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**DIGITAL TRANSFORMATION OF THE BANKING SECTOR IN  
REPUBLIC OF MACEDONIA: STATE AND OPPORTUNITIES  
FOR FURTHER ADVANCEMENT**

**Abstract**

Information communication technologies (ICT) advancements had a powerful meaning in the reshaping the banking industry and banking services during the last period. Hence it is essential to perform an analysis for the profound changes of financial digitalization on the demand and supply side in the banking industry, degree of digitalization in banking in general and particularly these processes in the Republic of Macedonia. The paper aims to determine the stance and the level of development of digital banking in the Republic of Macedonia, causes for current level of development and to provide further recommendation for forthcoming positive changes.

Research results demonstrate that the growth of online and mobile banking on the global level has vast influence on the reshaping the market and competition in traditional banking. Moreover the outcomes indicate that the main channels for distribution of bank product are branch and the internet, yet mobile channel and its influence is undeniable. It is important to emphasize that the banks invested mainly in digitalisation of basic bank operations, yet the complex transaction digitalisation globally is nonetheless in the development phase.

Republic of Macedonia experiences relatively low level of readiness for significant development of the digital banking which is limited on basic bank transactions. Such condition can be explained by the clients mistrust in e-bank services, lack of information for the digitalization's benefits, resistance for changing habits, etc. The research has been completed by utilization of

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the following methods: analysis, synthesis, induction-deduction method, statistical, logical, comparative method. Their exploitation is determined by the specificity of the research theme.

**Key words:** digitalization, technological change, innovation, banking sector, internet and mobile banking, banking operations

**JEL classification:** G21, L86, O14, O33

### **Introduction**

In the recent 3 decades, digital revolution placed significant modifications in all parts of economy, including the bank industry. As a driving force of efficiency enhancement the increase of investments in technology was simply trailed by banking products innovation. Banks begin to cooperate with the IT manufactures in order to encourage each other for new products and services. The increasing complexity of electronic banking products has led to the expansion of customers; however satisfying more sophisticated customers' needs forced a constant demand for new technologies.

ICT, as the most important factor for the prospect banking industry empowers banks to generate complex products, to have enhanced market position and to grasp expanded markets. The bank activities familiar for bank branches now can happen anywhere in the world through any delivery channel such as ATMs, telephones, personal computers. Moreover, banking consumers' needs and demands have changed considerably over the last 30 years. Today they require more personalised banking products and services and presume to entree such services at any time and any place. It is expected that since the focus of development of new products and services are always the clients, the digital banking will give priority to the needs of customers before product creation.

Having in mind that the stance in bank digitalization in each country differs, the paper aims to estimate the level of digitalisation of banking sector in RM, as well as reasons and factors determining the actual state of digital banking. In order to achieve the aim, the paper is structured as follows, first part elaborates the changes in demand and supply as result of financial digitalisation and then the digitalization in the banking sector on global level is analysed in order to compare with the stance in the Republic of Macedonia. Such approach secures the solid base for determining the measures and further steps for increasing the level of digitalization of the banking sector.

