 70% of smart phone owners used these devices for mobile banking. As opposed to that, less than 25% of the remaining clients effects payments via mobile devices. The research has shown that 85% of banks plan to launch a mobile banking application within the next 12 months, whereas 87% of banks want to launch a mobile website. At the moment, via their mobile devices the clients may get traditional banking services (checking account balances, reviewing transactions, performing simple transactions), but 70% of banks plan to introduce advanced functionalities within the next twelve months. The research has also shown that banks are

optimistic about the profit they would achieve after introducing mobile banking. Over 50% of banks anticipate an increase in revenues from all products and services, whereas the other banks expect no changes in their revenues. Yet, only several leading banks react to the challenges of mobile telephony and devices development by substantially investing into human resources and technology.

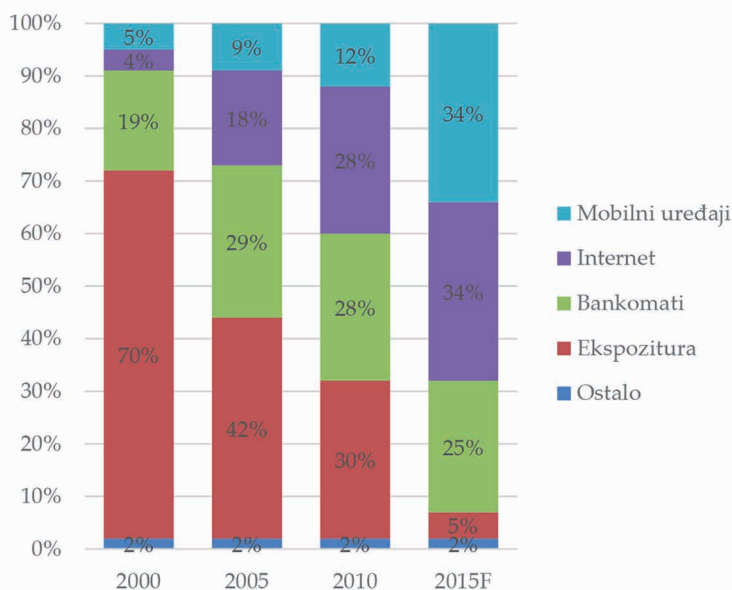
Figure no. 2 illustrates the attitudes of banks towards mobile banking: 70% of banks have a positive view of mobile banking and its impact on business, whereas 11% believe that mobile banking will not affect banking operations.

Figure 2. Responses to the questionnaire about the impact of mobile banking development on banking overall in the next 5 to 10 years



The number of branch offices as communication channels is also expected to be reduced in favor of electronic channels. Banks in South Europe plan to reduce the number of their employees by 8% and the number of branch offices by 13%, while banks in North Europe expect the number of visits to branch offices to drop by 40% by 2016. Moreover, East European banks plan to lower the number of branch offices by 56% and the number of employees in them by 10% by 2016, with the objective of focusing on electronic banking. Figure no. 3 illustrates the reduction of branch offices as communication channels in favor of mobile and Internet banking.

Slika 3 - Učešće kanala prodaje u Evropi (u % ukupnih kanala transakcija)



Izvor: Mobile banking, No. 228, April/May/June 2011, Efma Journal Paris

Iz svega navedenog, zaključak je da će se korišćenje postojećih kanala smanjiti, ali zbog povećanja troškova mobilnih platformi, banke treba da imaju jasnu strategiju mobilnog bankarstva.

