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# THE IMPACT OF DIGITAL TRANSFORMATION IN THE FINANCIAL SERVICES INDUSTRY: INSIGHTS FROM AN OPEN INNOVATION INITIATIVE IN FINTECH IN GREECE

*Research full-length paper*

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## **Abstract**

*Technological innovation combined with entrepreneurial mindset can transform industry structures and incumbent businesses. We focus on the financial services industry, where the phenomenon of FinTech is shaking the established, traditional players and according to many experts is able to totally transform this business sector. A proven method that allows incumbent companies to sense efficiently their business environment and utilize other stakeholders in order to become agile to such changes is the utilization of open innovation. The open innovation mechanism helps incumbent firms to work with a group of talents or entrepreneurial teams or startups to develop applications and new digital business activities in order to achieve digital transformation.*

*Through an open innovation case study, this paper tries to provide evidence of the benefits and challenges raised by the digital transformation in the well-established sector of financial services. Participating actively as organizers and facilitators of the open innovation initiative helped us obtain exposure to incumbent companies and startups at a level of detail required for achieving a deep understanding on all important aspects when integrating digital technologies with the established way of doing work in the financial sector.*

**Keywords:** *Digital Transformation, FinTech, Open Innovation, Industry Disruption*

## 1 Introduction

Over the last decades, there has been rapid evolution in the quantity and quality of the available digital technologies which are able to disrupt established ways of conducting business. According to McDonald & Russel-Jones (2012), digital technologies are shaping the way people live, communicate, consume and work, breaking the barriers of time and space. Technology advancements are evolving the products and services that companies offer, followed by differentiations in business models, creating new opportunities but also threats for most enterprises. Furthermore, these advancements are constantly changing the way consumers interact with companies and each other. The potential benefits for an enterprise of becoming fully digital are enormous but such a journey is complicated as multiple challenges have to be addressed.

Digital transformation can be summarized as “the use of technology to radically improve performance or reach of enterprises” (Westerman, G. et al., 2011). In a more descriptive approach, digital transformation is “the process of shifting an organization from a legacy approach to new ways of working and thinking using digital, social, mobile and emerging technologies. It involves a change in leadership, different thinking, the encouragement of innovation and new business models, incorporating digitization of assets and an increased use of technology to improve the experience of your organization’s employees, customers, suppliers, partners and stakeholders” (Terrar 2015). The solutions that enable digital transformation are so called social, mobile, analytics and cloud technologies and can be considered the underlying technologies of the digital transformation phenomena (Bharadwaj et al., 2013).

New market entrants like startups are challenging incumbent enterprises by offering highly competitive digitally based offerings to customers with the utilization of digital platforms, providing them the opportunity to achieve global reach in conjunction with extremely low cost bases. During the last years, some organizations successfully adapted digital technologies such as Google, Uber and Amazon and dominated to their markets, while other companies such as Kodak failed to do so and became obsolete. Embracing digital technologies and transforming to a modern & flexible business should be set as top priority. Transitioning to a fully digital enterprise requires a proper mixture of technology capabilities, business model realignment, leadership skills and organizational engagement. It requires also to enhance the innovation engine of a company for enhancing how ideas are generated and executed.

There’s never been a better time for incumbent firms and startups to collaborate and accomplish win-win partnerships (Miller and Bound, 2011). Until now, traditional firms have viewed such ventures as competitive threats or they lack confidence in a entrepreneurial venture’s ability to move from idea to marketability in the context of a broader business strategy. Meanwhile, startups have seen incumbents as cumbersome for disruption and they often question the incumbent’s commitment to supporting the growth of their businesses. Such gap should be closed. To do so, various collaborative mechanisms have been developed to allow incumbent companies to become digital.

One mechanism that has a great potential to establish a mutually beneficial partnership between incumbent firms and entrepreneurial ventures is “open innovation”, a paradigm that assumes that “firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as firms look to advance their technology” (based on the most commonly used definition in the literature by Chesbrough, 2003). Conceptually, it is a more distributed, more participatory, more decentralized loom to digital transformation, based on the point that valuable know-how today is widely distributed, and no organization, no matter how capable or how large, cannot shift to new ways of working using digital, social, mobile and emerging technologies on its own.

