



FACULTY OF ECONOMICS AND MANAGEMENT

«MASTER IN BUSINESS ADMINISTRATION»

## **MASTER THESIS**

**“The New Era in Banking – Digital Transformation”**

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SUPERVISOR

Dr. Panos Markopoulos

JUNE, 2017

# **Open University of Cyprus**

**Faculty of Economics and Management**

**Graduate Program**

**Business Administration (MBA)**

**Master Thesis**



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This Master Thesis was submitted as partial fulfilment requirement for the Master Degree in Business Administration (MBA) from Faculty of Economics and Management of Open University of Cyprus.

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## Abstract

We all witness how technology is affecting our everyday lives. From socializing and entertainment, to the way we do business and so on. Banking operations prove no exception. We are far beyond the time where customers, in order to conduct a financial transaction, had to visit the bank branch. The evolution and use of Mobile Technology, the need for cost minimization, the urge to innovate in order to outperform competition and most importantly the shift in customers' needs and expectations, has resulted in a new banking perception.

The digital evolution has brought new and uncharted areas in the financial ecosystem, as we proceed to the age of the empowered customer. Today's modern customer is more demanding than ever, wants and expects instant access to basic financial transactions, seek for transparency, products and services that are tailored to their personal needs and the option of transacting seamlessly among the banking channels of their preference.

In this fast changing environment, banks must develop new ways to manage effectively the shift in customer's behavior and deliver a more engaging way of communication that enables smooth interactions between customers and financial institutions across multiple touchpoints. For this purpose and in order to sustain a competitive advantage in the financial services marketplace, banks must develop an Omni-channel banking customer experience, a powerful business approach with the purpose of delivering maximum customer satisfaction through the right content.

Moreover, banks must commit to transform their operating environment from legacy and paper based operation platforms and redesign their operating models into to fully digitalized businesses and adopt a customer – centric approach. Banks have a vast amount of customer data available that can deliver insights and build intelligence on customers' evolving needs that will allow growing customer value, thus increasing revenue and profitability.

Banking institutions that fail to engage in this process of digital transformation will be in distress as new entrants emerge out of "every corner" disrupting the banking ecosystem posing a threat to their existence. Banks need to respond quickly, by adopting Omni-channel strategy, establish a customer-centric business model and facilitate their digital transformation through their collaboration with financial technology firms (Fintechs).

## Περίληψη

Είναι αδιαμφισβήτητο γεγονός πως η τεχνολογία επηρεάζει την καθημερινότητά μας. Ο τρόπος που διασκεδάζουμε, ταξιδεύουμε, αγοράζουμε και εργαζόμαστε έχει σαφώς μετεξελιχθεί. Ομοίως, ο τρόπος με τον οποίο συναλλασσόμαστε με τις Τράπεζες είναι εντελώς διαφορετικός σε σχέση με το πρόσφατο παρελθόν καθώς υπάρχει πληθώρα εναλλακτικών καναλιών εξυπηρέτησης και τρόπων διεκπεραίωσης συναλλαγών με μια Τράπεζα. Η εξέλιξη και εκτεταμένη χρήση της ψηφιακής τεχνολογίας, η ανάγκη για την δημιουργία καινοτομίας και ο ανταγωνισμός, έχουν επιφέρει μία νέα τραπεζική αντίληψη στην σύγχρονη πραγματικότητα.

Η ψηφιακή επανάσταση οδηγεί σε αχαρτογράφητα μέχρι στιγμής ύδατα, ενώ παράλληλα προσδίδει μεγαλύτερη δύναμη στους καταναλωτές. Ο σύγχρονος πελάτης είναι πιο απαιτητικός από ποτέ, αποζητά άμεση πρόσβαση στις βασικές τραπεζικές συναλλαγές, προϊόντα και υπηρεσίες προσαρμοσμένα στις προσωπικές του ανάγκες ενώ απαιτεί συνοχή στην τραπεζική του εμπειρία ως καταναλωτής, ανεξάρτητα από το τραπεζικό κανάλι εξυπηρέτησης που χρησιμοποιεί.

Σε αυτό το ραγδαία μεταβαλλόμενο περιβάλλον, τα Τραπεζικά Ιδρύματα θα πρέπει να αναπτύξουν νέες δεξιότητες για την αποτελεσματική διαχείριση των νέων αναγκών των πελατών τους, που θα επιτρέπουν την ομαλή αλληλεπίδραση σε κάθε δραστηριότητα και για κάθε κανάλι εξυπηρέτησης. Επιπρόσθετα, είναι επιτακτική η ανάγκη για τις Τράπεζες να επανασχεδιάσουν το επιχειρηματικό και λειτουργικό τους μοντέλο, να μετεξελιχθούν με γνώμονα τις τάσεις που επιβάλλει η ψηφιακή τεχνολογία και να υιοθετήσουν ουσιαστική πελατοκεντρική προσέγγιση.

Τα τραπεζικά ιδρύματα τα οποία δεν θα προσαρμοστούν άμεσα στις νέες απαιτήσεις, κινδυνεύουν να απωλέσουν μερίδιο αγοράς από τους νέους ανταγωνιστές του Τραπεζικού Οικονομικού Οικοσυστήματος, τις εταιρείες χρηματοοικονομικής τεχνολογίας (Fintechs).



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# Chapter 1

## Introduction

The growing and ever increasing access to technology have profound effects in all aspect of our lives. From socializing and shopping, to the way we travel and work. In this changing environment, businesses that want to thrive are in a constant race to adapt and take advantage of the emerging technologies while they are still useful, otherwise, the risk of becoming obsolete is imminent. Financial Institutions need to act drastically as the status quo of traditional banking is deteriorating and redefine their banking model which has been in place for generations.

The aim of the thesis is to identify the need for upgrading banking activities through digital transformation based upon two core elements. Firstly, upon the fact that modern customers are more educated, self-directed and highly adapted to the internet of things. They demand instant and on the go access to their accounts, conduct a variety of transactions easy and safely, make their own decisions, in a similar way as buying an airline ticket, or buying groceries on-line. Questions regarding what the modern customer in the digital age demands and what banking organizational structure can support the new reality of the digital age will be answered, based on research and best practices from institutions involved in the banking sector. For this purpose, the concept of the Omni-channel banking experience will be analyzed in the second Chapter. An Omni-channel approach can be characterized as a consistent service within all banking channels which ideally delivers benefits both for the customer and the financial institution through the digitization of the underlying technologies, processes, and structures. In the third Chapter, the forces driving the need for digital transformation will be presented while the appropriate strategies for implementing change will be identified.

Furthermore, in the fourth Chapter, it will be pointed out that the urge for bank digitization is also driven by external competition which is the second core element for engaging into digital transformation. Nowadays, financial institutions are being threatened not only from other more innovative and technological agile banking institutions but from outsiders as well, the banking disruptors. Laggards will be threatened by new innovative virtual and digital enterprises (disruptors) that already have evaded in financial activities threatening the traditional retail banking services (Lenddo, Square, Lending Club etc.).

Chapter five, includes market analysis of the European and Greek banking sector regarding the digital penetration and electronic activities, while practices and initiatives of the four systemic Greek banks towards digital adaptation will be presented. As part of this analysis, a closer examination of the Greek Bank **EFG Eurobank Ergasias** will be performed, by using the strategic tool of SWOT analysis, to evaluate the banks external and internal environment. In the last Chapter, conclusions, and recommendations for further research will be presented.

# Chapter 2

## The need for Omni-channel Banking

### 2.1 Alternative Banking Channels

In recent years, the advance of communication and computer technology has touched every aspect of our lives and banking has been no exception. We are far beyond the time where customers, in order to conduct a financial transaction, had to visit the bank branch. The evolution of information technologies, the urge to innovate in order to outperform competition and most importantly the shift in customer's needs and expectations drove financial institutions to develop alternative banking channels that not only enhance the customer service experience but also, significantly reduce the operational costs.

Alternative banking channels can be defined as those channels that expand the reach of financial services beyond the traditional bank branch channel (IFC, 2015). Alternative banking channels are transformative in nature, accommodating the access to financial services in an "anytime – anyhow – anywhere" basis. The most common alternative channels are:

- **ATM (Automated Teller Machines)**

An automated teller machine is an electronic communications device that allows customers of financial institutions to perform financial transactions such as cash withdrawal or deposit, transfers and balance inquiries etc., with the use of their debit or credit card. It is among the most popular alternative banking channels both for customers since they operate on 24/7 basis and banks since their maintenance cost is far less than that of a human teller.

- **Internet and Mobile Banking**

Internet banking is the implication of banking services over the World Wide Web. It allows to carry out banking and stock exchange transactions quickly and easily from a personal computer or smartphone at the customer's own convenience. Through e-banking customers can get online real-time updates on balances and activities of accounts, credit cards and loans, make payments, transfer money or buy and sell shares in real time migrating the service provision from the bank staff to the bank's clients. In recent years, several incidents of phishing attacks and hacking consumer identification data have occurred, however, technological developments have allowed banks to build secure systems and protect their clients.

- **Phone Banking**

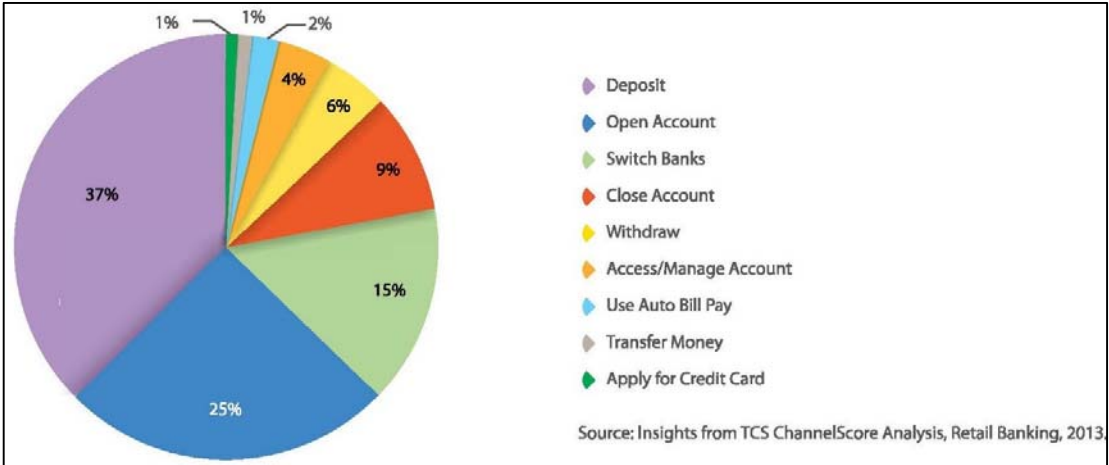
Telephone banking is the provision of banking services over a telephone line. It delivers extreme convenience to clients, as the bank becomes available 24/7 from any geographical location. Transactions such as fund transfers, payment of utility bills, stock exchange and investment transactions, credit cards and loan services are made easily through one phone call and usually with no extra charge, technically providing almost all the services that a traditional brick and mortar bank branch can. However, transactions over the phone impose a risk for the bank that is related to customers' identification over the phone, but protective mechanisms such as phone banking passwords and personal data confirmation minimize any fraudulent efforts.

The use and development of alternative banking channels enhance the ability of financial institutions to deliver better customer service. However, it is imperative for banks to provide a consistent customer experience across all channels that in turn will proliferate their importance and amplify their value.

## **2.2 The need for Multi-channel banking integration**

Banking practices of the past two decades have driven the development of different banking channels, that benefit both banking institutions and customers. To be more specific, the development of alternative banking channels had a positive impact on the overall banking

performance. Their use resulted in reduced operational costs and less branch traffic that in turn allowed employees to focus on more critical functions. At the same time, customers, depending on their needs, had the ability to choose their preferred channel for their banking operations, leading to higher levels of customer satisfaction. Moreover, the existence of many different channels gave bank institutions competitive advantage against their competitors and attracted more customers in relation to banks that lacked the same level of channel offerings. Consequently, the multi-channel banking experience had offered customers multiple ways to transact with their bank that definitely had a positive effect on customer’s loyalty and at the same time increased the institution’s overall performance and efficiency.



**Figure 1.** Banking Transactions Customers Expect to Perform across all Channels

Although multi-channel availability is crucial for everyday banking operations, it no longer delivers competitive advantage. Multi-channel is only about broadening up channel options for customers to choose from in order to complete a transaction, in favor of the customer’s convenience. At the same time, banks directed and encouraged customers for the use of alternative channels, focusing particularly to those channels that had the minimum operational cost. Such strategy, involved less employee interaction and provided reduced operational risks but encouraged the creation of banking silos. Silos’ vertical communication, refrains the free exchange of information among different systems within the organization, and therefore, this siloed business approach to services and products led to increased internal and external dissatisfaction.



Modern reality, reveals that banking operations are no longer business as usual. Technology has become the driving force of change while customer experience has been altered forever. Today's consumers are increasingly sophisticated, empowered and expect exceptional performance on an anytime – anywhere basis via the channel of their choice. They demand services according to their individual preferences, whenever, however and wherever they interact.