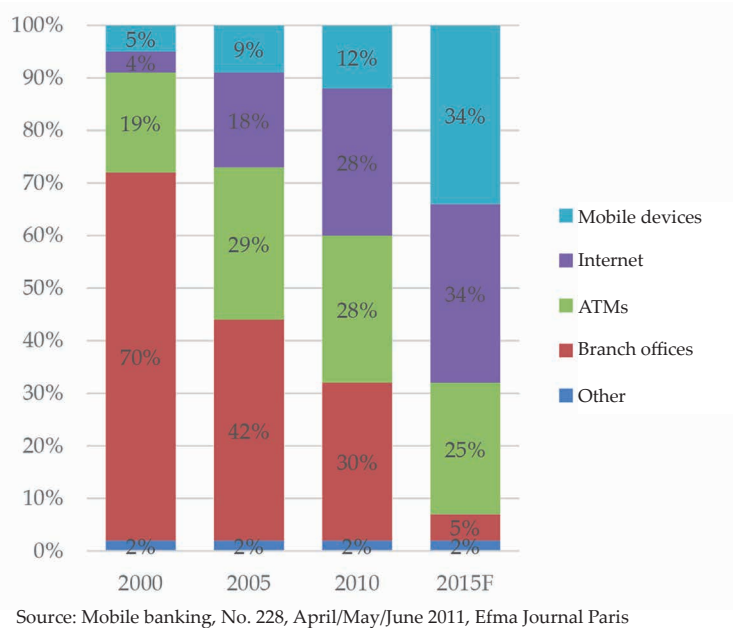
## Zaključak

Savremena kretanja, usled povećane konkurencije i tehnološkog razvoja predstavljaju nove izazove za bankarski sektor. Mobilno bankarstvo poseduje potencijal da postane široko raspostranjeno i s tendencijom da ga prihvati veliki broj klijenata. Ovakve promene bankama pružaju mogućnost da zadrže postojeće klijente i pridobiju nove nudeći im dodatnu vrednost kroz savremene vidove komunikacija. Savremene tendencije u korišćenju sredstava komunikacija menjaju potrebe klijenata koji vremenom postaju aktivni učesnici u kreiranju novih bankarskih proizvoda i usluga. Nove tehnologije omogućavaju da ljudi rade skraćeno radno vreme, obavljaju povremene poslove („part-time employment“) ili da rade od kuće. Najuspešnije posluju one banke koje se bolje i adekvatnije prilagođavaju klijentu, to jest banke koje imaju bolju marketing strategiju usmerenu preko najadekvatnijeg kanala komunikacije. Masovno korišćenje savremenih informacionih tehnologija je uticalo na povećanje brzine i tačnosti transakcija, ali i na smanjenje vremena

potrebnog za procesuiranje transakcija, povećanje produktivnosti zaposlenih, smanjenje troškova poslovanja ali i manji utrošak vremena klijenata. Istraživanja pokazuju da banke koje idu u korak sa novim tehnologijama, imaju veći tržišni rast od drugih banaka. U vezi sa navedenim, mobilno bankarstvo pruža bankama mogućnost ostvarivanja novih prihoda. Novi način poslovanja podrazumeva i prilagođavanje marketing strategije u smislu korišćenja mobilnog bankarstva kao instrumenta diferenciranja. Banke moraju da prate razvoj savremenih informacionih tehnologija, a naročito mobilnih

uređaja, kako bi bile nosioci inovacija u mobilnom bankarstvu. Pored razvoja proizvoda i usluga koje će se nuditi putem mobilnog bankarstva, banke moraju da obezbede klijentima sigurnost i bezbednost korišćenja ovog kanala komunikacije. Poboljšavanje sigurnosti i smanjenje rizika obavljanja bankarskih usluga putem mobilnih uređaja će povećati poverenje klijenata u mobilno bankarstvo. Takođe, stalno proširenje bankarskih usluga može da motiviše klijente da prihvate novi način komunikacije sa bankom. Uz navedeno, podrška klijentima u korišćenju mobilne aplikacije značajno povećava klijentsko zadovoljstvo i poverenje u banku koja mu nudi mobilno bankarstvo kao uslugu. Takođe, nova konkurencija u vidu telekomunikacionih kompanija, koje razvijaju bankarske usluge, primorace banke da im inovativnost bude osnovna strategija za održavanje postojeće pozicije. Ukoliko banke žele da odgovore na rastuće potrebe tržišta, potrebno je da se, uporedo sa razvojem pametnih telefona i tableta, brzo adaptiraju novonastalim promenama. Promene i širenje informacionih tehnologija uticaće snažnije i na promenu ponude bankarskih proizvoda i usluga, jer se može očekivati da će informacione tehnologije biti glavni generatori promena u bankarskom sektoru. U skladu sa navedenim, možemo očekivati da mobilno bankarstvo postane standardna usluga svih banaka u kratkom vremenskom roku.

Figure 3. Share of sales channels in Europe (in % of total transaction channels)



All the above mentioned leads to the conclusion that the utilization of existing channels will decrease, but that, due to the higher costs of mobile platforms, banks should have a clear mobile banking strategy.

## Conclusion

Modern developments, due to the tougher competition and technological progress, pose new challenges to the banking sector. Mobile banking has the potential to become widely used and accepted by a large number of clients. Such changes grant a possibility to banks to keep their existing clients and attract new ones by offering them added value through modern forms of communication. Modern tendencies in terms of using communication methods change the needs of the clients who are gradually becoming active participants in the creation of new bank products and services. New technologies enable people to work shorter hours, get part-time employment or work from home. The most successful are those banks that better and more adequately adjust to the client, i.e. banks having a better marketing strategy directed through the most adequate communication channel. Mass-scale usage of modern information technologies facilitated higher speed and accuracy of transactions, but

also the reduction of time needed for transaction processing, higher productivity of employees, lower operational costs, and less client's time spent. The studies have shown that banks keeping pace with modern technologies record higher market growth than other banks. Concerning this, mobile banking offers banks a possibility to yield new profits. A new way of business implies the adjustment of marketing strategy, in terms of using mobile banking as a differentiation instrument. Banks must follow the development of modern information technologies, especially mobile devices, in order to be the carriers of innovations in mobile

banking. Other than developing products and services to be offered via mobile banking, banks must provide safety and security in the process of using this communication channel. Improving safety and reducing risk of conducting bank services via mobile devices would increase the clients' trust in mobile banking. Moreover, constant expansion of bank services may motivate the clients to accept the new method of communicating with the bank. In addition to the above, client support in using the mobile application considerably increases client satisfaction and confidence in the bank offering them the service of mobile banking. Furthermore, new competition in the form of telecommunication companies developing bank services will force banks to resort to innovativeness as their basic strategy for keeping the existing position. If banks want to respond to the growing market needs, in parallel with the development of smart phones and tablets, they must adapt quickly to the newly occurred changes. These changes and the expansion of information technologies will more powerfully influence the change in the offer of bank products and services, given that information technologies will be the major generator of changes in the banking sector. In line with that, we can expect mobile banking to shortly become a standard service of all banks.

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