

BANK OF THE FUTURE

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Abstract: *Banks downsizing their branch networks could be jeopardizing their future. Traditional branches, physical, built of brick and mortar, are, almost everywhere in the world, increasingly empty, with elderly clientele seemingly being the only ones to visit them, because more and more are switching to digital banking and, as a result, rarely go to physical branches. Financial service providers are expanding their role in providing services to consumers, managing or using money, and the greater this role, the more disrupted the bank-client relationship will be. Bank regulations increasingly leave room for IT companies to enter the banking services market or even force banks to cede land to new intermediaries. Banks and banking analysts are currently talking about the opportunities offered by the Internet of Things - the multitude of objects interconnected via the Internet - and how they can be adapted to banks' IT platforms, about the blockchain technology on which virtual currencies such as Bitcoin are based, about the development of real-time payment systems and the need to change banks' business models. But in this context we must also think about the security of information in the virtual space, the management of risks in the context of the digital revolution and the threats to cybersecurity. So what will the banks of the future look like?*

Keywords: *digital banking, financial service providers, banking regulations, blockchain technology.*

JEL classification: *G21.*

1. Introduction

A report entitled *The future of the bank branch is in trouble - here's why* (Heggestuen, 2015), which analyzes the trends in the banking industry considers that (Cazan, 2016):

– Banks' traditional, physical branch/agency seems to be outdated. It is not dead yet, but its end seems to be approaching, because of the improvement of online channels, in parallel with the decrease in branch visits and the increase in costs for transactions in branches lead to frequent branch closures.

– Banks that do not adapt to client requirements and do not act quickly will lose significant customer shares, because clients are increasingly opting for digital banking services offered by technology companies. This breaks the traditional relationship between banks and their clients, and banking institutions lose revenue from traditional products, but also from cross-selling opportunities.

– The ATM will follow in the footsteps of telephone booths. Relatively low operating costs compared to bank branches, associated with customer preference for ATM networks, make ATMs an attractive substitute for bank counters, but the use of cash is increasingly declining, and other services performed through ATMs will be able to be performed with other equipment, so in the end the ATM will share the same fate as the branch.

– The smartphone will become the fundamental banking channel, because it knows more about bank customers than bank advisors, the smartphone goes everywhere its user goes, has the ability to collect data from the user and is already used to make purchases and payments.

2. Trends in the banking world

In recent years, banks and banking operations have undergone significant changes, most of them being (Mitic, 2017):

A. Competition has been a major factor in recent years forcing traditional banks to cut costs and offer new, innovative products on the market. Traditionally, competition has

led to "cost reductions", which mainly involved, including for banks, job losses, but which meant a transfer of costs elsewhere. But currently, competition in the banking market comes from two main sources: first, the entry of new financial intermediaries: non-banks (also known as online banking or banking operating exclusively on the Internet or digital banking, a type of direct bank that operates exclusively online without traditional networks of physical branches and that we find on the market in 2 forms, companies that have applied for their own banking license and companies that have partnered with a traditional bank to provide these financial services) and "challenger banks" (banks that develop modern financial technology practices, such as online-only operations, which avoid the costs and complexities of traditional banking) and, secondly, new technologies that allow P2P transactions (direct between two individuals).

The concepts of challenger ("challenging") and non-challenged (Shawbrook, Metro, etc.) banks have gained momentum in the last 5 years. In addition, organizations normally engaged in other activities have entered the banking market, such as Tesco and Sainsbury's supermarkets, which offer well-established credit facilities and credit cards.

Challenging banks usually try to offer a service (product packages, personal contact, innovative products, good interest rates, etc.) that marks them as distinct from those of traditional banks. Traditional banks try to copy them, both in terms of products and innovation. Many challenging banks can compete because they do not have the high costs (especially staff and rent costs) of traditional banks. Supermarkets are somewhere between traditional and challenging banks. They, in order to attract customers, offer banking services at low costs, have liquidity that they can offer in the lending process and can attach to retail sales, deferred payments, through cards.