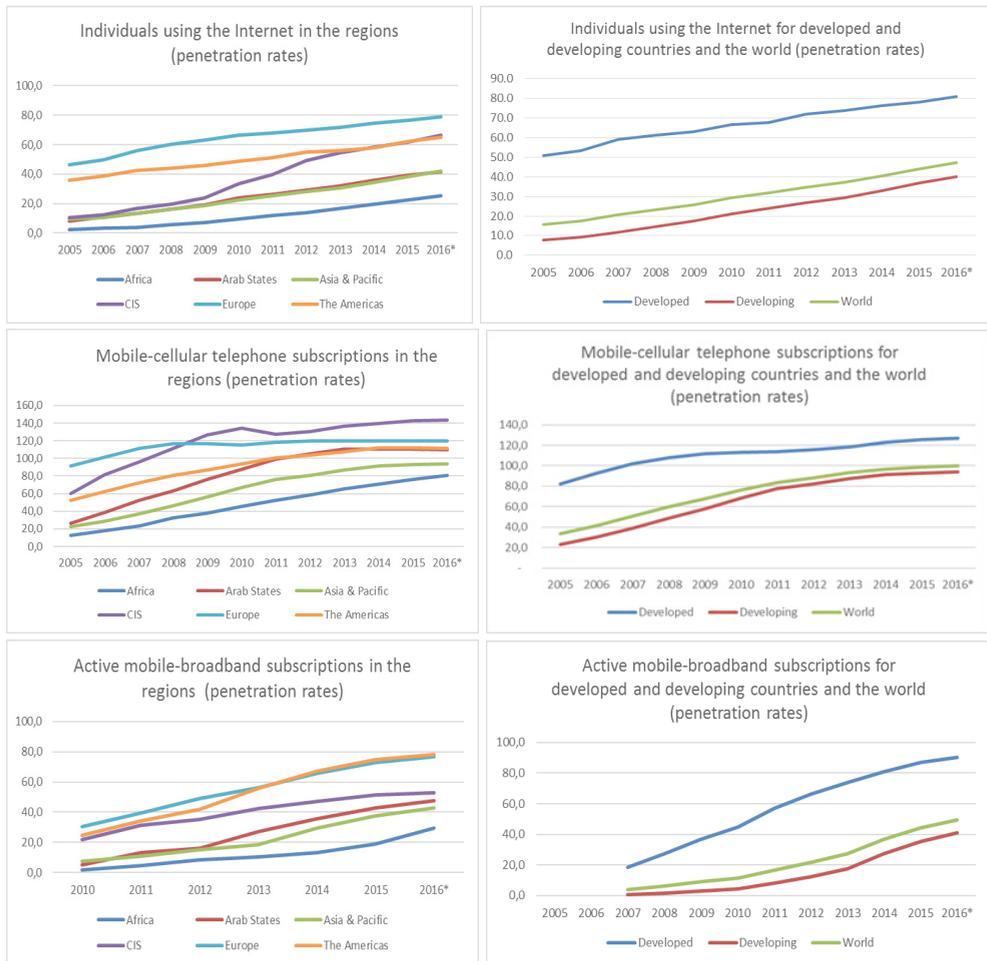
## **1. CHANGES IN SUPPLY AND DEMAND DUE TO THE FINANCIAL DIGITALIZATION**

New tendencies in the banking sector where clients as service users and their participation in decision making are in the center of the bank focus, and where clients decide solely for money management and transactions without moving to the bank branches, means conveying from traditional banking and increased focus on the on-line activities. Such tendencies inevitably lead to the consumers changing habits and the new competitive environment.

### **1.1. Reshaping the customer habits and experience: Changes on the demand side**

The new trends of heavily reliance on the internet and mobile phones (Figures 1) have shaped an intense transformation of the customers' habits and preferences. Hence, the bank clients are becoming increasingly used to interacting via digital media, to conduct their transactions with the authorities, to shop online or employ new services. A principal role in such transformation of the bank client's behavior has been made by the infiltration of next-generation mobile devices. Such devices are mostly utilized in the developed economies, where mobile broadband networks (3G and 4G) are accessible at competitive prices.

**Figure 1.** Number of Individuals using the internet, mobile phone subscriptions and mobile broadband subscription (per 100 inhabitants)



Source: Prepared based on the data from <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

The internet is quite useful for the clients since it is characterized as a vast platform for consumers. Namely, using internet enables the clients to evaluate and compare goods and services as well as to distribute their experiences with other customers. Such tendencies are quite impressive in sectors such as insurance, telecommunications and financial services. Moreover comparing the price for products and services, clients can easily decide for the more competitive options. Such approach gives better ground for the clients to make adequate decisions and to accelerate the smoother

functioning of market forces for the clients' benefit. The extreme dynamic way of life engaged clients to get used for the financial services that are available 24/7. Moreover clients anticipate user-friendly applications which do not require much time and effort for its implementation and application.

The crucial factor for accelerating the development in digital transformation process has been the introduction of the mobile devices. Figure 1 clearly indicates the vast rate of utilization of mobile phones in the world as a solid base for the new mobile app developments. In developing countries financial services slowly but steady are undertaken by the mobile payments whereas mobile phone ownership significantly rises. With introduction on mobile devices at least the customers expect at the beginning to be able to check their balance and make transfers through their phones. Moreover, with Smartphone penetration, mobile wallets may become the principal method for customers' access to their bank accounts. In the more progressive level, they could offer an access to the multiple accounts across multiple banks. The mobile wallets will also transform cash management in the markets. If mobile wallets with biometric security become the norm, the cost of obtaining banking services in emerging markets will be dramatically reduced, hence their acceptance by the clients will rise enormously.

Furthermore the customers' expectations have moved widely and now they expect to interact with their bank 24/7 and wherever they want, and to be able to shift without any effort between the banks distribution channels. As customers are seeking for the global experience we expect in the next decade to see banks to increase their investment in social media since they are becoming mutual route to cooperate with banks.

## **1.2. A new competitive field: changes and competition in the supply side**

In the recent years the start-ups with a high technological leaning overtook the crucial role in the process of digitalization. They have spurt into the financial sector and connect the division gap between the new demands of customers and the traditional banking services by the banks and it the same time they represent one of the major competitors to the banks. In the period of dynamic changes, traditional banks are excessively burdened by the numerous regulative and international regulations; limitations of bank industry regulation and other activities, hence the banks need support by companies with technologies knowledge. The new companies, known as

FinTech companies, act as bank supporters specialized in their different components, such as payments, foreign exchange, lending, access to capital markets, financial advisory services, etc and they are highly flexible and incline to have a low-cost structure.