## **2.3 Omni-channel banking**

Today, adoption of Omni-channel banking is essential for banking operations. Omni-channel is a much wider banking concept that lies beyond the scope of just providing multiple ways for customers to transact. It is about a seamless and consistent interaction between customers and their financial institutions across multiple channels. While multi channels is focused on transactions, Omni-channel focuses on interactions (IBM, 2015). The Omni-channel phenomenon is based on the well – established multi-channel infrastructure of the past and interrelated with the on-going era of bank digitization.

Omni is a Latin word meaning “all”, “universal”. This term originates from business practitioners, but have recently gained attention among academics. At IDC's Global Retail Insights research unit reports, Parker and Hand (2009) suggested that Omni-channel customer is an evolution of the multichannel consumer who, instead of using channels in parallel, he uses them simultaneously. In relation to the Banking environment, IBM offers the following definition: Built on a multichannel strategy that allows anytime, anywhere any device access with consistent experience across channels, Omni-channel enables interactions across multiple customer touch points where intents are captured, insights are derived and conversations are personalized and optimized (IBM, 2015).

Consumers expect seamless Omni-channel brand experiences, in which they can smoothly and deftly transition, intercommunicate, and interconnect between platforms, sites and locations. Omni-channel means the brand must be ever present, everywhere at once, and yet personalized, flexible, and with one – on –one customer intimacy (Smith, 2015).

### 2.3.1 Benefits of Omni-channel banking

Omni-channel banking can be characterized as an integrated approach for customers to interact with their banking institution for product, services and transactions. It delivers benefits both for the bank customers and the financial institution itself.

*Customers have the benefit:*

- ✓ to choose the channel that best fits their needs and preferences for any given transaction,
- ✓ to make flawless and uninterrupted transitions between the different channels such as social, mobile, branch, ATM
- ✓ to enjoy homogeneous and unending interactions across channels.

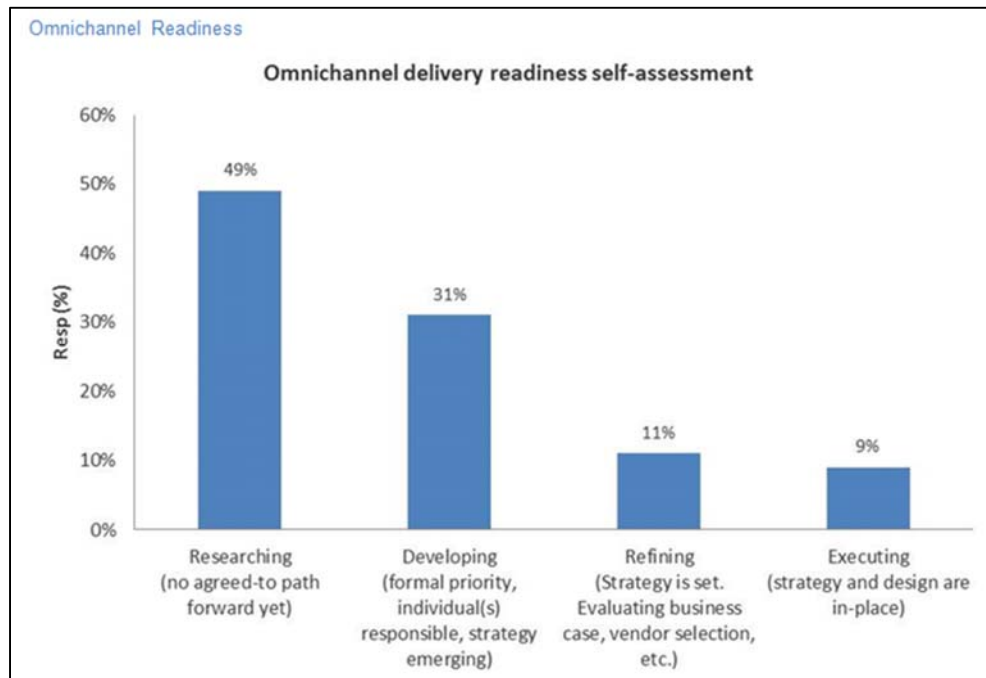
*Financial Institution benefits:*

- ✓ increases customer intelligence providing better customer understanding
- ✓ reduces the costs of the traditional network
- ✓ builds stronger customer engagement and satisfaction

Omni-channel does not replace multichannel banking. It is a concept that enhances the banking practice in favor of the “modern” customer’s expectations that today interact and not simply transact with a financial institution. Transition to Omni-channel banking strategy is no simple task. To do so, it is time for the banks to leave behind, bureaucratic, heavy and cumbersome organizational structures, and transform from a bank-centric to a client-centric business model. Customer centricity can be defined as a way of banking based on trust and fairness that uses knowledge of customers to meet their needs and achieve sustainable, valuable, long-term relationships (Boston Consulting Group, 2012). In its simplest form, customer centricity means to make decisions around what is best for the customers (Kingsnorth, 2016).

Celent, a research and advisory firm member of the Oliver Wyman Group, after surveying 112 top North American Financial Institutions solidly identified that improving sales results is no longer the priority. Instead, improving customer relationships is their top retail banking strategic priority. Despite the fact that financial institutions recognize that Omni-channel

experience is essential for improving customer experience that delivers on key strategic priorities (4.1 on a 5.0 importance scale), fully half of surveyed institutions have not begun substantive efforts and have no strategy yet to meet with the activity it merits (Celent, 2017).



**Table 1.** Omni-channel Readiness (Celent, Industry Trends, February 2017)

### 2.3.2 Omni-channel Experience. A real life scenario

Suppose bank customer X, recently changed job and moved to a different city. Allowing few weeks to be settled, customer X now goes online and starts to search for a mortgage through a range of loans from different banks, while at the same time seeks for advice and suggestions from his social network.

The next day, customer X on his way to work, needs cash and uses his phone to track the nearest ATM machine of his bank. When he arrives at the ATM closer to him and begins the transaction, the bank takes note of his presence. The bank, already acknowledges that the day before, customer X had logged in his account and made queries for a mortgage and sends an sms message that informs him for a competitive offer for a home mortgage. The bank picks customer's X interest.

When customer X arrives at his work, he decides to apply for the mortgage, so he uses his desktop computer to access the bank's webpage and starts the application process. However, as work keeps him distracted, he never manages to complete the application and he stops the process midstream. Later that night, as he goes through his smartphone he notices the sms again and decides to go back on-line and uses his tablet to access the banks web page and start over the application process. To his surprise, when he logs into his accounts again the electronic system has saved the data already field this morning and allows to him to complete the form without having to start from the beginning.

At the end of the process, customer X realizes that applying for a mortgage is an important and a life-time decision since it involves a long-term financial commitment and decides that he needs to fully understand in detail the terms of the mortgage. As he remains logged-in, he requests for a meeting with a mortgage advisor to answer his questions. He, therefore, schedules a meeting at the desired time and branch location.

At the day of the appointment, beacon technology alerts the bank advisor that customer X has entered the store while instantly the advisor receives a 360-degree customer view information about the purpose of his visit, his financial information etc. At the same time, customer X receives an automated greeting notification, making him feel comfortable and acknowledged and he knows that he is about to begin the meeting. When the meeting starts, the advisor turns on a large screen and presents to customer X the bank's offer and discuss the mortgage details, answering questions, comparing what-if scenarios, estimating costs and rates while the screen displays the relative information. Visual presentation allows customer X to come to an easy decision while the mortgage advisor transmits an electronic document for the customer to sign.



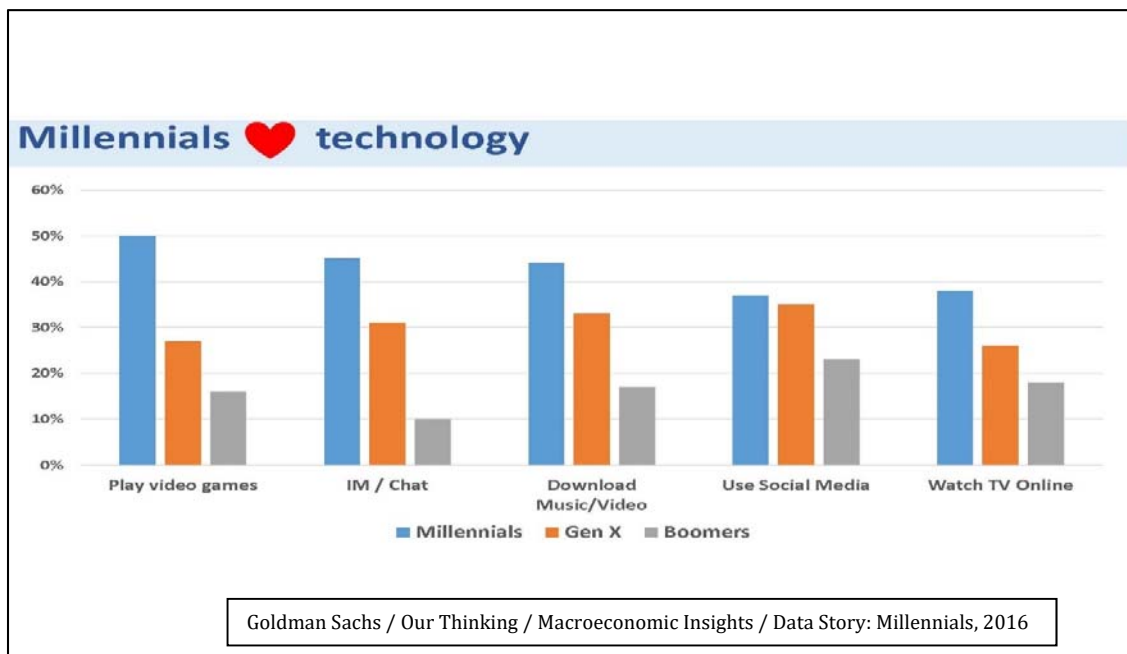
The above described scenario could happen today. It is essential for financial institutions to integrate their offered services and embrace Omni-channel customer experience. The efficacy of customer journeys can surely improve customer retention and profitability and this can be achieved through the delivery of seamless experiences across different banking channels.

# Chapter 3

## Embracing Digital Transformation

### 3.1 The Digital Natives

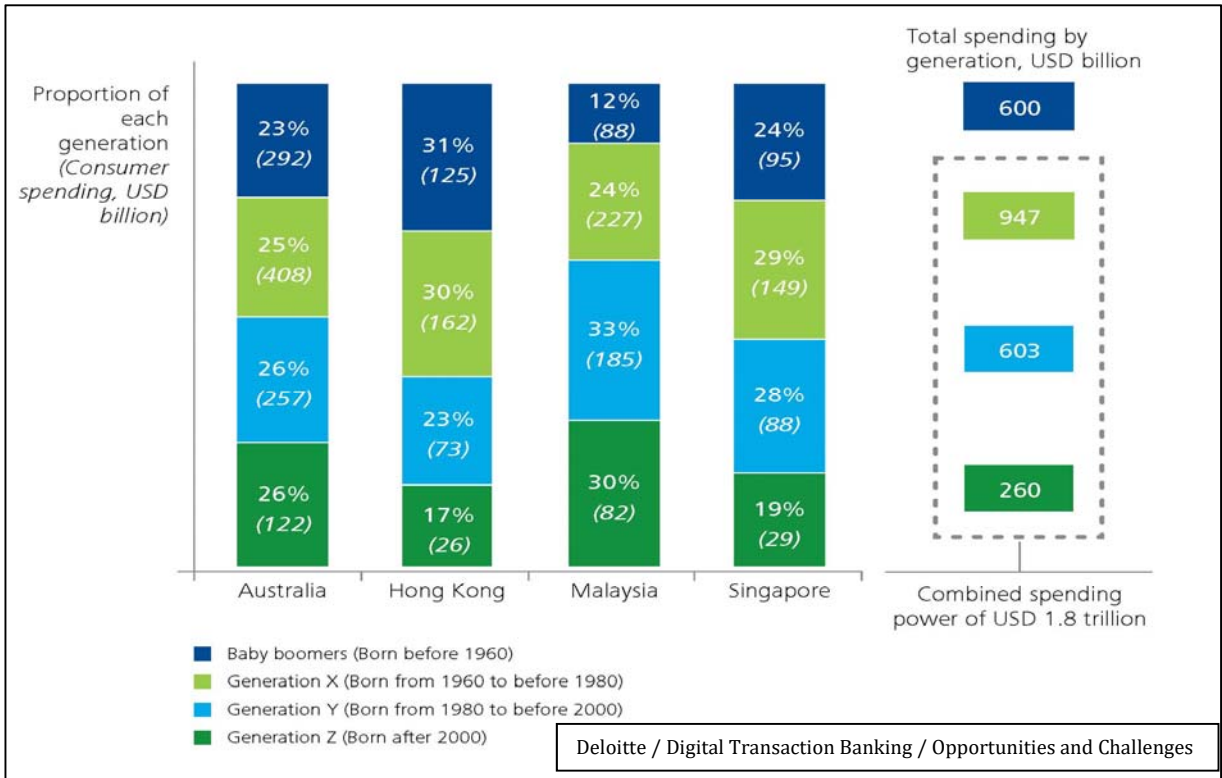
We now live in the era of digitization, where major transformations are taking place in relation to the ways we interact, communicate, entertain or generally speaking the way we live our everyday lives. Today's world is inhabited by the digital natives, the Generation Y and Generation Z population. According to the majority of researchers and demographers, by the term Generation Y or Millennials, we refer to the population that was born between the early 1980s and late 1990s. Population belonging to this cohort grew up in modern homes where desktop computers became a necessity while there was an almost unlimited television channel offering for any taste or type of personal preferences.