The big problem, both of traditional banks, but also of new ones that have entered the market, is that they offer low interest rates on products/deposit, which currently fluctuates around 1, maximum 1.5%, while 10, 20 years ago, subsidized interest rates were several percent, providing the incentive sought by those who save. So new banks are trying to differentiate themselves through a number of less tangible factors, such as convenient location (which could be the internet), an app that "works", or a reputation for quality of service, or eliminate a number of costs, (such as maintenance fees, cash withdrawal fees, or payment fees) which are usually granted by some banks, that have fewer physical counters or only virtual counters and much less staff than traditional banks.

B. Mortgage loans have about the same characteristics, but with the major difference that the terms and conditions associated with negotiating a mortgage are much stricter than they were twenty years ago. The interest rate is certainly a significant factor for borrowers, but so is their credit rating, employment status and overall lifestyle. To some extent, many banks can choose who they lend to and prefer customers with a solid credit record and who are employed (rather than self-employed).

C. Decisions regarding customer requests. The first neural networks for automated credit decision-making were built over 20 years ago, and banks are already using artificial intelligence (AI) to automate repetitive, rule-based manual tasks such as monitoring AML transactions and detecting credit card fraud. However, today, AI is evolving to provide a more comprehensive set of cognitive abilities that can feel, understand, act, and learn. These capabilities allow AI-powered machines to interact more naturally with both clients and other employees. One of the most visible signs of this trend is the emergence of collaborating robots or cobots, who work with people to help them do their job better and provide clients with a better banking experience. In 2016, Bank of America debuted Erica, a smart virtual assistant that uses predictive analytics to provide financial guidance. Some of these robots interact directly with clients, while others support advisors, but in both cases their goal is to help navigate the world of retail investment. As AI becomes a more

visible collaborator, who can make autonomous decisions, there are legitimate concerns about the processes through which an AI makes decisions and whether those decisions are made in the right regulatory and ethical context. For example, Capital One is looking at ways to use AI for a variety of functions, including deciding who gets a credit card.

Significant progress has been made in automated decision-making methodologies in recent years and it is estimated that in the coming years many manual tasks or human decisions will become automated. Innovation in banking decision focuses on the area that takes into account the previous experience of bank clients and their history:

- approval of new accounts, new loans, including mortgages, in many cases these processes being purely deterministic and to which the computer can say YES or NO, based on the analysis of data submitted by the applicant;
- improving “robo” advisors or even their sophistication and placing them in new services such as investment consulting, using algorithmic response models and building on the learning experience of previous cases;
- the use of computer systems that can “learn” from the data collected by banks about clients and their financial behaviour or that can detect fraud, identifying unusual transactions, patterns and styles.

D. Blockchain technologies were originally designed to avoid banks and regulation, so, curiously, banks are beginning to use them. An internet search on the keyword blockchain results in thousands of articles, most of which hail it as a method that will revolutionize banking. Most explanations of how the blockchain works resort to jargon and for is quite difficult for the uninitiated to understand, and most are related to bitcoin, a new form of currency used by a blockchain.

The blockchain’s foundation is the feeling that banks and other people cannot be trusted. Blockchain is a common public database for recording transactions that does not allow records to be changed at a later date. There is a somewhat elaborate mechanism for doing this (Bradley, 2017).

For example, I want to send you €100 using a secure electronic transfer system and convert euros to a currency called WebMoney (WM). Do not trust me: do I really have €100? All our friends check to see if the amount really exists. If they want to. Everyone knows about all my transactions. The first who manages to verify the transaction, is paid. That person tells everyone that the transaction is okay and anyone can check the result. Free of charge! If the majority are satisfied, you receive the money and can convert WM to €. Things cannot change after that, and payment details are shared with everyone. WebMoney (WM), from the previous example, can be bitcoin (or any other virtual currency). Bitcoin is a virtual currency (“crypto”), whose total offer is determined by a mathematical algorithm and not by a sovereign state. It can be exchanged with other currencies, but is extremely unstable and therefore unsafe as a means of payment. There are some arguments as to whether or not it is an authentic currency (Guadamuz, Marsden, 2015). Blockchain proponents emphasize the following advantages.