Such FinTech companies which base their presence basically on electronic and mobile presence have rapid growth in the last few years. According to the estimation, for FinTech companies in the last 5 years have spent more than 25 billion dollars (where as in 2014 the investment triples on yearly base, reaching 12.2 billion dollars). At the moment 5000-6000 Fin Tech companies operate on the market.<sup>1</sup>

Visible example for such FinTech companies are Apple, Google, Amazon or Alibaba which have also penetrated into the financial sector, offering services in the areas of payments and lending as addition to their core business.<sup>2</sup> The services offered by such companies are Google Wallet in the area of payment transactions, Fundbox in the area of microfinance; Square as platform for credit cards; Apple Pay as application for contactless payment on Apple phones. However, despite the speedy development, FinTech encompass less than 2% of the market.<sup>3</sup>

FinTech companies represent new entrants for offering the financial services similar to transactions in the traditional banking. However, these companies are not subject to the strong degree of regulatory pressure as banks regarding the Basel Capital Standards, limits for liquidity, reserve requirement, allowances for loan provision, identifying customers, monitoring, reporting transactions etc. Generally such companies are based in the countries in which regulation is more lax or simply non-existent, even though their activities and operation are spread globally. This situation is less favorable for the consumers, who are completely unaware of the regulatory differences between providers, nevertheless attracted by a better user experience, and easier access to the services, are not conscious for the exposed risk.

Obviously banks faced with such competition from FinTech companies react to new competitive conditions by expansion the range of digital channels and products in the areas where they have no physical presence for obtaining enhanced position in the competitive environment. The other perspective

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<sup>1</sup> Accenture, *The Boom in Global Fintech Investment*. Retrieved from: <http://www.tobyallen.com/wp-content/uploads/2014/07/Boom-in-Global-Fintech-Investment.pdf>, 2014

<sup>2</sup> Carmen Cuesta, Macarena Ruesta, David Tuesta, Pablo Urbiola, *The digital transformation of the banking industry*, BBVA, Research, Digital Economy Watch, 16 July 2015, p. 3

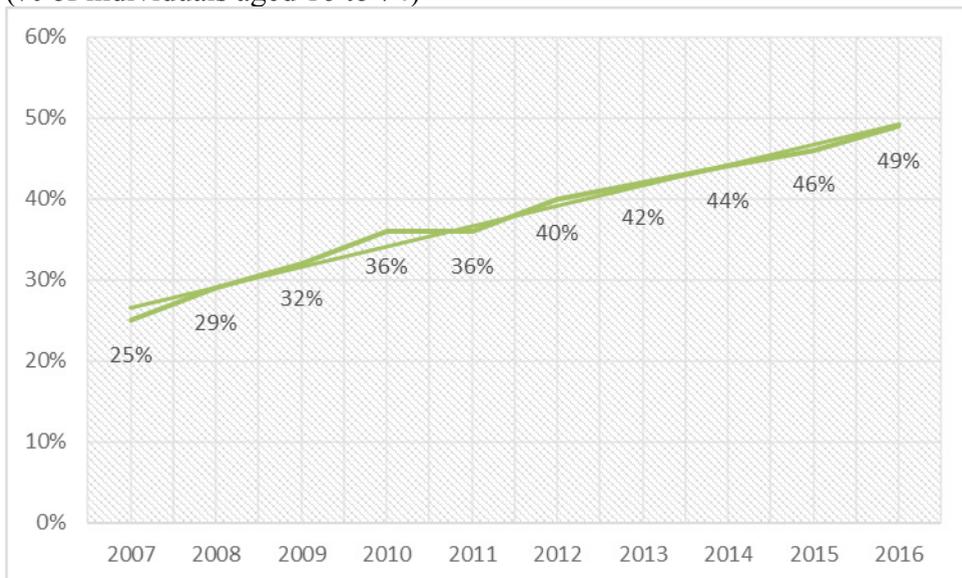
<sup>3</sup> *The Economist*, 2015, <http://www.economist.com>

prospective products that banks plan to develop in the future are E-wallet solutions which are in the initial state of development, developed by 27% of the banks globally as well as tools for personal financial management such as automatic costs categorization.<sup>4</sup> Furthermore the banks are developing near-field (NFC) technology payment solutions, or applications to transfer money between individuals (P2P) similar to those offered by the competition of the new FinTech companies.<sup>5</sup>

## 2. DIGITIZATION OF THE BANKING SECTOR WORLDWIDE

Banking sector on the global level attempt to keep up with the contemporary technological trends, trends for higher internet accessibility by the clients, speedy engagement of the smart phones and consequently changed consumer client's culture. In the last ten years, there is considerable trend of growing access of clients to the e-banking within the European Union, clearly demonstrated in the Figure 2.