**Table 2:** Millennials have grown-up in an always-on digital world

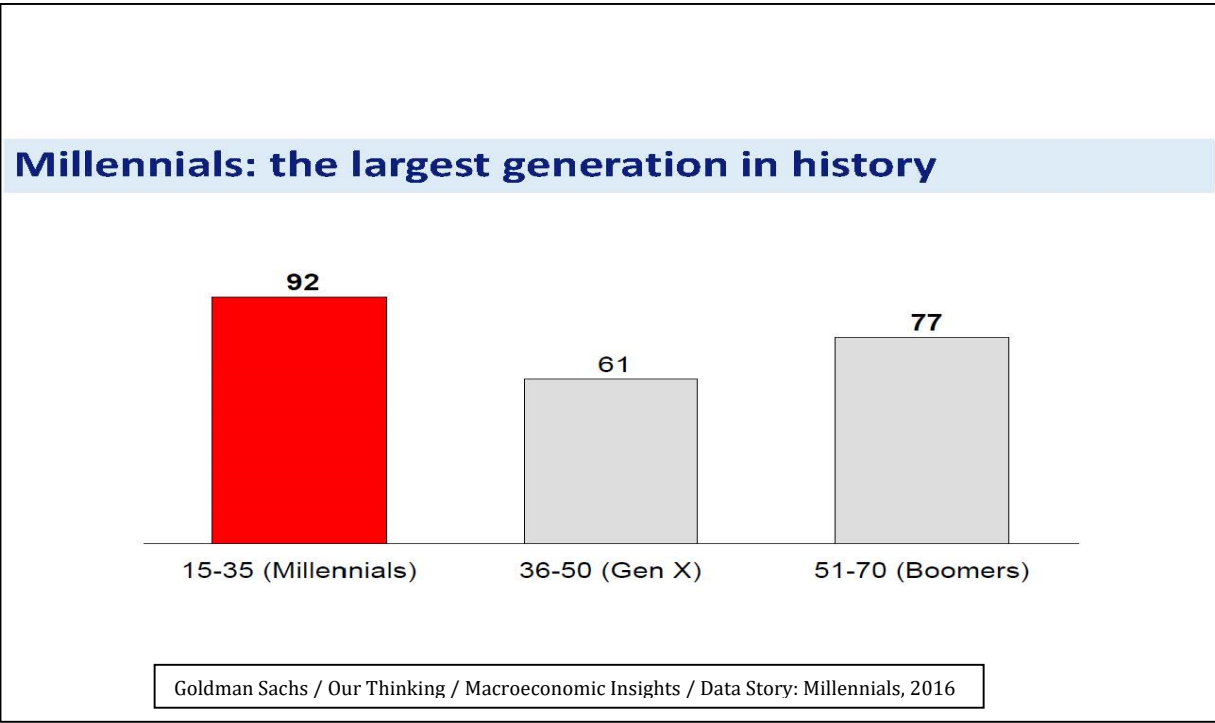
Generation Z refers to the population that was born in the early 2000s and later, that throughout their lives they have enjoyed unlimited internet access, accompanied with flourishing communication and media technologies, such as instant messaging, mobile phones, social media platforms etc. At the same time Generation X population, that refers to the population born in-between the early 1960s and late 1970s, is constantly adopting new technologies and transform into being digital-savvy as well. Eventually, the majority of the population is expected to be technologically adept by 2025 (Deloitte, 2014).

Apart from realizing that the general population behavior shifts towards modern technology and its implications, it is essential to analyze what is the spending power of the digital native population. Deloitte estimates that the total spending power of end-consumers in Australia, Hong Kong, Malaysia and Singapore to be approximately USD 2.35 trillion by the year 2025. Among the consumers, Generations X, Y, and Z will account for 75% of the total spending power.



**Figure 2:** Demographic Breakdown Size and Consumer Spending by Generation, 2025

As someone can easily understand, our world is rapidly changing and one of the fundamental issues that drive the change is the Millennials. It is the first digital generation, that encountered unique life experiences and altered the way we consume, communicate, work and how we live. At the same time, according to the Us Censor report in 2016, as of today, the Millennial generation is the biggest in the US history thus the banking ecosystem will eventually evolve in order to meet their expectations.



**Table 3:** Millennials: The greatest generation in history

### 3.2 Forces of Digital Transformation

Digital transformation is already happening and it is of vital importance for banks and financial institutions to learn about, interact with and satisfy customers. According to 2015 Deutsche Bank’s study, Digital Transformation is driven by three major forces:

#### A. Customer experience

Banking industry customers dictate the change to digitalization. They already have adopted to the new digital environment that provides customization of products and efficiency of services, in a flexible and reliable manner for the consumers. They expect a multichannel availability and it is essential for banks to ensure that customer experience is seamless, integrated and support is being provided whenever and wherever it is needed. Customers judge their experience in different levels and bank institutions should address issues such as: how well customer needs are met, how convenient is for customers to interact with them and how enjoyable their experience is. Therefore, it is of vital importance for banks to leverage their existing service models in order to meet the modern customer's changing needs and expectations.

#### B. Technology push

Digital technology is rapidly evolving and massively expands its influence over the global population. Billions of customers have unlimited options for affordable high-end technology devices, with extraordinary performance when compared to recent past devices. People are always connected on the web, producing an overwhelming amount of consumer data related to their needs and preferences.

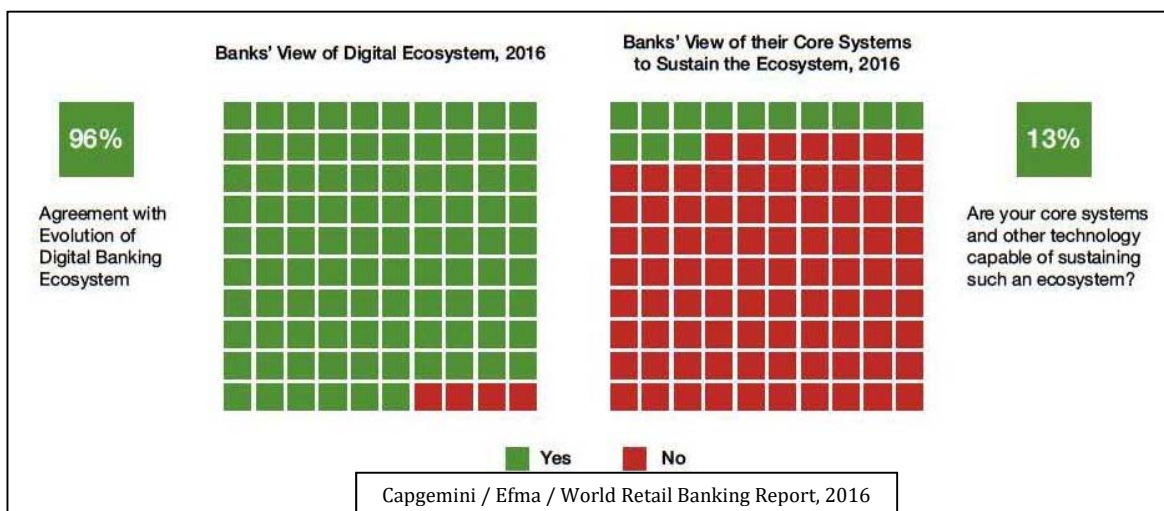
#### C. Economic benefits

Digitization can have a positive impact on economic growth and at the same time, it can create new job offerings. It allows companies to minimize costs that in turn will generate extra revenue. By digitizing, information – intensive processes can be of immense benefit to a banking institution's performance. Costs can be reduced by up to 90 percent and turnaround times improve by several orders of magnitude. For instance, a bank digitized its mortgage application and decision process, cutting the cost per new mortgage by 70 percent simultaneously drastically reducing time for preliminary approval from several days to just one minute (Digital McKinsey, 2014)



### 3.3 Traits of Successful Digital Enterprises

The financial banking eco-system is being ridden and disrupted, facing the uncertainty of coping with a new era of unprecedented change. New reality dictates to increase focus on innovation while at the same time Fintech firms are highly aggressive and keen on disrupting several aspects of the banking sector. Executives acknowledge that in order to remain competitive must commit to transform into fully-digitized organizations and also that the pace of change is constantly accelerating. At the same time, as per the 2016 Capgemini Banking Executive Interview Survey, executives agree that the majority of banks do not have the core systems capable enough to sustain such an ecosystem.



**Figure 3:** Banks' view of Digital Ecosystem and their Core Systems' Capability (%), 2016

According to a 2015 White Paper from Deutsche Bank (Deutsche Bank, 2017), successful digital enterprises share seven traits:

1. An obsession with customer experience. They constantly try to improve the experience and learn from every interaction.

2. They are unreasonably aspirational. Make people accountable and create “stretch visions”.
3. They seek and cultivate the digital talent within the organization. They care for and encourage digital initiatives.
4. They acquire new capabilities, by hiring digital skills and not industry experience.
5. They are quick, data-driven and embrace testing in order to increase innovation.
6. They create value by reducing the cost of business (e.g. optimize back office functions) and not just finding new revenue streams.
7. Leaders of established and legacy companies must aggressively challenge the status quo rather than accept historical norms.

## **3.4 Implementing Digital Transformation**

According to ATKearny the implementation of digital transformation strategies should be based on three dimensions:

### **A. Client Centricity**

Client centricity is a way of banking based on trust and fairness that uses knowledge of customers to meet their needs and achieve sustainable, valuable, long-term relationships (BCG, 2012).

Banking institutions today do not know their customers very well. They pose a simplistic understanding of customers while at the same time offer vast product sets that frequently can confuse customers and build up complexities and possibly anxiety in their banking interactions. However, the future of retail banking dictates that institutions must develop a much more consistent understanding of their customers, simplify their products and at the same time exceed their expectations, yet minimizing business operational risk.

Clients must become the center of the banks. Similar to other digitally mature industries e.g. the airline industry, clients of banking institutions demand convenience, simplicity, and accessibility. It is of vital importance to cultivate existing processes and develop new that can anticipate customers' needs. For instance, while analyzing a customer's account and observe that his monthly salary deposit has increased, a bank note congratulating the customer on his raise along with an offer for a premium credit card could possibly exceed the customers' expectations, resulting in greater levels of customer engagement and loyalty.

Therefore, it is of vital importance for banking organizations to develop a deeper and enhanced understanding of their customers by integrating and analyzing data that can be found both from internal and external sources. The objective is to move closer to customers' expectations, anticipate their needs and this implies that core banking processes must be redesigned from a customer point of view.

#### B. Open Innovation

Innovation is about doing things differently. However, banking institutions are not well-known about their openness on this matter. Although the sector seems to be in search of new ideas for products and processes, banks can be characterized as bureaucratic, organized in cumbersome silos holding back incentives and initiatives to innovation.

To succeed as innovators, banking institutions need to take more of an innovative mindset. They need to be organized and managed differently, protecting and enabling talent, becoming agile in their development process and being open to partnerships with external financial entities (PWC, 2014).

#### C. Organizational Flexibility

Organizational flexibility is at the core of a digitally transforming bank. Generally speaking, banks have traditionally been an integrated business environment developed however upon rather complex and costly operational models. In a drastically changing ecosystem, where customers demand convenience, efficiency, innovative and effective products, it is crucial

for institutions to be agile enough to cope with the new business environmental challenges. Reviewing of plans and/or alterations to task prioritization could be of frequent occurrence. Therefore, the goal is to smoothly adapt to changes in order to remain competitive and align the organization's performance with the customer needs and expectations.

With respect to the organizational flexibility, PwC on its Banking 2020 survey, suggests that products, channels, organization and operations must all simplify and change. As a matter of fact, 53% out of 560 executives interviewed, believe that simplification of tasks is very important both internally and externally. From an internal perspective, they believe that banks must simplify their technology, processes and back – office operations and from a customer perspective, they suggest simplifying products, channels and prices. The survey showed that 70% are bind to some level of investment of simplification while 17% feel well –prepared (PwC, 2014).