- Trust - there is no “trusted intermediary” (bank);
- Security - communication uses cryptography with public keys, currently the most secure method, because the records cannot be modified later (they are immutable);
- The blockchain database is distributed to all users (additional security);
- Transactions are visible to all, which implies interoperability and transparency;
- There is a complete audit trail because each transaction has a fixed link to a previous transaction.

However, there are considerable issues associated with blockchain, such as:

- It is inefficient. First, verifying blockchain transactions requires considerable energy, as the verification process is a competition in which many participate. Aste (2016)

estimates that a single check needs about 1GW per second, costing about \$ 5 per transaction. Second, several parallel verification attempts are inherently ineffective: only one is strictly necessary;

- A distributed database is not practical if the database is large, i.e. it cannot be scalable. The current size of the Bitcoin database exceeds 100 MB (Bitcoin 2017);

- There is a FOREX risk when buying and selling cryptocurrency, as they are unstable, exchange rates can fluctuate wildly;

- Transactions are not always verified within a time (nominal window) of 10 minutes. So transactions can be "blocked" for days, and some are never checked because there is no incentive for other users to do these checks, relative to earnings and costs;

- Blockchain is not safe, the press has spoken frequently in recent years about fraud and theft that lead to financial losses for holders of virtual currencies, which cannot be recovered, because there are no checks on how money enters or leaves the blockchain;

- If you lose your blockchain password, it is impossible to recover and the money is lost;

- Blockchain is not regulated. A completely non-transparent computer algorithm controls the supply of virtual cryptocurrencies, not a central bank;

- There are indications that blockchain/bitcoin may be illegal. If bitcoin is considered a currency and not a commodity, bitcoin violates Title 31 of the US Federal Code, according to which the USD is the only legal currency of the USA. Moreover, Article 17 of the General Data Protection Regulation (GDPR) (Regulation (EU) 2016/679) gives EU people the right to delete information about themselves, which Blockchain does not;

- Money laundering is linked to the blockchain, the opacity of the system favoring this.

Although we are only at the beginning of studies on the use of blockchain by banks, they will probably use these distributed databases to increase public confidence in banks, but a number of issues remain to be resolved related to the secrecy of operations. Additionally, the technology can be used in the field of payments and transactions, but in this case, how will the secrecy and security of operations be ensured.

E. Peer-to-peer transactions. Peer-to-peer (P2P) transactions are usually loan agreements between two people, without the electronic "baggage" of the blockchain. (Lewis, Roberts, 2020) The lender generally obtains a higher (but riskier) return than from a traditional savings bank account, and the borrower has to pay a higher interest rate than if they had borrowed from a bank. In some countries, P2P loans are regulated and, since 2009, there has been an increase in P2P loans, and there is certainly momentum to continue their growth amid mistrust of traditional banks, given the periodic liquidity crises or the independence of bypassing banking regulations. As clients familiarize themselves with the Internet and the virtual world, banks are likely to lose significant volumes of population and SME lending, especially short-term lending, with P2P-type financial transactions being a substitute, as they adapt to the needs of the creditor and the debtor, involves less bureaucracy, regulation and control and attracts undervalued resources from banks in the financial circuit, due to their modest size, sub-bank availability terms and, perhaps, distrust of asset holders in banks. The success of P2P networks is evidenced by other sectors, such as transport, social economy, which will soon be transition into the financial sector. I do not think that the banks will be affected by the losses in this area, because they were risky, they meant costs for the banks, if we refer to the creditors from the SME and population category and, in any case, they were not banked to a great degree, if we refer to creditors in P2P networks. The main brake on the success of P2P networks is fraud, theft and money laundering, which will probably lead to higher regulation of the sector.

F. Security innovations. The security of operations is important for banks, because if it is not ensured, it affects their reputation, clients become reluctant to conduct operations and expose them to regulatory fines for misconduct. There is a significant link between reputation and conduct risk. In recent years, banks have made efforts to improve security measures, in particular by using biometric data (fingerprint, facial recognition or voice recognition). Biometric techniques are fast, accurate, and do not require remembering or writing down passwords and PINs (in fact, typing passwords and PINs may violate bank account terms and conditions). However, clients should not be too afraid, as banks are responsible for any fraud, unless they can prove that a client was careless. So, if technologies lead to an increase in fraud, it will be the banks that will have to increase the bill and not the customers.