The starting point of this research is, therefore, the digital transformation as the ideal response to the threats of digital disruption that puts pressure on incumbent organisations to respond to the changes that digital technologies have cause and will continue to cause. The goal of this study, is to contribute to the overall understanding of the digital transformation concept and its challenges through examination of an open innovation case in the financial sector through the rise of financial technologies

(FinTech). FinTech has a broad definition and its affecting area is difficult to be measured. The possible impact on financial services ecosystem is vast, and in most cases, cannot be predictable. Existing reports from reputable consulting firms and top banks have highlighted the emerging radical change, that breakthrough, innovative technologies can provoke in the existing financial landscape.

Within this context, the objectives of this research are as follows:

- to analyze the impact of FinTech in a well-established sector, like financial services industry
- to examine how the incumbent firms leverage digital transformation through an open innovation process
- to provide case evidence of the benefits and challenges raised by the digital transformation in the financial services industry

Besides its scientific scope, this study is intended to be reviewed by digital transformation experts, business leaders and ICT professionals for providing them further insights for shaping and implementing digital transformation initiatives, based on a robust theoretical foundation and industry best practices, proven by successful digital transformation journeys.

The remainder of the paper is structured as follows. Section 2 offers a justification for the relevance of this work by drawing upon the literature on two primary research strands: the digital transformation and the open innovation paradigm. Section 3 describes the research focus and methodology adopted. Section 4 presents the open innovation case study and tries to draw valid conclusions on how digital transformation impacts the established financial services industry based on the perceptions of diverse stakeholders of the financial ecosystem of Greece. Finally, Section 5 provides concluding remarks and Section 6 highlights some limitations and implications for future research.

## 2 Literature Review

Technological innovation, regulatory changes, pressure from investors and new entrants are just some of the forces that cause disruption, even in historically less volatile business sectors (Bucy et al. 2016). No business can make resourceful investments within its organization unless it understands how the entire industry in which it operates is evolving. If the industry is going through radical changes, for example, the incumbent companies will eventually have to be dissolved and new business models will rise. If the industry is experiencing a gradual change, a firm will have to reinvest to its core competencies and utilize new knowledge to redefine itself by adopting new technological paradigms. The need for a business to understand the change in the business sector may seem obvious, but this knowledge is not always easy to get. Companies misinterpret facts and jump to wrong conclusions constantly, lead by the cognitive limitations of their top management.

In recent years, a new massive wave of financial innovation is transforming the financial services industry. It is based on a combination of digital innovation, societal and regulatory changes. This gives the opportunity to new players, which are not banks or traditional financial institutions, to enter the financial services sector and provide innovative, web or data based financial solutions that the incumbents can't offer. The term FinTech is used to describe the digitization of the financial services industry. It comes from the words Financial Technology, and includes all the advanced, mostly internet based technologies that are used to provide financial products or services. The Fintech movement is being stimulated by the fast pace of progress in the fields of mobile technology, big data, predictive analytics, cloud infrastructure, self-learning algorithms, personalization, and the growing dominance of information and communication technologies (World Economic Forum, 2015). Some experts argue that, technological and financial innovation are highly correlated and the economic growth will gradually decline unless financiers innovate (Michalopoulos, et al., 2009). This interference between financial innovation and technology has increased because the information technology (IT) has enabled the creation of economies of scale (Sironi, 2016).

The FinTech start-up companies first appeared during the global financial crisis of 2007 – 2008, particularly in the Silicon Valley of the United States of America, building the first FinTech hub, and a new ecosystem came to life and started to grow. The movement was spread rapidly in many locations around the world. FinTech scenes emerged in many countries and continents, from Hong Kong and Singapore, to Austria, UK and Australia, each having its own unique features and potentials, but all together shaping the World's FinTech Ecosystem. In this fresh and vibrant ecosystem, more than \$ 50 billion has been invested from Angel Investors, Venture Capitals and private equity funds, with many experts to argue that the market is now becoming to maturity (Accenture, 2016).