# Chapter 4

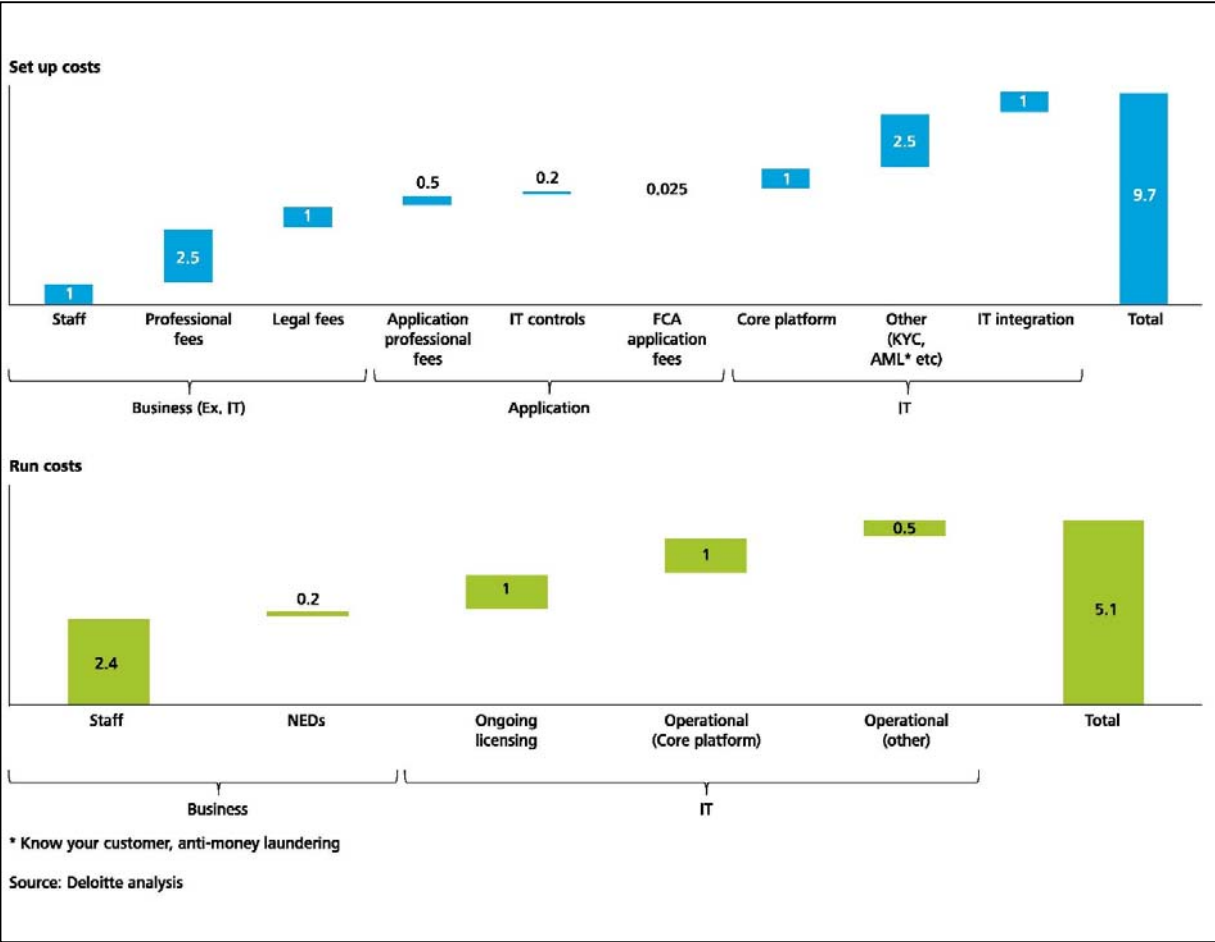
## Disruptive Forces in Banking

In the recent past, the banking industry used to be a rather protected financial market and great barriers to entry existed. A new entrant in the market would have to go through a uniquely complicated process that involves dealing with licensure laws, regulatory compliance, security concerns. This process can be very frustrating and time consuming, not to mention the vast capital amount requirements. At the same time, great capital investment is required to set up and start running the new entrant's IT systems, that account for up two-thirds of all start-up costs (Office of Fair Trading, 2010). The next step involves the development of the bank's branch network that will be used for serving its customers but attracting and developing a new customer base surely is no easy task.

Consequently, for a spanning period over three decades, the banking sector enjoyed high profitability rates. In the period 1980 – 2007, banks earned a high average annual return on equity (RoE) 16%, both in comparison to historical levels and relatively to other industries (Temenos, 2012).

Today's reality, however, has drastically altered the status quo of the banking sector and technological developments play a critical role in lowering the barriers to entry. As it is illustrated in Table 4 on the next page, Deloitte assesses that it can cost less than £10mn to set up a relatively simple small bank, and just £5mn per annum to run it on an ongoing basis thanks to the off-the-shelf software and the use of cloud computing (Deloitte, 2014). Another important factor that also has affected the barriers to entry in relation to the European Union banking sector, is the development of Transparent Deposit Guarantee Schemes. It is evidence that deposits held by banking institutions of the EU member states are guaranteed up to the amount of 100.000€ per depositor (Europa.eu, 2017). As a result, incumbent and established financial institutions have lost their competitive advantage in relation to security concerns

of depositors since the majority of retail customers have minimized the risk of losing their deposits irrespectively of the financial institution that is being held. At the same time, the logical conclusion for new or niche banks that possibly lack the brand strength and recognition is that they are given the opportunity to freely compete against well-established financial institutions. Most importantly, however, the role of technological change is critical.



**Table 4.** Indicative Costs for a New Bank (£mn)

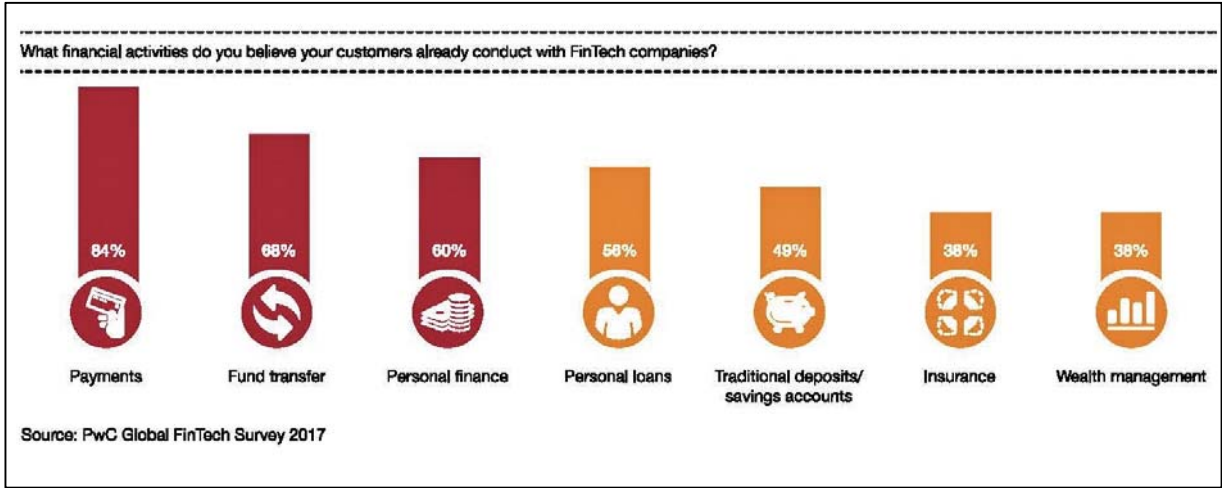
### 4.1 Financial Technology Firms (Fintech)

The internet and mobile devices have become the core elements of our lifestyle and undoubtedly have affected every area of business operations. The financial services industry consists no exception. The digital transformation has altered the way modern customers access financial products and services and there is a continuous penetration of technological

innovative applications in nearly every aspect of financial interactions. The mixture between finance and technology has created a new reality in the financial ecosystem that accelerates the pace of change at a remarkable rate and at the same time transform the industry's stature. The birth and rise of Fintech is already present.

According to PwC, Fintech is a dynamic segment at the intersection of the financial services and technology sectors where technology-focused start-ups and new market entrants innovate the product and services currently provided by the traditional financial services industry (PwC Global Fintech Report,2016).

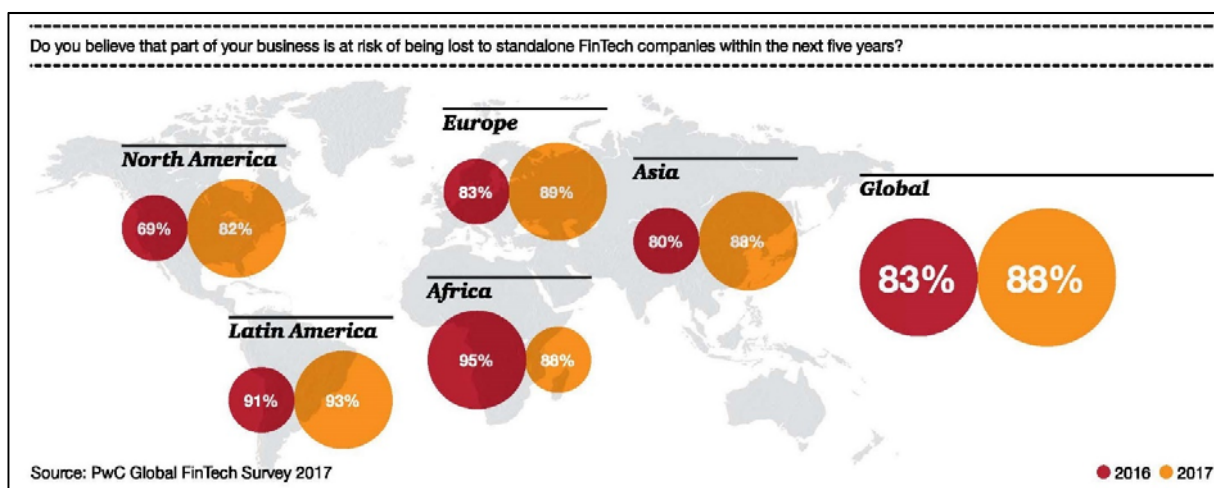
As of today, new digital technologies are gradually reforming the value proposition of existing financial products and services. According to PwC Global Fintech Report, the disruption of the financial sector is clearly underway and as far as consumer banking and payments are concerned, the survey projects that up to 28% of these particular financial activities will be most exposed by the year 2020 (PwC Global Fintech Report, 2016). More consumers will connect to non-traditional Financial Services providers. Early adopters will most often conduct payment and money transfer interactions with Fintechs while personal finance will emerge as the next most populous activity at risk (PwC Global Fintech Report, 2017).



**Figure 4.** Financial Activities Conducted with Fintech Companies

## 4.2 Areas of disruption

There is no argue that the pace of change in the Financial Service reality is gradually increasing and in order to remain competitive and sustainable, the industry must react. DeNovo’s monthly consumer survey indicated that although 30% of consumers plan to increase their usage of non-traditional Financial Services, only 39% plan to continue using solely traditional service providers (Global Fintech Report, 2017). This new reality has been well-recognized by incumbents Financial Service providers since the vast majority (88%) believe that part of their business is at risk of being lost to stand alone Fintech companies within the next five years.



**Figure 5.** Percentage of incumbents who believe part of their business is at risk

As in any modern business environment, there are four common technological trends that create the path to digital transformation. The effects of these trends also impact the Financial Services sector as well, exposing to risk the existing business operational models and threatening the industry’s profitability potential. These four trends consist a meeting of four great forces in technology which have led to a great deal of business change. This combination of the four forces has created the Gartner’s “Nexus of Forces” concept, that identifies the following principal technological trends.



- **Cloud**

The US National Institute of Standards and Technology (NIST) defines *cloud computing* as “a pay-per-use” model for enabling available, convenient, on-demand network access to a shared pool of configurable computing resources, for example network, servers, storage, application and services, that can be rapidly provisioned and released with minimal management effort or service provider interaction (Garg, 2011). The application of cloud computing in financial services allows firms to share IT costs thus allowing to operate profitably at much lower levels of scale and as previously mentioned limiting the barriers to entry the industry.

- **Big Data**

The increasing use of technological devices and networks and the digitization of processes generate vast quantities of data in a daily basis. As a matter of fact, it has been estimated that, the amount of data produced is being doubled every two years and it is expected to increase from 4.4 zettabytes in 2013 to 40 zettabytes in 2020. These “big data” are being produced constantly by millions of people from their daily economic and social interactions. For many financial institutions improving data analytics is a high priority. Capturing, screening and analyzing large amounts of data of their customers, is a critical process to detect patterns or possible correlations, in order to improve customer relationship management capabilities which can be the key to increasing system performance and profitability. Big data has been used in the past from banks in order to produce credit scores of their customers. However improved data analytics can deliver insights of customer behavior that can be used to enhance customer targeting and improve customer satisfaction. As a matter of fact, 60% of financial institutions in North America believe that big data analytics offers a significant competitive advantage and 90% think that successful big data initiatives will define the winners in the future (Capgemini, 2014).

- **Mobile**

It is evident that banking sector is undergoing into massive transformation. One of the major factors influencing this transformation, is the advances in mobile technology and the continuous proliferation in the use of mobile devices. These advances have rendered banking services accessible in an anytime-anywhere basis through different channels and through an increasing number of financial apps. As a result, it's mass adaptation threatens the status quo in the banking sector, easily allowing for new entrants to disrupt the market while digital only financial institutions with no solid branches have already become a reality. This results in fewer trips to the bank branches posing a threat in respect of losing the end customer contact and be superseded by digital wallet and other front end financial applications.

- **Social Media**

Of all the recent technological advances, it can be argued that social media have the greatest impact on the way we interact and the way we do business. Social platforms like Twitter and Facebook have changed the way people communicate. They have certainly altered several aspects of the business environment related to the way businesses conduct commerce, interact with their customers, promote their products and promote brand identity, to name just a few. Embedding more of a social context into banking can help in the first place to restore personal interaction through social communication as modern consumer tends to avoid bank branch visits. Moreover, customer service is being massively transformed whereas, in September 2014, Econsultancy compared the response rates of 16 banks on social media in the UK. The quickest response time was three minutes, and the longest one was one hour and twenty-four minutes (Eldridge, 2016). Such practices promote customer understanding and satisfaction whilst consumer feel more connected which in turn increases customer engagement. However, social media has produced an upheaval in traditional banking operations where Fintechs and start-ups seized the opportunity, exploit share of information among users and successfully deliver banking products such as p2p (peer-to-peer) lending or social investment networks.