And another but, as the client is assured that the counterparty with which they communicate is, indeed, the bank and not a fraudster. So the bank also needs "biometric" recognition.

G. Changing the type of banking crime. The changing nature of banking, especially the shift from physical agency banking to online banking, has also changed criminal activity in terms of banking. Physical, "traditional" bank robbery has declined. The decline of traditional bank robbery is attributed to improved branch security (more cameras, screens), less money held in branches, closer cooperation between banks and the police, and better staff training. In contrast, the incidence of cybercrime has increased significantly.

H. Security and the law. There is an important difference between cyber robbery and "traditional" bank robbery. With cybercrime, the client is cheated, not the bank. Individual bank accounts suffer, and the loss is not shared by all the bank's clients. Banks can get rid of the responsibility of being the only agent in charge of keeping customers' money safe. In "remote" banking, the customer is also responsible, and this principle is enshrined in the relevant regulations.

The relationship between bank and account holder is governed by the contract (often expressed as "terms and conditions"). Any breach of these terms and conditions allows a bank to avoid compensating a client in the event of cyber fraud. Typically, a breach of the contractual "terms and conditions" may be to tell someone else a PIN or password or write them down on something.

In cybercrime cases where the client does not have a very clear involvement, such as hacking the bank's central computer, the client is protected by criminal law on theft and fraud. Theft is the unauthorized seizure of property from another person, with the intention of permanently depriving the person of property, fraud is the abuse of position or misrepresentation or prejudice to one's rights for personal gain, robbery is associated with a certain degree of coercion (physical force or fear). Cybercrime is not robbery, so it is less serious than a "traditional" bank robbery.

I. Real technologies. (McIntyre et al., 2018) We are at the beginning of the period when extended reality (XR) technologies, including virtual reality (VR), augmented reality (AR) and mixed reality (MR), eliminate the distance between people, information and experiences. With these technologies, brands can create competitive differentiation by simply overlapping the real world with digital enhancements to expand human reality. There are many cases of using these technologies in banking. Real-time 3D virtual learning for investment scenarios, for example, could use immersive animation, simulations, role-playing games, and online instruction to train asset managers to better advise their clients. Virtual recruitment would allow banks to identify, recruit and hire some of the best talent in the world no matter where they live. An augmented reality application run at a branch

could deeply immerse clients in a home buying experience that ends with the completion of a digital mortgage.

In most scenarios, XR creates deeper, more meaningful engagements with customers and therefore a higher performance of the banking workforce. Bankers who responded to the Technology Vision 2018 survey believe it is important to use XR solutions to eliminate physical distance when the bank advisor talks to clients.

For banks, capitalizing on the benefits of XR will involve using the ever-increasing volumes of data available to better understand and delight clients and create unique sales opportunities. For example, Hana Bank in the Republic of Korea offers instant mortgages delivered to clients through augmented reality applications on mobile phones. Using big data, the application can obtain information about an apartment, house, block of flats or neighbourhood and can connect it with client data. Aiming the phone camera at a property gives the client not only its price, but also a real-time offer for a mortgage. The price of the house and risk assessment have already been done, and the client can also apply for a digital mortgage, meeting physically only to sign the mortgage documents.

3. Open Banking

The new bank will move along three coordinates: microservices, blockchain networks and the effects of the revised payment services directive, known as PSD2 - Payment Service Directive 2.

A. **Microservices** can be thought of as an approach to IT architecture used by banks. Unlike the monolithic design of traditional banking information systems, the microservices-based approach breaks down applications into simple components that perform distinct functions. Each function is treated within the organization as a unique service, which manages its own data. This eliminates much of the complexity found in traditional banking IT architectures, allows for the inclusion of services (microservices) outside the organization, applications become easy, modular and scalable, and the customer can access only those microservices that interest him.