**Figure 2.** Individuals using the internet for internet banking (% of individuals aged 16 to 74)



Source: Prepared on the database from <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tin00099>

<sup>4</sup> AT Kearney & Efma, Banking in a Digital World, 2013, p. 3

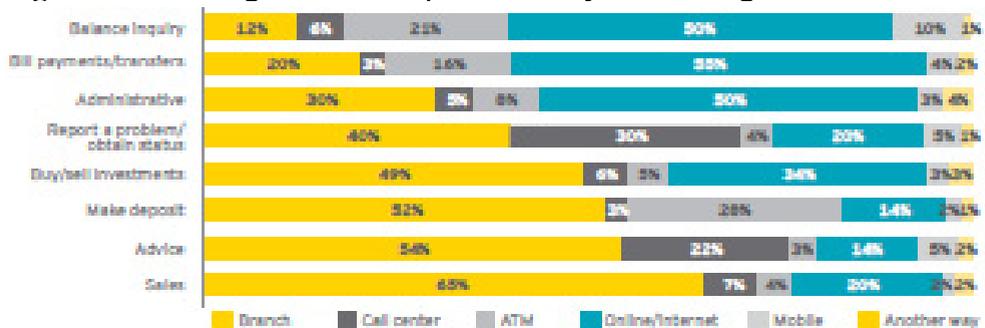
<sup>5</sup> Op. Cit., Carmen Cuesta, Macarena Ruesta, David Tuesta, Pablo Urbiola, The digital transformation of the banking industry, ..., p. 5

The growing trend is confirmed by the data for OECD countries, where more than half of Internet users are users of online banking, whereas mobile banking is catching up. In the year 2013, 60% of Internet users in OECD countries used online banking, whereas up from 42% in the year 2011 and 31% in the year 2007.<sup>6</sup> However, banks are not considered rapidly aggressive in the area of technological innovations. Only 20-40% of total banks activities within the European banks is digitalized, yet 90% of the bank’s investment in the digital development comprises less than 0.5% from total costs.<sup>7</sup> Their investment in the banks were mainly restricted on improving existing bank services through increased accessibility and added value for the consumers, without imposing excessive effort for developing new innovative products.<sup>8</sup>

Banks mainly invested into digitalization of the basic banking activities such as opening the bank accounts, electronic submission of the debit cards and approval of the consumer credits, i.e. services that comprise 92% of the bank offer worldwide, or 79% of the European banks. Nonetheless the more complex banks activities such as bank accounts closure, submitting application for mortgage credit and mobile banking, are still in the initial phase of digitalization, applicable for the 50% of European banks.<sup>9</sup>

Additional confirmation for this position is delivered by EY Global Consumer Banking Survey 2014. According to the data, Internet represent the favourite banking method for 55% of clients for paying bills or making transfer and for 50% for balance inquiry and administrative affairs, whereas branch banking is preferred for deposits, advices and sales (Figure 3).

**Figure 3.** Percentage of channel preference by task among all customers



Source: EY Global Consumer Banking Survey 2014, p. 14

<sup>6</sup> OECD, Digital Economy Outlook, 2015, p. 55-56.

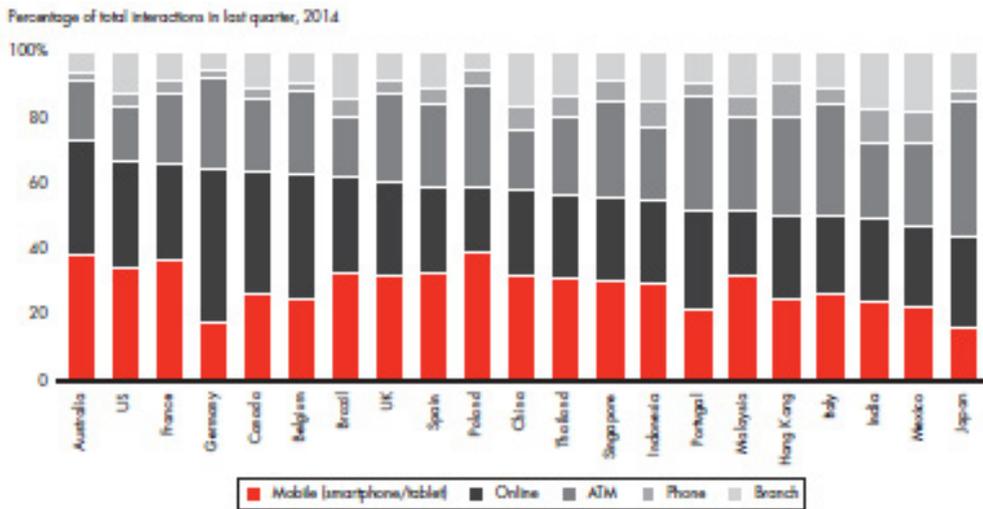
<sup>7</sup> McKensey и EFMA, DIGITAL TRANSFORMATION IN 10 BUILDING BLOCKS, 2012, p. 6.

<sup>8</sup> AT Kearney & Efma, Banking in a digital world, 2013, p. 5.

<sup>9</sup> Roland Berger, Executive Retail Banking Survey: Digital Transformation, 2015.