Although it is highly unlikely that banking institutions will be overtaken by Fintech and new entrants, these technological changes are the foundation of the digital transformation in banking, having a lasting and profound effect on traditional banking interactions. The modern technology trends not only have enabled customers to be highly informed, connected and be demanding more than ever before, but also has reduced the barriers to enter the industry leaving plenty of room for competition.

### **4.2.1. Disruptive trends in the banking sector**

The areas of financial services being disrupted can be mainly recognized in peer-to-peer lending, social investment networks, personal financial management and customer insights. Some typical examples of highly performing Fintechs are presented below.

- **Lending Club**

Lending Club is a Fintech company that provides peer-to-peer loans to individuals and to small and medium sized enterprises (SME) over fixed periods of 36 or 60 months. Peer-to-peer lending is the practice of lending money to unrelated individuals, or peers, without going through a traditional financial intermediary such as a bank or other established financial institution (Barnes, 2017).

The company operates on a notary business model and the whole lending process takes place on its on-line platform. The platform operates as an interactive marketplace linking able lenders with suitably appropriate borrowers using credit checking tools. Lending Club offers loans from \$1,000 to \$35,000 for individuals and from \$15,000 to \$300,000 to businesses while loan issuance, as of 31/03/2017, totaled 26 billion USD (Lending Club, 2017).

Peer-to-peer lending has been recognized as an improved and efficient lending and borrowing process that avoids unnecessary frictions of traditional banking services, disrupting the system at its very core.

- **Square**

Square is a financial services company that was founded in 2009 in San Francisco and it is a typical example of how conventional banking is being threatened by outsiders. The company enables individuals and small businesses to accept card payments through the use of their mobile or tablet. A small device, the Square Reader, plugs into the microphone port of mobile devices and allows a merchant to swipe or tap a card and accept payment cost efficiently and on an anywhere and anytime basis.

Apart from the Reader, Square provides several other features to small businesses such as the Square Stand, a fully integrated Point-Of-Sale system (POS), Square Capital that offers financing services to the company's clients and as well as an analytics dashboard that offers real time information about sales, inventory, matrices for comparing performance and improving decision making.

Today Square, serves more than two million small business and individuals in the US and processes more than 15 billion USD in annual payments (Temenos,2014).

- **Lenddo**

Lenddo, a Singapore-based service company, is an innovative financial enterprise that was developed in order to fill the gap of providing lending services to people that although are well-educated, hardworking and their income level is steadily increasing, but have sparse credit histories and it is hard to be qualified for loans. Its vision is to increase financial inclusion in developing countries around the world where financial records are limited but social data is prevalent.

The company uses social data in order to create individual credit scores and link lenders with trustworthy borrowers. In more details, applicants give their consent to Lenddo to access their digital footprints on smart phones and their internet activities in order to better understand who they are and their attitudes towards credit and transform social media interactions into a rich relationship. Formulated algorithms translate non-traditional data like browsing behavior, geolocation, social circles, information that when appropriately

assessed can be proved to be highly predictive about a persons' creditworthiness. The company analyzes more than 12,000 variables to generate a credit score in less than three minutes. Today Lenddo works with 50 partners across 20 countries.

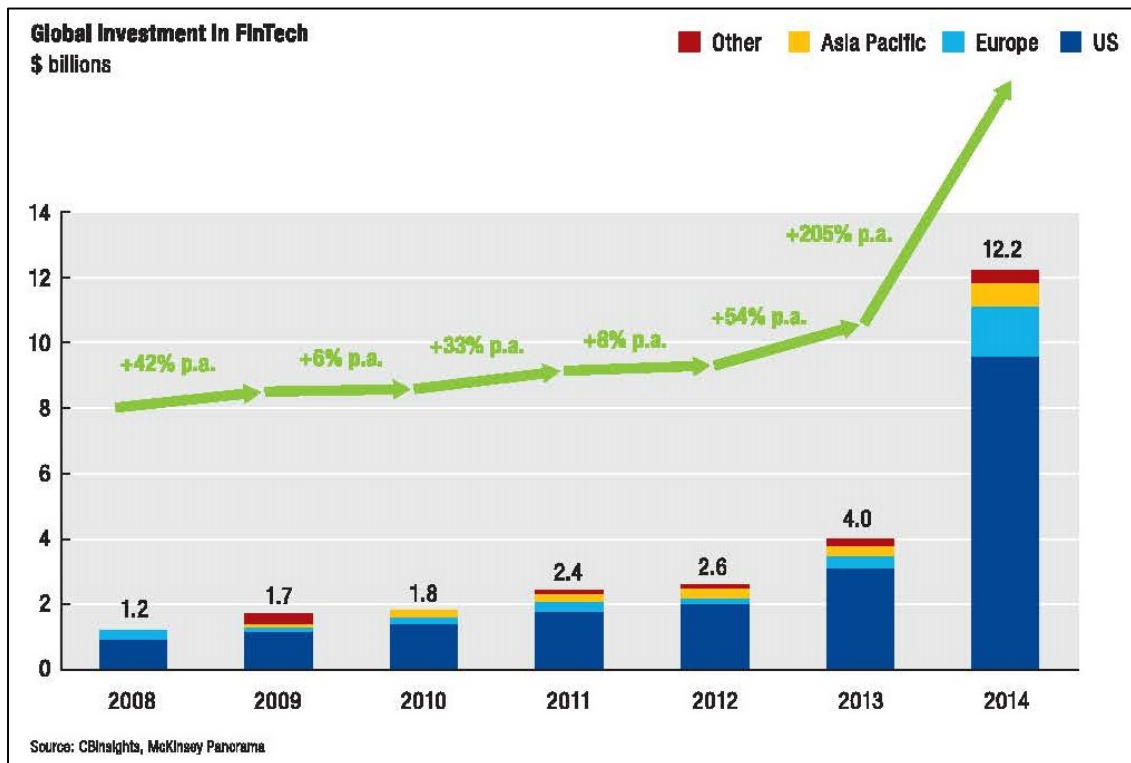
### **4.3 Challenges for banks in the digital era**

The recent technological developments have already transformed industries like retailing, music and video, travel and leisure while the effects on the financial sector are already visible. For years, protective barriers existed that prevented competitors to enter the market, such as strict regulations and the trusted, long term relations of banking institutions with its client basis. Thus any initiatives, especially from non-banks, were rapidly diminished.

However, the new digital trends in society along with the ever demanding customer expectations have allowed for Fintech to become more compelling and have generated the potential to deteriorate the protective moat of the sector. As a result, the greater the clarity over the regulations and policies that govern Fintech firms, the greater their impact to the financial sector will be. In addition, the use of leading edge-technology, the use of agile processes and innovation and the focus on customer satisfaction, consists their competitive advantage that disrupts the sector and offers a great opportunity to attract customers from well-established financial institutions.

The banking industry is increasingly being challenged by digital disruption that poses a significant threat to banks of all sizes. At the same time Fintech investments have grown exponentially in recent years. In more details, investment in private Fintech companies has increased 10 times in the past 5 years, reaching 19\$ billion in 2015, a two-thirds increase compared to the \$12 billion capital investment in 2014 while a low single-digit billions of dollars of investment per year, existed earlier in the decade (Citi GPS, 2016). Furthermore, a 2015 Goldman Sachs research report, estimated that \$4.7 trillion out of \$13.7 trillion on traditional financial services revenue was at risk due to new entrants in the lending, wealth management and payments space (Gartner, 2016). Similarly, a 2015 McKinsey report suggested that as much as 40 percent of revenues and up to 60 percent of the profits in retail

banking businesses (consumer finance, mortgages, small business lending, retail payments and wealth management) were at risk, due to dwindling margins and competition from Fintech startups targeting origination and sales, the customer-facing side of the bank (McKinsey, 2015).



**Table 5.** Global Investment in Fintech (\$bl)

As someone can easily understand, new entrants in markets imply, in the best case, a warning sign for the traditional competitors while in the worst scenario, a threat for maintaining or increasing market share. In the case of the banking sector, while some banks perceive the rise of Fintechs to be strong competitors, a majority of them begin to perceive their development as an enhancement of the industry and it seems that close collaboration between banks and Fintech forms is rapidly gathering pace. It has been estimated that more than three-quarters (78%) of traditional financial institutions are now actively seeking partnership with Fintechs in order to create digitally – based services and applications for customers, and believe that collaborating with Fintechs will help them to achieve their goals faster and more cost effectively (ACI Worldwide, 2017).

Whether the relationship between Fintech start-ups and incumbent banks will be more one of a competition or that of collaboration, is being frequently argued among financial specialists. The modern practice dictates that both “players” will continue to compete over customer experience and customer relationships but ultimately collaboration will be the dominant trend, as Fintech moves into content and platform innovation.

#### **4.4 Why Fintech needs banks**

Customers are open to change more than ever before. Financial digital products are being developed constantly and the share of mobile banking is increasing rapidly. Although Fintech companies provide alternative solutions and business models that could potentially render traditional banking processes obsolete, the challenges they face are not to be ignored by their executives.

The first challenge is scale. The majority of Fintech companies concentrate on the unbundling of a bank and then they focus on one or two areas that lack modern user friendly financial substantiality. They exploit the existence of obsolete processes and deliver core competencies based upon providing savvy digital solutions, however, to very limited range of financial products. In order to make the return on investment to their mono-liner product strategy work, their offering services should be ramped up to millions of customers or transactions, a rather difficult task for start-ups that lack both capital and strong brand name recognition. At the same time overly aggressive business plans may fail on consumers’ expectation as in the case of the German fist digital bank, Number26, that lacked the necessary power to achieve the scale of economics of their offering of free services. As a result, the bank had to start closing customer’s accounts causing an uproar on social – media while the company was blamed for poor communication. As it is easily understood, earning the trust of customers as a financial partner, is merely very difficult to achieve.

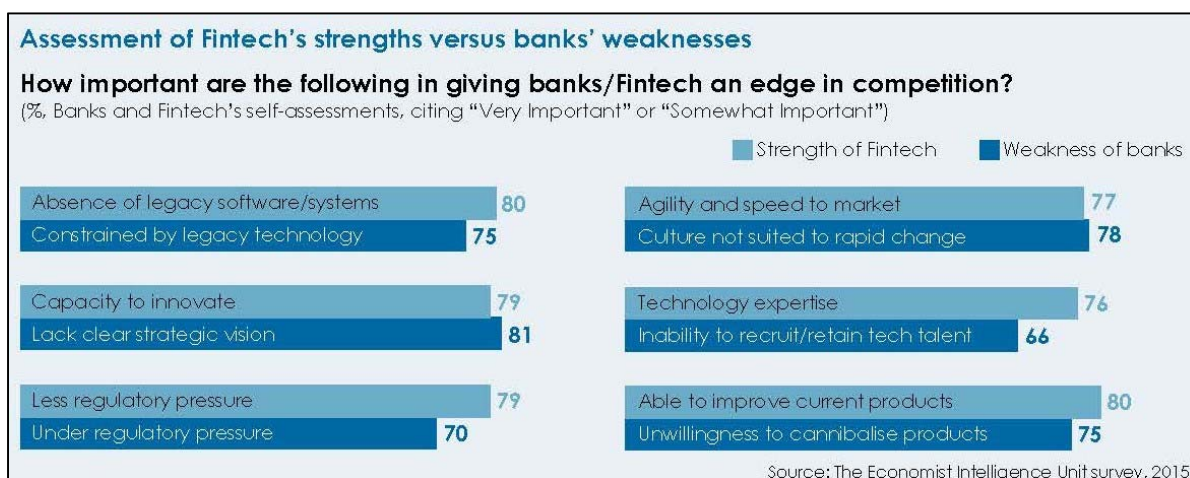
Another challenge is time. Fintech often operate under a short-term capital model that usually capital is provided under a three or four-year investment plan. Given the vigilance nature of the Fintech marketplace, it is crucial for start-ups to establish an adequate customer base, as soon as possible. At the same time, facing fierce competition among the

Fintech start-ups is another challenge that needs to be addressed. Numerous of new firms jump out of every corner striving for banking customers, meaning that “players” will need every advantage to become a winner in the Fintechs’ highly competitive market. After all, not every start-up will succeed with its idea on the market in the long term. Last but not least, lack of regulatory expertise of Fintechs is a challenge that can be addressed when partnering with Banks. Banks have become proficient in the field of risk management, ensuring data protection and they have already developed the technology and know-how to support these capabilities.

Generally speaking, Fintech companies and Banks are in need of one another. The reason is, that each participant needs what the other has, but has found it extremely hard to replicate. The “industrialists” need innovation and the “innovators” needs industrialization (Citigroup, 2016).