B. **Blockchain** is today one of the most discussed topics in the financial services industry. It is a distributed ledger (DLT) technology that stores groups of transactions ("blocks"), then links them and sequences the list of transactions using cryptography. However, the real innovation with blockchain is that no organization owns the blockchain property, which is distributed in a peer-to-peer network, with redundancies in blocks and consensus mechanisms to ensure that no one can manipulate transactions. Blockchains can be public, such as Bitcoin or Ethereum, can be developed privately or by consortia.

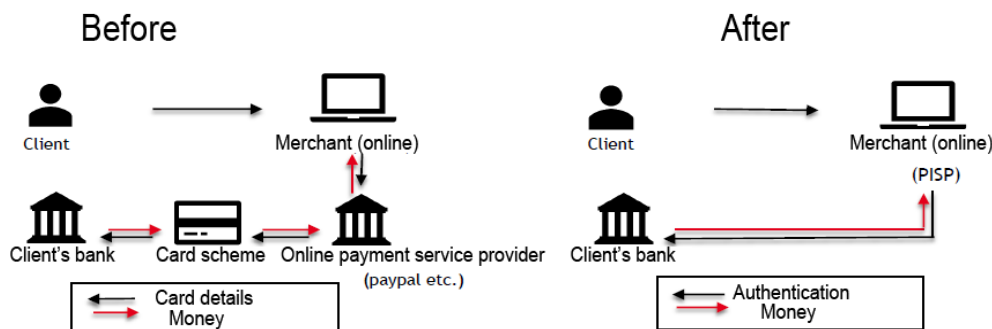
C. In October 2015, the European Parliament adopted a **revised payment services directive, known as (PSD2 - Payment Service Directive 2)**. Thus, the new rules included aim to promote the development and use of mobile payments through open banking services, such as "open banking". At the same time, banks are required to give companies that create banking IT solutions access to their payment infrastructure - application programming interfaces (APIs) - and customer data, up to the level of account transactions (payments and receipts).

Hence the phrase "open banking", which is a term for financial services, part of financial technology that refers to the use of APIs (application programming interface) that allow third-party developers to build additional services or applications that support banks or that become their competitor. Open Banking thus offers greater financial transparency for account holders, ranging from open data (already available as public information) to private data.

These third-party developers (Anton, 2018), generically called "TPP" - third-party providers, can be non-banking institutions, FinTech companies or merchants that can be

authorized as payment service institutions. TPP is divided into two groups: Account Information Service Providers (AISP) and Payment Initiation Service Providers (PISP).

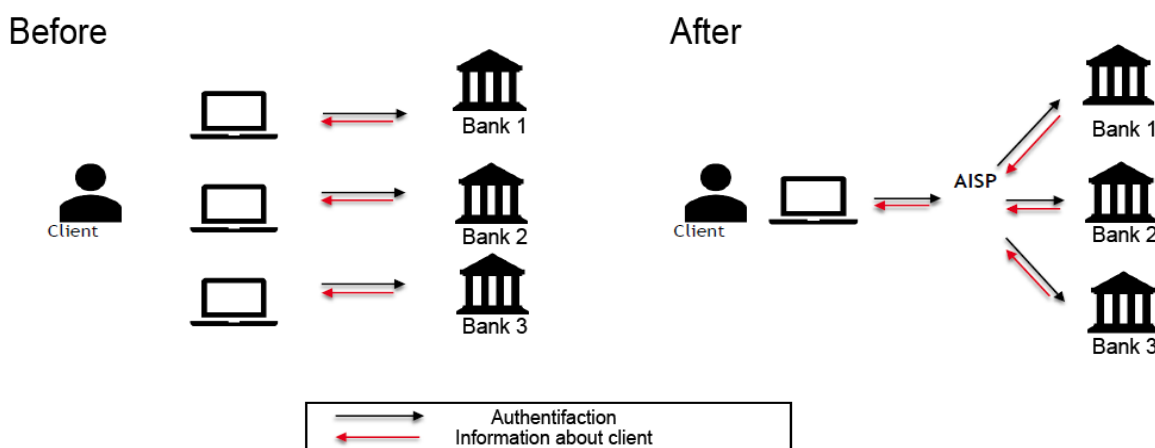
Figure nr. 1: Operating model of payment initiation service providers
PISP - how it works



Source: Anton, 2018

The introduction of PISP in payment schemes is an essential change in the banking industry, because bank transfers were made only by banks and electronic money/card issuers before this directive. Thus, by authorizing that PISP, merchants can, with the customer's consent, access their account data, and online shopping settlement can be made directly by the merchant, as PISP, based on customer acceptance, without the intermediation of a card and without the call to another payment processor.