According to the above presented data bank branch and the internet still remain the most important channels, yet the growing importance of the mobile channel is undisputable due to the rise of software solutions. Data clearly demonstrate that the digital channels were preferred for the majority of interactions, whereas mobile banking has overtaken online banking in many markets (Figure 4).

**Figure 4.** Percentage of channel preference in different countries



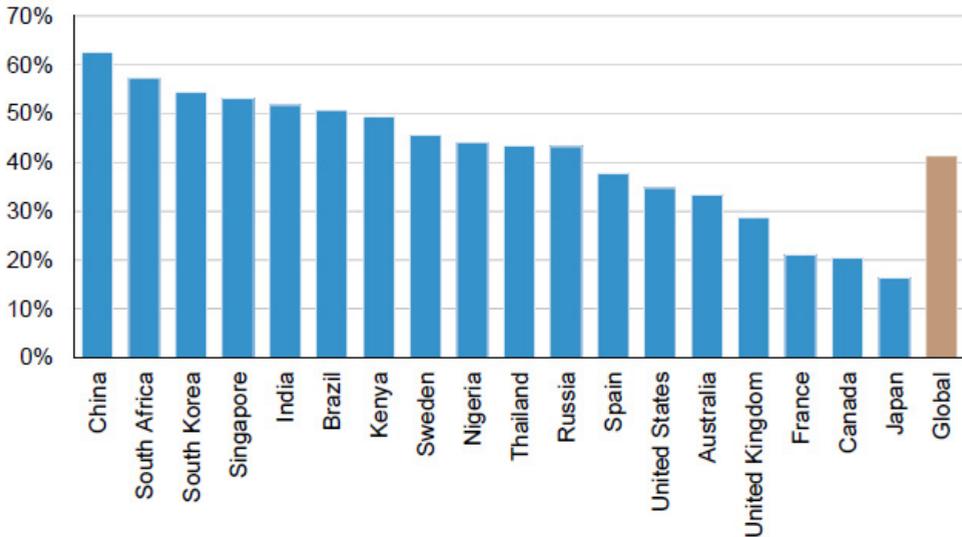
Source: Bain/Research Now NPS surveys, 2014

The mobile dissemination is quite developed high in certain countries such as the U.S., France, the U.K. or Germany, yet one must admit that the mobile banking is moderately new in vast number of countries markets and its usage is fairly low in the world.<sup>10</sup> Penetration of mobile banking from the perspective of percent of banks offering such service in worldwide is estimated around 50%. Higher lever is recorded in China, South Africa and Singapore around 50-60%, while as in Europe is lower with around 38%.<sup>11</sup>

<sup>10</sup> Gupta, S., The Mobile Banking and Payment Revolution, European Financial Review, February-March, 2013, 3-6.

<sup>11</sup> KPMG, Mobile Banking, 2015, p. 11.

**Figure 5.** Mobile banking penetration by country



Source: KPMG, Mobile Banking, 2015, p. 11

If we analyse the population from the point of view of age structure, results demonstrate severe use of new technologies, particularly in area of digital banking by the youngest generation. According to Nava et al. more than 70% of the youngest population in the United States have used mobile banking services in the last 12 months, compared to only 40% for the rest of the adult population, added to which around 94% of those in the youngest generation are active users of online banking.<sup>12</sup>

Such resistance in new trends acceptance can be explained by several factors:<sup>13</sup>

- Deficiency of clear strategy for digitalization;
- Inherited organizational culture promoting resistance toward;
- Outdated IT infrastructure;
- Obstacles to recruit high ranked IT experts and
- Regulatory demands and supervision aimed at securing healthy and stable banking sector within the traditional models, yet they limit the new technologies implementation due to the severe risk management policies and prudent regulation for capital adequacy according to the new Basel standard III.

<sup>12</sup> Nava, M., Karp, N., & Nash-Stacey, B., The Millennials Paradox. US Banking Watch. BBVA Research, 2014 Retrieved from: [https://www.bbva.com/wp-content/uploads/2014/12/141216\\_US\\_BW\\_BankMillennials\\_esp.pdf](https://www.bbva.com/wp-content/uploads/2014/12/141216_US_BW_BankMillennials_esp.pdf)