## 4.5 Fintech and Bank Collaboration

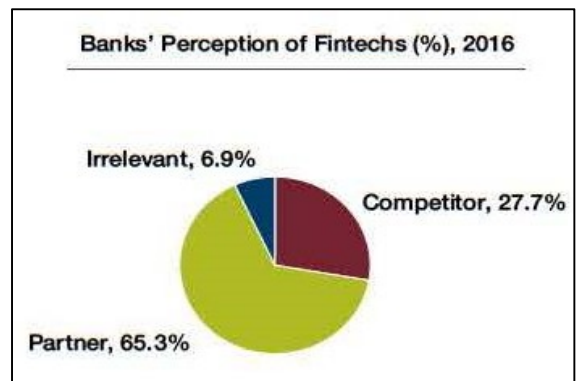
Banking institutions and Fintech firms have more business interest in common than issues that divide them. It could be argued that there is a noticeable balance between the strengths of banks and the weaknesses of Fintech and conversely. Fintech firms excel in their ability to be agile, to innovate and to deliver high-end technology while the banks have capital, extensive customer base and expertise in dealing with regulators. The following table from the Economist Intelligent Unit Report clearly demonstrates the remarkable match of Fintech’s strength versus banks’ weaknesses (The Economist, 2015)



**Figure 6.** Assessment of Fintech's strengths versus bank's weaknesses



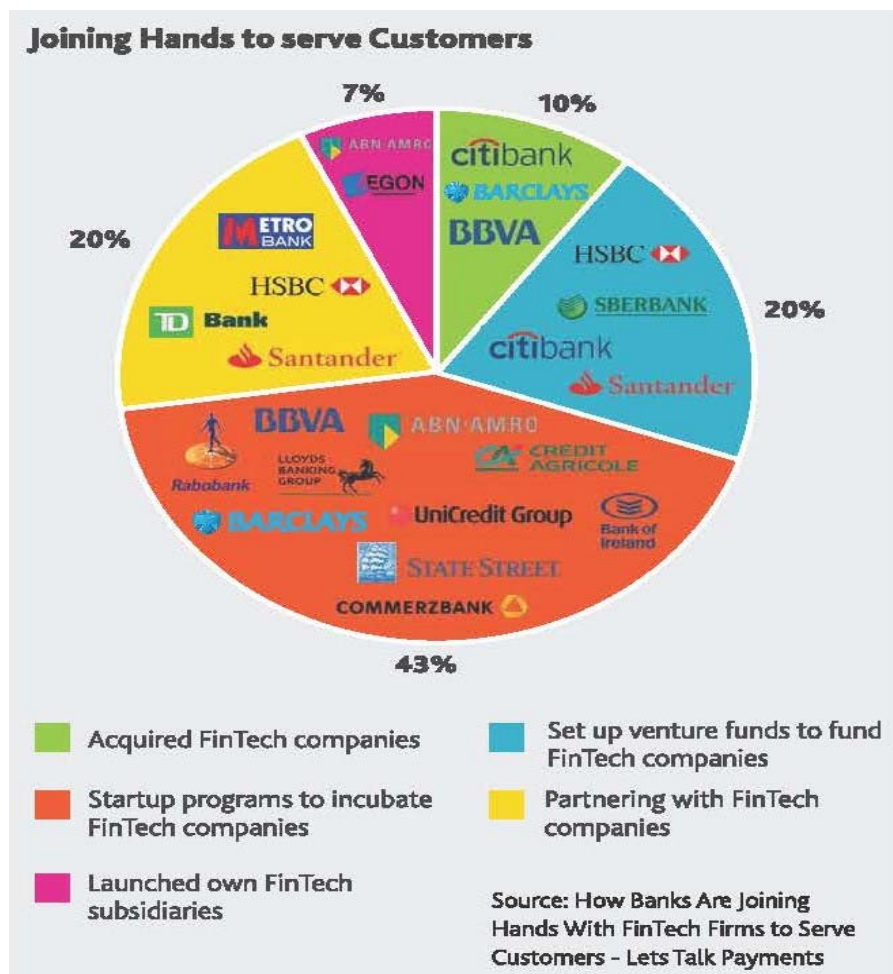
The dramatic changes in the banking financial ecosystem caused by Fintech firms have driven the need for banking institutions to explore new approaches to innovation. This, in turn, includes collaboration, incubation and acquisition. As a matter of fact, according to Capgemini Analysis, nearly two-thirds of banks (65,3%) say that they view Fintech firms as partners, a striking level of acceptance, given the historical perception of Fintech as a disruptive element. Partnering comes with a range of benefits for all of these organizations and this shift reflects the reality that each side offers something to the other. Fintech seek from Banks financial guidance and look for access to a broad customer base, whereas traditional banking institutions are eager to work with Fintech companies in order to enhance existing and develop new applications and generate new revenue streams (Capgemini, 2016). Furthermore, the Fintech Disruptors Report in 2017, suggests that traditional players and Fintechs have realized that neither can win in isolation and that collaboration is the way forward for those they want to succeed. Businesses that are ready to adapt to the new terms of the alliance will share the rich rewards to be won from combining institutional scale with entrepreneurial agility (Fintech Disruptors Report, 2017).



**Figure 7.** Bank's Perception of Fintechs

### 4.5.1. Collaboration Models

The new emerging era of digital transformation in the banking ecosystem is being cultivated by the new entrants in the sector. As we proceed through this new reality, it can be clearly recognized the ongoing alignment of objectives, strategic approaches and goals of Fintech innovators with the established banking institutions.



**Figure 8.** How Banks Collaborate with Fintechs

○ **Incubation**

One of the most widespread collaboration model is the utilization of startup incubator or accelerators programs oriented towards the further development of Fintech firms. Such programs usually provide mentoring, legal, marketing or technological support and even direct investments to the participants. An example of this program is Barclays Rise initiative where chosen Fintech firms participating in the program are offered data, advice, connections and mentorship. In return, Barclays gets the benefits of these companies, being literally injected into the organization and changing the DNA of the firm. It was found that it is three times cheaper and five times faster for Barclays to work with Fintech companies in order to find solutions to problems than dealing with problems directly on their own (Crowe, 2015). Another example is the Incubator Innovation (IN<sup>2</sup>) program of Wells Fargo, that

recently announced a \$20 million expansion of the program, now totaling \$30 million that advances emerging clean technologies and start-up companies (Nasdaq, 2017)

- **Venture Funds**

Another way of collaboration is the development of Corporate Venture Funds. Venture funds have rapid processes, are more agile and flexible and generally speaking, a cheaper alternative than the traditional Research and Development internal processes (R & D), to help a firm respond to changes in technologies and business models. A representative example for this type of collaboration is the Spanish banking group Santander Group, that through its London based Fintech venture capital fund *Santander Innoventures*, the fund is now set to deploy a total of \$200 million (up from the \$100 originally allocated) in Fintech start-ups. Santander says this “highlights” its goal of remaining at the forefront of innovation in the financial services industry, and builds on the banks “Fintech 2.0” philosophy of collaboration and partnership with small and start-up companies (Peyton, 2016).

- **Partnership agreements**

A third form of collaboration between banks and Fintech companies, is a partnership agreement that it is made for the use and integration of a particular service or solution developed by the Fintech firm. Compared to venture funds or incubators, this type of practice proves full commitment and trust of Banks towards a specific technology a Fintech firm provides. A typical example for this type of collaboration is the case of ING Bank with Kabbage Inc., an Atlanta-based firm that grants loans to small businesses in minutes, to extend credit in Spain (Buhayar, 2015). Another example of partnering, is the case of Metro Bank and Zopa a peer-to-peer platform that matches lenders and borrowers directly in a more efficient way than traditional banking along with lower fees (Dunkley, 2015).

- **Acquisition**

Amid the rapid technology driven change that is transforming the banking industry, outright start-up acquisition is another type of indirect collaboration. A notable example of a Fintech’s

acquisition from a traditional bank is the case of BBVA that in 2014 acquired Simple, a US based digital branchless bank.

- **Hackathons**

A rather simpler way for banks to start engaging with Fintechs and try to absorb potential benefits, is the organization of Hackathons and other rewards-based competitions that can leverage the banks brand recognition among the startup community and at the same time deliver new innovative ideas and technology to the financial institutions. An example of this initiative is Eurobank that on March 2017 organized the 2<sup>nd</sup> Fintech regional Competition “Beyond Hackathon” with the aim to encourage, cultivate and promote innovation in the financial services industry. Participating teams will have to develop solutions for issues and challenges that are of direct interest to the bank in order to claim one of the three money prizes of the Competition which is €5000, €3000 and €2000 respectively (Finextra, 2017).

The growing level of partnership between banks and Fintech companies is expected to take many forms. According to Capgemini World Retail Banking Report of 2016, collaboration and investment are high on the list of bank strategies, with 45.5% citing collaboration and 43.6% looking to invest in Fintech firms. The acquisition seems to be less appealing since 17.8% say they plan to acquire Fintech firms or their technology. Virtually all the bankers surveyed agreed that the advance of Fintechs requires action while only 4.0% cited doing nothing as a valid option (Capgemini, 2016).



Figure 9. Strategies to Compete with Fintechs

# Chapter 5

## Digitization in Europe and Greece

### 5.1 The Greek Banking System structure

It is evident that the Greek banking system has been undergoing significant changes. In the past decade, an in-depth restructuring of the system has been taking place originating from the global financial crisis, but mainly due to the Greek crisis and its consequences to the Greek financial sector stability and to the Greek society in general. In more details, since the beginning of the crisis in 2009, the number of Greek bank branches has declined from 4.079 to 2.343 in June 2016, a 42.5% total decline. Albeit to a lesser extent, there has also been a decline in the number of Automated Teller Machines (ATM), that account to a 26% drop, limiting their number to 6.820 in 2015 from 9.170 in 2009. Similarly, the number of bank employees has been reduced by 19.067 persons, limiting their number to 46.615 in June 2016 from 65.682 in 2009, a 29% decline in the total number of banking workforce personnel. As of December 2016, the banking operations of the four systemic banks National Bank of Greece, Alpha Bank, Piraeus Bank, Eurobank along with Attica Bank, cumulatively accounted for more than 95% of the Greek banking system in term of assets, while at the end of 2007 the figure totaled 67,5% for the five banks. Similarly, during the same period, the number of financial institutions operating in Greece declined from 64 to 39 banks, whereas all foreign banks with customer service networks have left the country, except from HSBC (HBA, 2017).

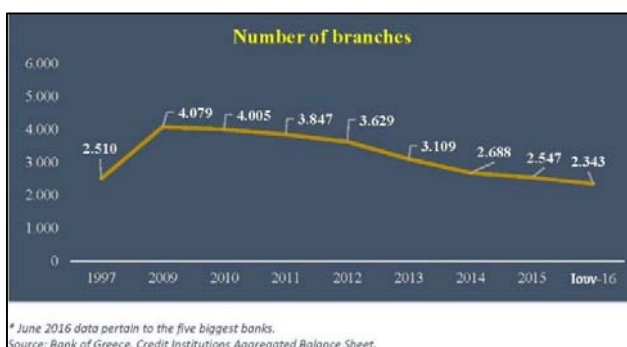


Figure 10. Number of Greek Bank Branches

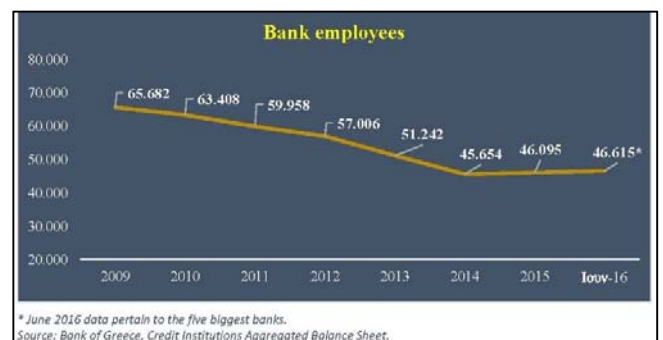


Figure 11. Number of Greek Bank Employees

## 5.2 Trends in the European and Greek Banking Ecosystem

Along with the financial crisis consequences that radically alter the Greek Banking sector, the current technological trends and the shifting consumer expectations also play a significant role to the ever changing environment of the Greek financial market. Undoubtedly, investment in new technologies that is also part of the Greek obligatory restructuring plans fostered by the EU, will lead to the new banking era of digital transformation that modern reality dictates. The path towards digitization is further supported by the European Union strategy of the **Digital Single Market**. The cornerstone was laid by EU's Vice-President Ansip on May 2015, who presented the strategy which aims to open up digital opportunities for people and businesses and enhance Europe's position as a world leader in the digital economy. This will be achieved by tearing down regulatory walls and moving from 28 national markets to a single one. According to the European Commission, a single market could contribute €415 billion per year to the EU economy and create 3.8 million jobs (EBF, 2015).

There is no argue that technology and digital banking operations are radically transforming the financial status quo. In turn, the ecosystem responds by developing new business models in the industry while it is expected that more than 50% of incremental revenue in almost all banking products in Western Europe is expected to be digital (Bruno et al., 2014). European banks, following the global trends, are already transitioning their business models, massively invest in new information technologies and at the same time reduce their physical branches. However, they still continue to serve all customers, including those who have not yet become "digital".