Figure nr. 2: Operation of account information service providers
AISP - how it works



Source: Anton, 2018

AISPs are providers that access bank accounts and extract information about the availability of these accounts, based on the explicit consent of account holders. If the client has several bank accounts, the AISP services will allow them to access data about their accounts held in one place. AISP can also analyse the customer's financial behaviour, based on data about his accounts and make recommendations for streamlining transactions.

Third party providers (TTPs) must be licensed as payment service providers (PSPs) and have the right of establishment and freedom to provide services in order to provide

services throughout the European Union on the basis of the authorization received in the country of origin.

PSD2 is improving its security policy and is intended as a means of reducing risks, in order to protect customers against fraud and the illegal use of sensitive and personal data.

It is obvious that PSD2 is an acknowledgement of the "FinTech" revolution on the payment services market and that it eliminates banks' monopoly on customers' banking data. In fact, PSD2's goal is to remove barriers to the payment services market, forcing banks to provide access to bank account information to third parties.

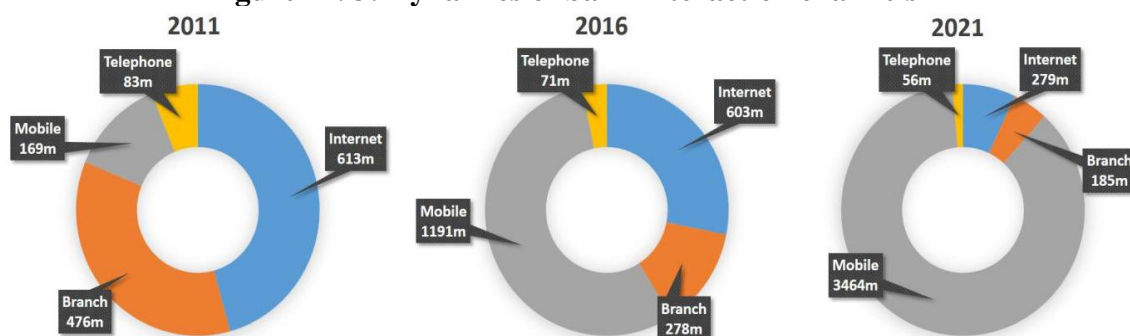
And banks will take advantage of the new regulations by expanding the range of services. The new payment methods are considered will become popular through the connection with social networks, moving to instant payments: we see an advertisement on, say Facebook, we want our product, we put it in the cart, we allow Facebook to access our bank account, and through biometric data (fingerprint, facial recognition, etc.) we accept payment to the merchant. No complications, no IBAN or other codes, no bank card. And an intermediate conclusion, CARDS' DAYS ARE NUMBERED.

For PSD2 client it will mean access to innovative payment services at merchants, alternative cards, access to all bank accounts in a single application, efficient use of information about account turnover, investments, comparative analysis of payment service costs, bank fees, instant payments to merchants or service providers.

4. Future business models of banks

The advent of digital banking (also known as Neo-banking) has changed banking techniques quite a bit, and the use of mobile phones will change them even more. (Oracle Financial Services, 2017).