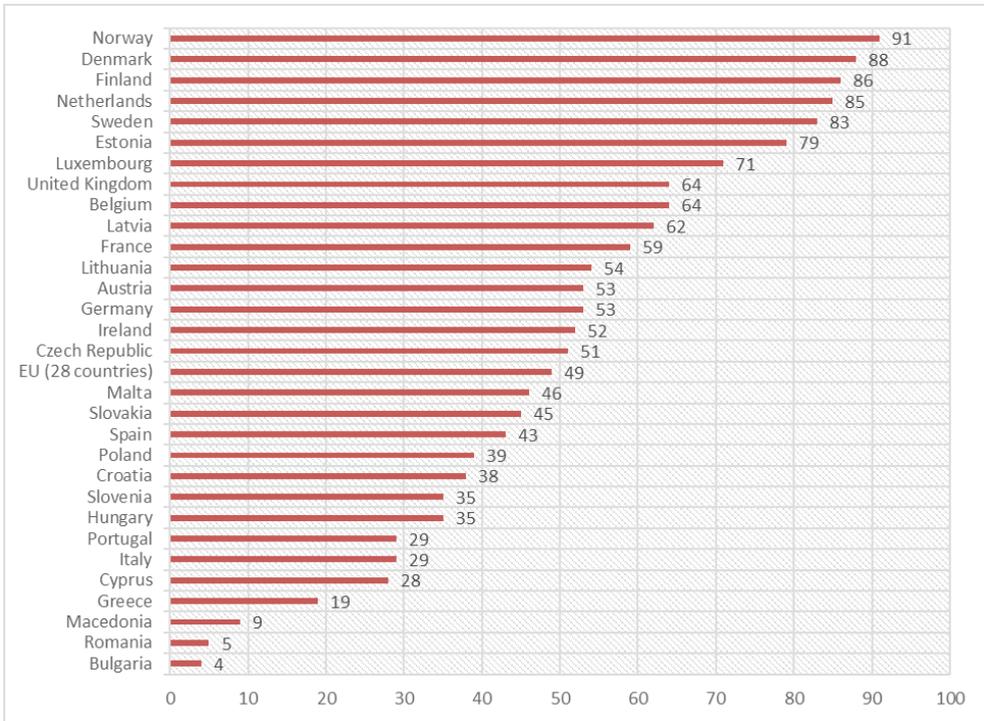
<sup>13</sup> The Economist, 2015, <http://www.economist.com>

Furthermore, the factors that support the role of traditional banks in their attempt to increase the level of digitalization in the banking sector are: first, general resistance toward changes, which require sufficient time for customers to change their habits and to be open for the possibilities offered by the technologies advantages. As second and more important factor is the clients' confidence which is unfeasible to be programmed, since it represents a long term process, yet it can be easily destroyed for short time. Banks in the previous periods managed to secure good reputation as healthy and credible institutions for creating solid base for stabile relationship with the clients. And finally the third, it is indispensable the contribution of the strict bank regulation focused on the risk management. From other side, when we analyzed the bank regulation and process of digitalization, one must admit that the FinTech companies operate in so cold "grey zone" and they should build their credentials in the future on the basic of security of their own IT infrastructure.

### **3. DIGITAL BANKING IN THE REPUBLIC OF MACEDONIA**

Although the Republic of Macedonia actively explores the possibilities of digitalization it still demonstrates the low level of readiness for more significant development in the area of digital banking. Such statement can be conclude by the data illustrating that the percent of the population using internet for e-banking in the age frame from 16 to 74 years old in the year 2016 for the Republic of Macedonia is only 9% holding one of the lowest position in the scale. Such low percent is fairly below the average for EU-28 of 49%.

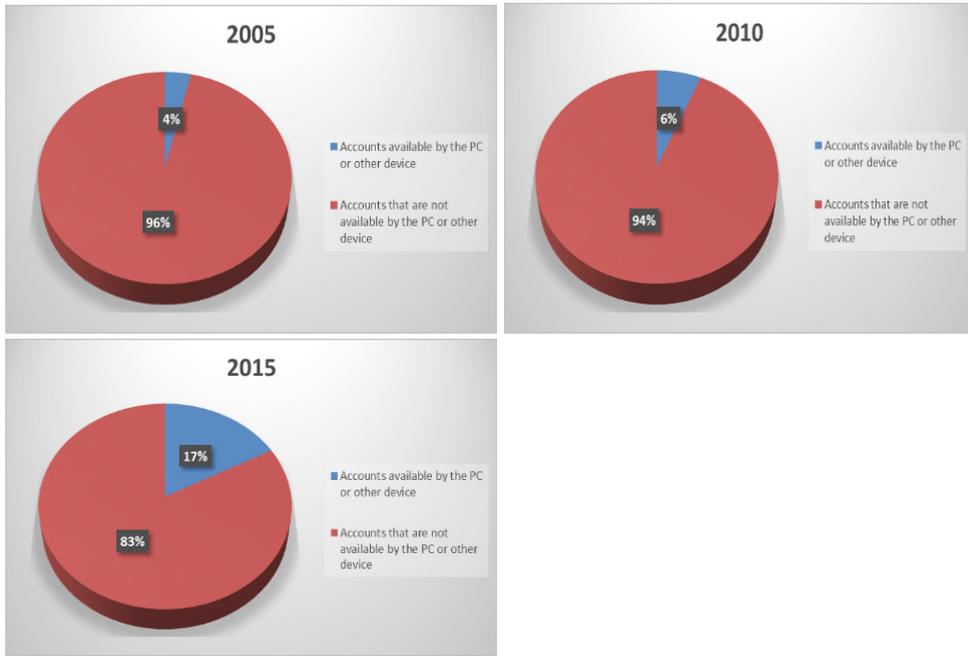
**Figure 6.** Individuals using the internet for internet banking  
(% of individuals aged 16 to 74)



Source: Prepared on the base of the data from <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tin00099>

Electronic banking shifts toward regular bank products in majority of domestic banks, nonetheless it is still limited to basic bank transactions such as payment transactions, condition of the statement and transactions regarding deposit and credit products. Low level of penetration of digital banking within the banking operations in the Republic of Macedonia can be elaborated by the demand side factors such as low level of clients interest indicated by the minor percent of accounts with e-banking, despite their continuous growing trend demonstrated in the Figure 7.