An example of this new banking reality is the German Banking Colossus Deutsche Bank that announced strategic overhaul in its operations by closing 188 branches in Germany, limiting in 2017 their total number to 500 branches country-wide (Lohnes, 2016). At the same time, the bank announced a €750 million investment in developing digital products and advisory services by the year 2020, whilst nearly €200 million is estimated to have been invested in 2016 (North, 2017). Similarly, Lloyds Bank and Royal Bank of Scotland announced in 2016

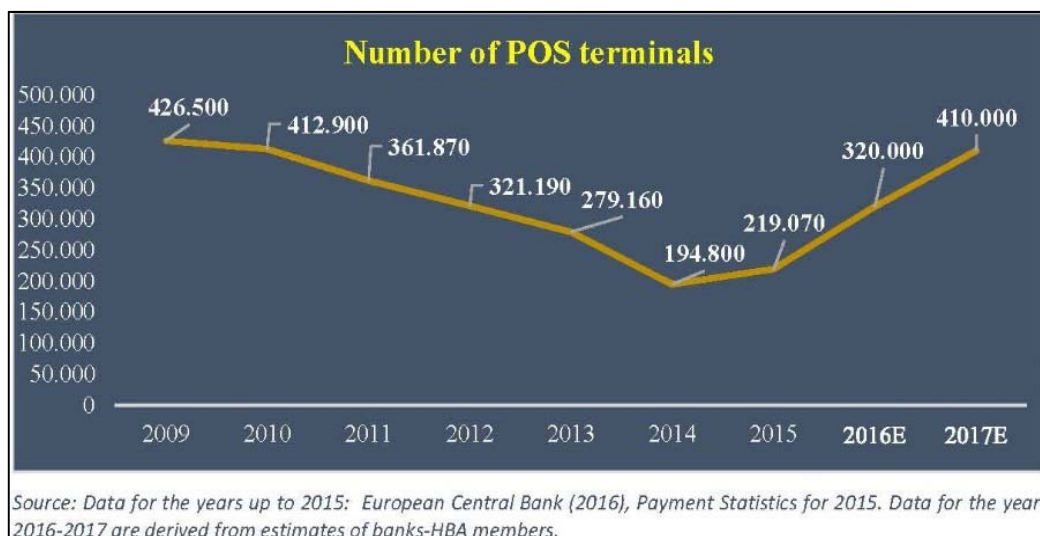
the closure of 400 branches as part of a three-year strategic program, resulting in the loss of thousands of jobs as more customers prefer digital interactions and chose to bank online. In 2015, both Lloyds and RBS had announced a \$1,2 billion plans to invest in digital banking capability over the next three years (Rocket, 2016).

In the northern European countries, the digital transformation of the banking sector has passed onto the next level. In particular, Sweden can be characterized as a cashless society since according to the Central Bank “Riksbank”, cash transactions in 2015 made up barely 2% of all payments made in Sweden, a figure some see falling to 0.5% by 2020 (Henley, 2016). Furthermore, about 900 of Sweden’s 1600 bank branches no longer accept cash deposits or keep cash inventories, whilst bank branches, especially in rural areas, are no longer equipped with ATMs.

The imposition of the capital controls in the Greek society and its shocking effects to the country’s financial stability, rapidly repositioned the demand for electronic methods of payment and drove people further into the world of electronic banking. Since the implementation of the capital controls, electronic cards transactions increased by €84 million (+58%) and electronic credit transfers by 24%. Furthermore, there has been a sharp rise in the use of alternative banking channels for example, internet, mobile, phone banking, ATM, APS over traditional bank branches transactions. In more details, the number and the value of internet banking transactions have increased, on an annual basis, by 40% and 29% respectively, while the number and the value of mobile banking transactions have increased, on an annual basis, by 142% and 82% respectively (Bank of Greece, 2017). About 68%, 2 out of 3 Greeks, use today “plastic money” for their transactions while 32% of Greek adult population stated that they never used credit, debit or prepaid cards.

Along with the increasing use of “plastic money” as a method of payment and the recent legislative moves to control tax evasion, the use of POS (Point of Sales) terminals has been significantly increased in the last two years. In more details, according to Hellenic Banks Association estimates, the number of POS terminals have increased considerably by 79% (100.930 terminals) in 2016 totaling to 320.000 while in 2015 the number of POS terminals was 219.070. The organization expects that the number of POS in Greece will exceed 410.000

by the end of 2017 and return to pre-crisis levels as a result of the intensification of the electronic transactions in the country (HBA, 2017). Turnover of the POS use totaled €19 billion euros in 2016 and €5.5 billion in the first four months of 2017.



**Figure 12.** Number of POS terminals in the Greek Market.

One of the major challenges of the Greek banks in the new era of the digital age, is the lack of familiarization with the new technologies of the Greek population. Although in recent years has been made significant progress towards the adaptation of internet in all aspects of modern life, Greece can be characterized by digital illiteracy, when compared to the rest of the European countries. According to the European Union Digital Economy and Society Index of 2017, that measures the progress of EU countries towards a digital economy and society, Greece not only ranks in the 26<sup>th</sup> place out of the 28 EU countries but it seems not to make much progress compared to other EU member states (DESI, 2017). However, Greeks are active internet users of social networks and general online content and overall, the percentage of internet users engaging in online banking is increasing. In respect of on line banking, Greece ranks in the 26<sup>th</sup> place with 28% of internet users conducted online banking operations in the last 3 months, although far from 59% average score of the EU Member States. Moreover, the use of mobile phones in digital services is constantly increasing. In particular, according to ELTRUN survey, the E-Business Research Center of the Athens University of Economics and Business, mobile phone usage has been established as a major channel for banking services since nine out of ten (9/10) mobile phone users are accessing



internet on a daily basis through their phone, while one in four (1/4) users are frequently using their phone for banking purposes (ELTRUN, 2017).

### 5.3 The Transformation of Banking Services in Greece

As previously mentioned, the imposition of capital controls accelerated the pace in which the Greek Banking ecosystem is transitioning to a digital environment. A rapid alignment to the global banking trends that opt to facilitate modern customer's understanding in order to meet their changing needs and preferences, can be clearly recognized.

The four systemic Greek banks, reacting to the new banking reality are gradually placing emphasis on electronic transactions over the internet and the use of mobile phones. They are continuously investing in new technologies, and compete about being the first to launch innovative banking processes and solutions to their customers. The most discussed trend in the field on the Greek Banking Digital Ecosystem is the development of the "digital wallets" and four digital products of the four systemic banks ALPHA, National Bank of Greece, Eurobank and Piraeus are presented below.

- **ALPHA BANK**



Alpha Wallet is the Digital Wallet of the institution that was launched in June 2016, and the company claims to change the way transactions are being carried out, in a secure and reliable manner. Using the Wallet someone can make payments with a debit, credit or prepaid card. The service is not exclusively for Alpha Bank clients but any card issued by any bank can be registered in order to perform transactions. Upon conducting a transaction, the user can choose the card of his preference to be used to complete payments online quickly and securely. The mobile app supports niche technological elements like fingerprint authentication.

- **NATIONAL BANK OF GREECE**



I-bank Pay is the digital wallet of National Bank that enables users/clients to simply, safely and quickly perform payments without having to know bank account numbers. Via i-bank Pay users can transfer money to Facebook friends, phone contacts and make payments to more than 40.000 sales points such as supermarkets, restaurants, retail stores etc. through mobile phone or tablet. Contactless mobile payment to co-operating merchants are supported through the i-bank's "Pay 4 Business" service.

- **EUROBANK**



Pay-a-Friend or "Paf" is a service integrated on the mobile banking app of the bank and it is used to send money instantly to anyone with an email or a phone number. Additionally, if the user has registered the service to his Facebook Account, can instantly send money to his Facebook friends. Recently, the service has been enhanced providing payments to professionals and small businesses by using their Tax Identification Number, email, mobile phone number, QR Code. Additionally, IOS users can use fingerprint authentication to securely and quickly log on the app while "shake2logout" is an innovative process of disconnecting from the app simply by shaking the mobile phone.

- **PIRAEUS**



Piraeus clients through the use of the bank's mobile app are able to conduct contactless payments in physical stores with their mobile phone. Instead of using a plastic card or cash, someone may complete payments by registering a debit card within the digital wallet app and use the mobile phone in contactless POS terminals without the need to have cash or a physical card. Then, through the registered card, the payments are debited to the main linked account. The whole process is very easy and quick. The cashier keys-in the purchase amount at the POS and then the user, having the NFC reception on the device enabled, simply enters the m-PIN in the phone, and the payment is processed and completed within 3-4 seconds.

According to ELTRUN survey, the active e-banking users in Greece is about 17% of the total country's population while there are more than 2.5 million registered on-line banking users. Increasing the number of active e-banking users to the EU average, that is to say to 50%, it has been estimated that the total benefits for the nation's economy could be 1.5 billion annually (ELTRUN,2017). Banks have realized the opportunity and their main goal is to intensify the use of electronic means of payments and fully digitize everyday simple micro-transactions and evolve to a "cashless" financial ecosystem.

## 5.4 SWOT Analysis

To better understand and identify the challenges of the era of Digital Transformation, a SWOT analysis of the Greek Financial Institution **Eurobank Ergasias EFG** will be presented. SWOT is an acronym for Strengths, Weaknesses, Opportunity and Threats. It is a useful framework to evaluate those four elements of the venture in order to identify the forces influencing the organization both from the external environment perspective and internally.

Performing a SWOT analysis involves the collection and administration of information about internal and external factors that have an impact on the organization. Upon identifying these elements, the organization can produce useful insights about the potential and critical issues affecting the financial institution. Then, ventures are able to develop the appropriate corrective measures to address internal weaknesses and create strategies to confront external threats.

Eurobank against Fintech Competition and the Road Path towards Digital Transformation
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### 5.4.1. Strengths

- *A powerful Financial Institution*

Eurobank is a powerful financial organization with total assets of €66.4 billion and almost 16.000 employees. It is one of the pillars of the Greek banking system and has an extensive

network of more than 450 branches and 850 ATM locations in Greece. The group has presence in seven European countries Bulgaria, Romania, Serbia, Cyprus, Luxembourg and in London UK. The banking institution was originally founded in 1990 and after a series of merges and acquisitions has developed its current form and today is one of the four systemic banks of the Greek banking system. In this nearly thirty-year course, the bank established an extensive individual and business customer base, built extensive infrastructures and developed process to meet regulatory and compliance requirements. Most important of all, as a financial institution, Eurobank has earned the trust for the everyday economic activities of individuals and businesses.

- *Greeks trust Financial Institutions for their financial Transactions*

Following the world trends, Greek Fintech scene is steadily evolving while **Viva wallet** is the most widely recognized company disrupting the Greek banking sector. The company has managed to attract 160.000 individual and 12.500 clients as P. Tsakos the company's Chief Marketing Officer stated in June 2016. Although Viva wallet and other Fintech are penetrating into the banking ecosystem by providing electronic payments to its clients, Greek population in the first place, is generally cautious towards electronic means of payment and secondly for the same reason it is rather difficult to see Fintechs gaining trust in Greek consumers' minds. As a result, it is difficult to imagine that Eurobank's electronic payments related operations, could be threatened.

- *Eurobank. An Award Winning Organization*

To the contrary, Eurobank's dedication for delivering excellence in financial operations and superior customer service has been acknowledged by the prestigious Global Finance Magazine since the financial institution was voted as "Best Greek Bank of 2016". Evidence of the banks' exceptional performance that further promotes consumer trust is a series of banking Awards from widely accepted organizations and economic foundations. In more details and with regard to electronic payments, Eurobank has been elected for two consecutive years, 2015 and 2016, as the Best Corporate/Institutional Digital Bank by Global Finance Management Magazine, while it received the Gold award for its mobile banking Eurobank App in the Mobile Payments and Banking services category in 2015. As a result, in

order Fintechs' to outperform the bank's capability in the electronic payments field, remarkable strategic actions and innovations must be exerted to differentiate and gain a substantial place on the market, a rather difficult task given the award winning performance of the organization.

- *Eurobank's strengthening capital position*

Besides the fact that customer trust consists, at least for the time being, a major strength of Eurobank against its external competition from Fintech, a robust improvement in terms of income and profitability was evident in 2016. The previous fiscal year ended with a net profit of €230 million for the group a dramatic turnaround from 2015 when Eurobank listed 1.18 billion in losses (Panagopoulos, 2017) further increasing the banks' performance and by extension improving customers' confidence. The bank also expects to be profitable in Q1 of 2017 as its CEO revealed.

#### **5.4.2. Weaknesses**

- *Distress from Non Performing Exposures (NPEs)*

Eurobank, as well as all the systemic Greek banks, are struggling to manage non- performing loan portfolios as the impact of extensive recession keeps unemployment to record highs and as a result, borrowers fail to service their debt. Although in Q4 2016, for the first time Eurobank managed a negative formation of new NPEs (non performing exposures), in Q1 2017 new NPEs exhibited the highest formation rate of the past five quarters (Malliara, 2017). This is a major issue for Eurobank, that definitely adds distress to the business and unwittingly delivers negative impact on initiatives and efforts towards innovation.

- *Prolonged recession impacts the organization's growth*

At the same time, the prolonged recession in the Greek Financial ecosystem limits Eurobank's potential for expansion. As a matter of fact, the negative effects of the crisis were rapidly identified, since in 2012 the unfavorable economic conditions lead to the sale of Tekfenbank in Turkey, while in 2014, Eurobank also left from Ukraine by selling its subsidiary PJSC

Universal Bank (Papadogiannis, 2014). Again, uncertainty may cause stagnation and rolling back that does not allow for the full potential of the organization to unfold, towards adapting to the changing environment of the sector, that demands transformation of the business model.