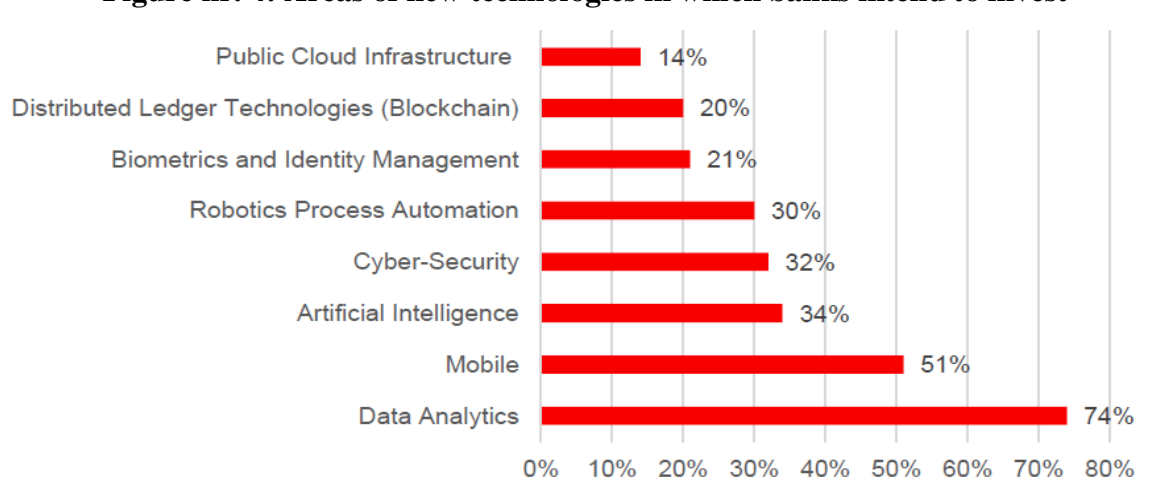
Figure nr. 3: Dynamics of bank interaction channels



Source: Oracle Financial Services, 2017

The increase in mobile phone use (Figure no. 3) for financial transactions was determined by the introduction of banking applications specialized in banking services such as payments, deposits, account opening, credit monitoring, personal finance management, customer support, etc. This mobile banking revolution has also opened the door to innovation, enabling FinTechs to work with traditional banks and deliver better products and services. The future of banking lies in the convergence of technology and people. Today, there is an unprecedented level of interconnection between people, organizations and devices that give rise to a new hyper-connected world.

Figure nr. 4: Areas of new technologies in which banks intend to invest

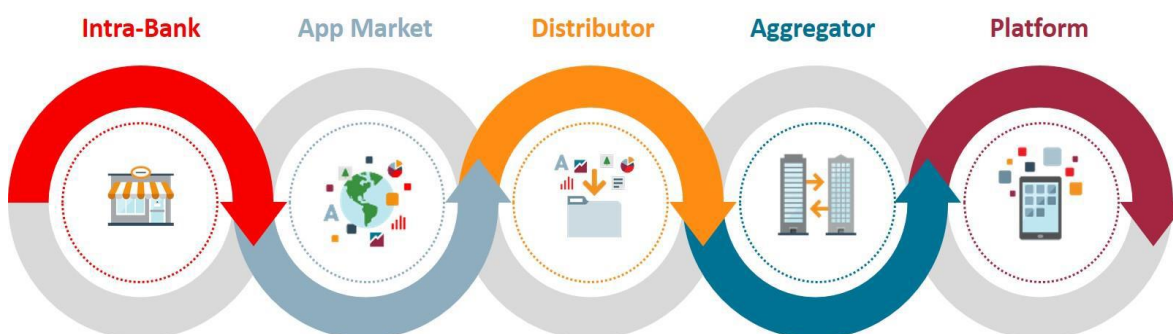


Source: Oracle Financial Services, 2017

Banks have begun to invest in innovation labs, which help them stay focused on using technology to meet their customers' needs and navigate current and future technology waves. In Figure 4, we can see that most banks are willing to invest in technologies for data analysis, mobile and artificial intelligence. Banking business models that keep technology in the spotlight will in turn help banks keep clients at the centre of their business. Technology-driven banks will have the ability to leverage new innovative approaches to deliver highly relevant personalized experiences that are otherwise a challenging task for banks.

As the banking sector becomes completely absorbed in new technologies and regulations, new possibilities for innovation are emerging. This adoption of technology and regulations has encouraged the banking industry to pave the way for new banking business models. Banks must decide the role they want to play in the future, making a decision on the banking business model that best suits their requirements. In Figure 5 below, we can see the five different types of business models that banks can choose in the future.