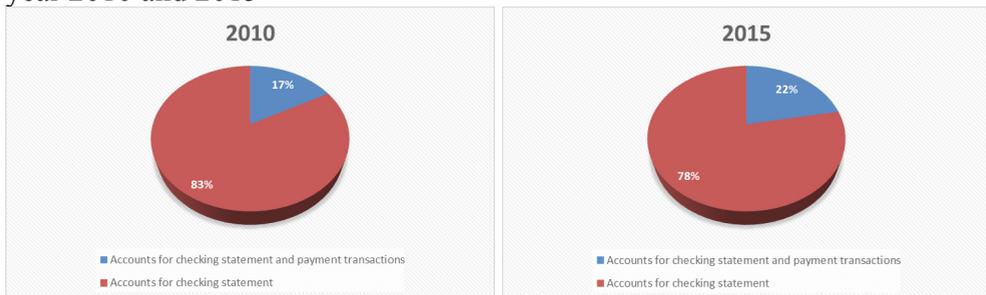
**Figure 7.** Accounts available by the PC or other devise in the year 2005, 2010 and 2015



Source: Prepared on the base of the data from <http://www.nbrm.mk/default.asp?ItemID=63CD38745C00FC4B98C9570D46259F9C>

However, major parts of the accounts are used only for checking the condition of the account whereas the numbers of accounts for payment transactions are far underneath (Figure 8).

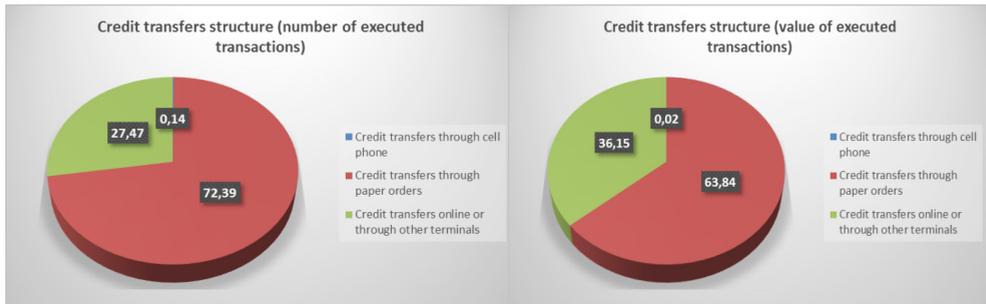
**Figure 8.** Accounts for checking statement and payment transactions in the year 2010 and 2015



Source: Prepared on the base of the data from <http://www.nbrm.mk/default.asp?ItemID=63CD38745C00FC4B98C9570D46259F9C>

The structure of the credit transfer is another major indicator for the fact that digital banking is in the initial phase of development. Namely, data indicate that the major part of the credit transfer in the banking sector of the Republic of Macedonia is in the paper form. The number of credit transfer within the e-banking is relatively low, particularly in case of utilizing mobile phones as indicated in the Figure 9.

**Figure 9.** Credit transfers structure in the year 2015



Source: Prepared on the base of the data from <http://www.nbrm.mk/default.asp?ItemID=63CD38745C00FC4B98C9570D46259F9C>

Data clearly indicate that in the area of mobile banking, banks in the Republic of Macedonia are developing mobile applications gradually, yet they are still in the initial stage. Such condition suggests that in order to secure visible penetration of the digitalization in the banking sector beside the readiness by the domestic banks, it is indispensable to plan the dynamics for technological solution acceptance by the population.