- *Declining level of trust in the Greek Banking ecosystem*

Transforming the business model is no easy task. Cultivating innovation that is apparent in the digital era is an essential success parameter of the process. Vertical and horizontal integrations are imperative for the success of the organization while addressing change across people, processes and technology, requires a culture where you can fail. However, even a minor failure can have a significant impact on the organizations performance as a result of the limited trust of citizens to the Greek financial ecosystem while startups and new entrants are constantly evolving and strive to seize any opportunity to penetrate the market. Therefore, the fragile external economic environment definitely imposes a weakness to the organization internally and it is essential to restore confidence, increase liquidity and terminate capital controls.

### **5.4.3. Opportunities**

- *Limited investment activities give the benefit to better prepare*

It is evident that the prolonged recession has a negative impact on Greek financial institutions performance and Eurobank proves no exception. Economic crisis, high unemployment rates, excessive taxation and regulatory barriers are just a few examples that increase financial instability and decrease interest for investment. Academics in the field of investment literature predict a negative link between uncertainty and investment (Dixit and Pindyck, 1994) while most of the empirical evidence indicates that capital investment on average declines in response to uncertainty (Bloom et al, 2007). Therefore, investing in new technologies and infrastructure to support digital transformation is affecting both Eurobank but as well as competitors whether it is in the form of a new entrant or a competing financial institution. Therefore, apart from the obvious negative effects of uncertainty, Eurobank has the benefit on the path towards recovery to better prepare and be organized internally

towards digital maturity as initiatives from competitors seems not to be escalating, at least in the short run.

- *Harness the power of Fintechs by embracing their activities*

Financial industry is undergoing a transformational phase due to fast paced technological changes. In the case of Greece banking sector, the pace was dramatically accelerated when the imposition of capital controls escalated the need for electronic transactions and forced society to engage in digital financial activities. As we proceed to an integrated and digital financial ecosystem, it is expected that the Fintech presence in the Greek financial scene will increase accordingly. Their objective is to revolutionize the finance industry and pave the way for more transparent and efficient financial operations, disrupting traditional banking sector. Eurobank in order to stay ahead of digital disruption has acknowledged the need to work with startups and the company's Innovation Center has organized in the past two years a Fintech contest "*Beyond Hackathon*" aiming to spark, cultivate and promote digital innovation by exposing bank staff to new ideas and technologies.

Apart for Hackathons and other rewards based competition, Eurobank can engage with startups and harness their benefits by providing free resources to accommodate Fintech innovation and enhance the ways the organization interacts with the startup community. An example can be drawn from the Singapore based DBS bank that is sponsoring a state-of-the-art 5,000 square foot co-working space that allow participants to use the bank's APIs (Application Programming Interface) and develop solutions and innovative projects for enhancing customer experience while mentoring from business executives is provided (Jumpstart, 2016).

Innovative partnerships can be seen as an exceptional opportunity for Eurobank to drive the path of the organizations' digital transformation effectively by exploiting the benefits of the two worlds. In the first place, Eurobank has enormous market reach and existing customer relationships while at the same time exploiting Fintechs' intimate knowledge of emerging technologies, their ability to embrace innovation and their capability of integrating tech into

customer experience will lead the organization as a winner in the new era of digital transformation in banking.

- *Unleash the power of Big Data*

In the road path towards digital transformation that is imperative to meet the modern customer's needs, Eurobank and generally speaking financial institutions have an important ally. The immense volume of consumer data created and collected. Using advanced and scientific ways to collect, analyze and interpret "Big Data", financial institutions will be able to provide enhancements in all areas of customer's interaction and become more customer centric. Using customer data effectively can generate crucial consumer insights that allows to educate, inform and understand customers and their financial habits. In turn, banks can better anticipate customers' needs and design products and offers that are specifically tailored to their preferences. Not to mention that by the use of enhanced data analytics to integrate transactional data with application workflows, financial institutions will acquire increasingly better critical information about authentication and use of sensitive information, resulting in rising customer trust and satisfaction. Consecutively, the vast reservoir of consumer data gives an extraordinary opportunity for Eurobank and to financial institutions to outperform competitive forces from new entrants, that although they already have obtained the technology to exploit big data and generate insights, they lack the rich customer datasets that banks have at their disposal. In the case of Eurobank, an extra effort of effective data mining and processing is required since the bank has grown organically in recent past through the acquisition of Proton Bank and Hellenic Postbank and it is expected that data will not always be consistent and well organized.

#### **5.4.4. Threats**

- *Negative and unsecure economic environment*

It is common sense that banks are intertwined with the economy and Eurobank's performance is depended upon the wider economic environment. Factors such as the country's debt, high unemployment rates, and prolonged recession exist which are outside the control of the management and definitely have a significant impact on the organization.



In a negative economic environment, customer deposits decrease, banks cease to lend individuals and businesses, causing stagnation while the economy is shrinking.

- Consumers' changing needs and expectations

At the same time, technology and changes in customer behavior is radically altering the financial ecosystem and there is a need for traditional banking to evolve. In the digital age, customers are empowered like never before, unlimited amount of information is available to them on an anywhere and anytime basis, while they demand for seamless service and Omni channel experiences. It has never been easier for banking customers to switch, not only from one service channel to a different one, but information technology, digitization of services and process automation has eased the way for customers to change their banking provider when seeking for higher convenience and better customer service. In this changing financial ecosystem, Fintechs are already present and prepared to seize any opportunity to attract and engage with new customers, while they have the agility, innovative cultures and niche technology to adjust on changing consumer preferences.

- Signs of talent crisis in the banking sector

New technologies, changing customers' needs and competition from new entrants in the financial market, poses a major threat for financial institutions. Fintechs growing acceptance and influence to the way financial services are being conducted, from payments to investment advice, peer-2peer lending and so on, accelerate the pace to the digital transformation of traditional banks. In this journey of organizational change, people and culture are critical elements of success while banks must develop new methods to attract and retain the best talent. However, data derived from Chicago Booth, Wharton, Harvard, London Business School and Insead, has revealed that there has been a 20% drop in the number of MBA graduates entering the finance sector between 2007 and 2013. At the same time, the number of graduates entering careers in Fintech has more than doubled and many believe that in the banking industry a talent crisis has emerged (Frasier-Nelson, 2016). Consequently, talent retention is an important aspect that Eurobank should address in order to ensure a future-proof talent strategy.

# Chapter 6

## Conclusion and Recommendations

### 6.1 Conclusion

In the recent past, expansion of consumer credit was the dominant trend of the banking sector. The new era of the financial industry ecosystem will be defined by *digital*. Undoubtedly, the digital transformation will be the game changer of the sector in the following years and perhaps it is the most important challenge banks need to address. Individuals and businesses are quickly adopting and engaging with digital banking and it is evident that banks have limited time to respond and adjust to this new reality or risk becoming obsolete. Institutions that resist digital innovation risk entering decline, similar to laggards in other industries. According to a McKinsey analysis digital laggards could see up to 35% of net profit eroded, while winners may realize a profit upside of 40% or more (McKinsey, 2015).

The focus of this study is to recognize the appropriate actions that banks need to undertake and respond to this paradigm shift and these actions can be summarized in the form of the following digital imperatives:

#### **1. Develop a customer-centric approach**

Customer centricity must become the key strategy for Greek banks today in order to redefine the customer relationships and build lifelong and loyal relationships with clients. Technological advancements have created informed consumers that expect convenience and simplicity in their financial interactions. Modern customers demand to freely decide what kind of relationship they wish to develop with their bank, the products and services they wish receive and the ability to interact seamlessly irrespective of the channel used. As banking customers are moving towards online and mobile channels of interaction, banks must leverage their existing offerings and embrace mobility and Omni-channel experience in order for customers to remain loyal and stay connected with their bank throughout the process of digital transformation. In such manner, banks will be better prepared to serve the forth

coming generation of customers that it is expected to be entirely digital in their preferences. Therefore, the aim of digital transformation should be based upon customer-centricity which is imperative not only for protecting market share but promote digital engagement with the modern tech savvy customers.

## **2. Blend digital innovation with human touch**

The changing consumer needs that drive customers to digital channels in order to perform their banking operation along with the failing economics of sustaining large branch models, are clearly the driving force of branch decline. As already described in this dissertation the Greek banking sector is closely following on that global trend.

Although the digital banking channels are growing in popularity and electronic transactions are dominating the market, the need of physical branches is still a necessity. Regarding the Greek market, it is essential to note that local culture and society embraces human interactions and at the same time population is rather skeptical and feels insecure towards digital interactions. This tendency is clearly recognized in the European Digital Readiness Index of 2016, in which Greece ranked in the 26<sup>th</sup> place among the 28 member states, indicating slow migration and adoption of digital technologies of the Greek population.

Beyond any possible cultural and demographic restrictions, the need for bank branches remains a necessity since paper currency interactions still exist. Moreover, the branch is still an important element of the banking experience since although the majority of basic transactions can be executed on line, a visit to the branch is essential to perform more complicated transactions.

In all events, one thing is clear. Modern customers demand seamless and convenient banking experiences irrespective of the channel used and this surely entails the offering of digitization possibilities and digital experiences within the banking branch. It is therefore essential for financial institutions to blend digital innovation and technology with the *human touch*, in order to deliver a “phygital” experience to customers by integrating digital capabilities with the physical facilities.

### **3. Exploit the power of “Big Data”**

Big data is a significant attribute in the digital transformation era of the financial services industry while the amount of data collected, both structured and unstructured, is growing exponentially. Today, data is no longer measured in terabytes but in zettabytes and this vast amount of data can only be turned into an asset, if they are used for meaningful and strategic business decisions. Big data is nothing new for the banks; However, processing the ever increasing large volumes of data in a timely manner, is a major challenge that will allow to transform data into an asset and integrate the massive amounts of information that banks hold for their customers, into profits.

In the era of digital transformation, banks need to constantly innovate in order to obtain competitive advantage and remain relevant in the digital economy. The use of Big Data analytical tools can deliver useful insights that can be used in order to identify patterns and correlations in customer’s behaviors. In such a way, big data can be used to enhance customer targeting and at the same time, it is possible to leverage customer understanding, to anticipate customers’ needs and to offer customers more personalized experiences. As a result, exploiting the power of “Big Data” analytics can improve customer engagement since banks can reflect on customers’ expectations, develop tailored made products to meet their needs and manage their financial interactions in a secure and reliable manner, thus promoting loyal and long-term customer relationships.

Financial institutions must use data and advanced analytics to limit potential risk and fraudulent threats and at the same time achieve regulatory and compliance objectives. While cyberattacks are in a rise, it is imperative to use data analytics in order to prevent possible assaults.

### **4. Collaborate with Fintech**

The emergence of new financial technology companies is having a profound effect on the financial services industry and Fintechs can be characterized as a disruptive force that threatens financial institutions with new, agile and savvy competitors. Until very recently,

banks have enjoyed the benefits of an uninterrupted monopoly of commercial, investment, credit and other financial related operations. However, the growing influence of new entrants in the financial scene is evident, as Fintech Innovators harness digital technologies and big data and offer a broad range of financial services from payments to crowd funding, wealth management services etc. Their ultimate goal is to deliver more efficient financial services and attract customers from traditional banks.

As previously discussed in Chapter 4, international investment in Fintech companies is dramatically increasing, while modern and tech savvy customers are eager to take advantage of the benefits that emerging competitors offer. Consequently, established financial organizations fear the effects of the banks' disintermediation and in order to minimize the impact of the new players in the sector, it is essential to embrace the changes being brought by competitors and the advancements of digital transformation.

While the level of trust is generally decreasing for banking institutions, customers still feel more comfortable to perform their financial transactions with established, and legacy organizations with long history and increased brand recognition. On the other hand, Fintech excel in their ability to be agile, to innovate and deliver high-end technology but lack the customer base banks already possess. It is therefore easily understood, that Fintechs tend to have different strengths and weaknesses from banks that bring new levels of convenience and efficiency in specific financial operations while banks are dealing with a broader range of financial services. Consequently, the prospect of the collaboration of banks and Fintechs can be only seen as a great opportunity to support future growth for banks.

Most important of all, the need for Fintech collaboration is further accelerated at least in the European and Greek level, where the implications of Digital Single Market will enforce the PSD2 (Revised Payment Service Directive). PSD2 is a wide-ranging directive that covers all aspects of payment services and it is the foundation that open ups consumer's account information to third parties. As it is expected, this will further increase competition between banks and Fintechs, with Fintech gaining significant momentum, and it is, therefore, essential for banks to be proactive, and embrace the competitive forces of the sector.

## **6.2 Recommendations for Future Research**

Currently, financial institutions are being transformed into more digital entities, updating their legacy systems with a strong focus on big data analytics and mobile technology, trends that Fintechs are setting in order to meet modern customer's needs. A questionable implication in this transforming environment is the adoption of "Blockchain" technology and its benefits to the financial ecosystem. While the term is still new in the financial space, according to a Deloitte Survey in May 2016, 92% of respondents believed that Blockchain is going to disrupt their industry over the next five years (Deloitte, 2016), while a PwC report although suggests that while blockchain is high on the list of priorities for investment, in the last one year, only 19 percent of large financial institutions identified the distributed ledger as the most relevant to invest in. The importance and the application of blockchain technology surely triggers more questions than answers and is interesting to investigate its implications on the banking industry.

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