Figure nr. 5: Future business models of banks



Source: Oracle Financial Services, 2017

The intra-bank model. In this model, banks continue their operations traditionally in which they manage their own products and services and delivery channels. The manufacture and distribution of all their products and services is managed exclusively by the bank.

The application market. In this model, banks expose their data to third-party developers through open APIs. This opens the door for the entire banking system to

intervene and innovate and the bank can turn to third-party developers when API releases take place.

Distributor. In this model, banks stop developing products and services and focus only on the distribution aspect. Banks can also plan to integrate external services with their own offerings. In other words, banks collaborate with third parties, contain products or use the third party product directly and then distribute it through their own existing channels, such as mobile and the Internet. The bank that adopts this model of distributor may also benefit from the possibility of becoming a third party supplier for other banks.

Aggregator. The bank starts operating by aggregating multiple APIs from financial service providers into a single API. In other words, the bank no longer creates financial products and services, these being provided by other partners, it only unites them in other more or less complex applications.

Platform. In this model, the bank offers an open banking platform, exposing their APIs to other institutions. In other words, banks will now give permission to other companies to develop applications and to collaborate and serve customers.

5. Bank of the future and customer behaviour

The bank of the future also brings changes in customer behaviour (Jeffrey, et al., 2018). Banks have been taking people out of their businesses since 1969, when the first ATM began operating at Chemical Bank in Rockville Centre, New York, allowing customers to perform basic banking tasks without physically entering a bank. The process continued, online and mobile banking services accelerated the change, eliminating even more human interaction, because now the bank has become just another application on your smartphone.

Banks have never had to work very hard for their money and, as a result, they have rarely met their customers or provided them with very good services. We actually use the bank because we have to, and if we were to move our account to competition, the changes would not be radical. About the same operations, about the same costs.

For a growing number of people, the bank is no longer the place where you make money, where you earn something. The interest rates offered are almost invisible, generations under the age of 35 in the US or Western Europe, have not seen an interest rate higher than 1-2% on deposit accounts throughout adult life. They believe that banks make their money by attracting customers with unfair and onerous fees.

Most customers under the age of 40 have moved to online banking, they carry out most of their banking activities via computers, iPads and especially smartphones and report that they rarely visit bank branches. Anyone who visits a branch sees fewer people than in previous years and most are over 60 years old. And because most customers are comfortable with (and prefer) online banking, and because most banks' online services look the same, it's very easy to get customers to look at the online companies they know and trust as alternatives to their banks. That's why in the minds of most people projects like Google Bank, Apple Bank, Facebook Bank, Amazon Bank seem to be successful since launch.

I bring up Google, Facebook, Amazon, Apple because they are giants, their annual business is in the order of billions of USD, they know details about customers, about their buying behaviours and habits, and the liberalization of the banking services market would allow them to offer payment accounts, own cards and even low value loans and certainly banks would lose significant market shares.

6. Conclusions

At present, competition in the banking market comes from two main sources: firstly, the entry into the market of new financial intermediaries: non-banks (also known as online banking or a bank operating exclusively on the Internet or digital banking, is a type of

direct bank operating exclusively online without traditional networks of physical branches, that can be found on the market in 2 forms, companies that have applied for their own banking license and companies that have partnered with a traditional bank to provide these financial services), and "Challenger banks"

Although studies on the use of the blockchain by banks are only starting to appear now, they will probably use these distributed databases to increase public confidence in banks, but a number of issues remain to be resolved related to the secrecy of operations. Additionally, the technology can be used in the field of payments and transactions, but in this case how are the secrecy and security of operations ensured.

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In recent years, banks have taken measures to improve security measures, in particular by using biometric data (fingerprint, facial recognition or voice recognition).

The new bank will move along three coordinates: microservices, blockchain networks and the effects of the revised payment services directive, known as PSD2 - Payment Service Directive 2. PSD2 is an acknowledgement of the "FinTech" revolution on the payment services market, and it eliminates banks' monopoly on customers' banking data. In fact, PSD2's goal is to remove barriers to the payment services market, forcing banks to provide access to bank account information to third parties.

This adoption of technology and regulations has encouraged the banking industry to create new banking business models: the intra-bank model, the application market, the distributor, the aggregator, the platform.

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