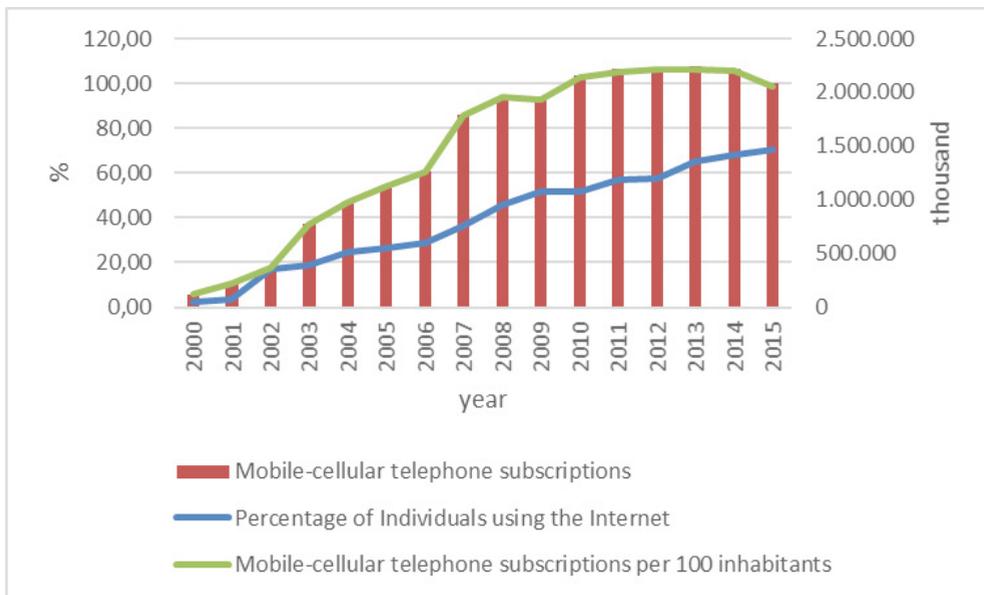
As leading factors explaining nonsufficient digitalization of the financial services in the Republic of Macedonia can be noted:

- Population's insecurity and mistrust in the e-banking services, principally in case of matured population;
- Lack of information for the benefits such as saving time, financial costs etc., demonstrating the urgent need for education by the banks;
- Resistance by the population for changing habits, clearly seen by the high percent of utilization of the bank branches for cash withdrawn and cash deposits;
- Lack of competition in the domestic economy, having in mind the absence of the FinTech and low level of presence of other non-banking institutions which would be relevant competitors to the banks on the supply side.

However we need to reveal the positive trends toward digitalization on the financial services such as:

- The trend for increasing internet utilization in the country. Namely, data from the State Statistical Office indicate that 70% of the population had access to the broadband<sup>14</sup> as well as the percent of the population using internet is also 70.4% (Figure 10).
- High degree of financial inclusion (access to bank accounts);
- High level of coverage with mobile phones (over 2 millions SIM cards in the circulation), out of them 57% with internet (Figure 10);
- Gradually penetration of the non-banking institutions and increasing the level of competition (Telecom, PayNet, PayPal).

**Figure 10.** Mobile-cellular telephone subscriptions and individuals using the Internet



Source: Prepared on the base of the data from <http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

<sup>14</sup> [http://makstat.stat.gov.mk/PXWeb/pxweb/mk/MakStat/MakStat\\_InfOpstestvo\\_DomakinstvaPoedinci/175\\_InfOpst\\_Mk\\_02DomTip\\_mk.px/table/tableViewLayout2/?rxid=6c35f815-938d-406a-8915-49e915fa2b85](http://makstat.stat.gov.mk/PXWeb/pxweb/mk/MakStat/MakStat_InfOpstestvo_DomakinstvaPoedinci/175_InfOpst_Mk_02DomTip_mk.px/table/tableViewLayout2/?rxid=6c35f815-938d-406a-8915-49e915fa2b85)

Presented data provide solid base for further projections that the level of digitalization in the banking sector of the Republic of Macedonia will increase. However it mostly depends of concrete measures that should be taken. The most significant should be: increasing the security and confidence in the banking services among population; raising the level of education for the benefits of this type of banking in order to secure higher degree of information; gradually changing the client's habits as well as accelerating banking competition by attracting other institutions for offering digital banking products.

### **Conclusion**

Intensification of online and mobile banking transformed the financial markets and the competition in traditional banking worldwide. Though the bank branches and the internet still represent the most important channels, the growing importance of the mobile channel is indisputable. The mobile penetration is high in certain countries such as the U.S., France, the U.K. or Germany, however mobile banking is still comparatively new in many markets over the world.

Mobile banking penetration worldwide is around 50%, whereas higher level of penetration falls on China, South Africa and Singapore with 50-60%. Europe is behind with level around 38%. Data demonstrate that the banks invested predominantly into the basic bank operations such as payment and transfer transactions, account review and administrative activities, whereas digitalization in the area of complex banking activities is still in the initial phase. On another side, bank branches are still used by the bank clients for the services such as bank counseling, for deposits and credits.

Republic of Macedonia is one of the countries with relatively low level of readiness for more significant development of the digital banking. Despite the wide utilization of the internet, high degree of financial inclusion as well as high degree of mobile phone, yet e-banking is still limited to basic bank transactions. Such stance can be elaborated by the mistrust in the e-banking services by the bank clients; lack of information for its benefits; resistance for changing habits, etc. However, data provide future anticipation that the level of the digitalization in the banking sector in the Republic of Macedonia in the future can be increased. It can be achieved by the increased security and confidence in the banking products by the clients; clients education for these type of service; ongoing change in the client's behavior and habits and initiating the bank competition.

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