Within this context, it is obvious that we need a deep knowledge of the industry (i.e. financial services) as well as a good perception of the kind of changes that take place within it (McGahan, 2004). Business disciplines evolve with four distinct types of change: radical change, progressive change, creative change, and change of mediation. In addition, the company's strategic plan to achieve return on the invested capital cannot succeed unless it is in line with the type of change in the industry. The four types of changes set limits on what will generate profits in a business. Many companies have suffered losses because they tried to innovate outside of these limits (McGahan, 2004). There is no innovation strategy that works for all business and industry types. But if the business understands the nature of changes in its industry, it can determine which strategies are likely to succeed and which will fail. A proven method that allows companies to sense efficiently their business environment and utilize other stakeholders in order to become agile to competitive change is the utilization of open innovation.

There's never been a better time for large corporations and startups to collaborate and accomplish win-win partnerships (Miller and Bound, 2011). Current attempts emphasize on open innovation by studying the benefits of "coupled" innovation processes, such as R&D collaborations and technology alliances (Faems et al, 2010; Un et al, 2010). Dyadic collaborative ties are frequently observed for particular stakeholders, such as suppliers (Aylen, 2010; Li & Vanhaverbeke, 2009), competitors (Lim et al, 2010) and universities (Bercovitz & Feldman, 2007; Cassiman et al, 2010), while less common partners have also been identified more recently, as in Holmes and Smart's (2009) study of voluntary partnerships between corporate and non-profit organizations. Moreover, there is an increasing interest in the relative importance of the respective collaborators (Neyens et al, 2010; Un et al, 2010) and more generally, the partner selection process (Emden et al, 2006).

The arising questions that someone must answer in order to fully understand the digital transformation, disruptions and the kind of changes that take place in the financial services industry are countless. Literature is gradually trying to answer some of these questions, but the FinTech case is relatively new, the existing data is limited, and the evolving pace breathtaking. The existing literature is mostly concentrated in topics like digital disruption and disruptive innovations, but it has not turn the spotlight on the digital transformation caused by FinTech under an open innovation perspective.

### **3 Methodology**

The objective of this research is to understand the digital transformation issues in the financial services sector. To address this objective, the research design is based on a case study. Case research gained respect in this design for several reasons. Firstly, one reason is that this approach is ideal for answering the "how" and "why" questions (Yin, 2003) allowing for a richer knowledge of non-conceptualized issues i.e. how digital innovation and technologies can transform the financial services sector. Given the pre-mature level of such digital transformation, a case study is also suitable for research in areas where theory is not yet well developed (Eisenhardt, 1989) and thus enhance the external validity of this research design. Finally, from an IS perspective, based on the work of Dubé and Paré (2003), the key characteristic of case research, that of holistic investigation, goes well with our intention to realize the complex interactions between technological innovation and financial services industry, where the phenomenon of FinTech is shaking the established, traditional players and according to many experts is able to totally transform this business sector. In this regard, the access to the

real life context brings richness and flexibility to the overall research process, making case research a proven tool for achieving a deep understanding on how new technologies impact the established business industry of financial services.

Selecting cases is an important but difficult aspect of case research. Literature provides some insight into this process (Yin, 1994; Stake 1995), recommending that the cases should be easy and willing subjects, maximising what can be learned within limited time. Based on the assertion of Stake (1995), “a good instrumental case does not have to defend its typicality”, the case was chosen based on our involvement in an open innovation initiative in fintech. Realising the digital technologies’ potential for improvements in different aspects of the financial services sector, some incumbent firms and startups decided to participate in an open innovation initiative organised by a university accelerator.

More specifically, the case concerns an inbound open innovation initiative entitled «IDEA – Innovation, Design & Entrepreneurial Action». The IDEA initiative helps incumbent firms to work with a group of talents or entrepreneurial teams or startups to develop applications and new digital business activities in order to achieve digital transformation. Participating actively as organizers and facilitators of the IDEA program helped us obtain exposure to incumbent companies and startups at a level of detail required for achieving a deep understanding on all important aspects when integrating digital technologies with the established way of doing work in the financial sector.

The IDEA program was initiated by a Digital Bank that is a licensed e-money institution for operations in the EEA-31 region by the Bank of Greece and offers innovative payment services to individuals, businesses and professionals, combining maximum security with flexibility and support. In an effort to compete in the marketplace of traditional financial institutions and intermediaries in the delivery of financial services, the digital bank company has invited startups to develop innovative solution for the following challenges: innovative transactions B2B, B2C, P2P using electronic wallet (e-wallet), card, x-POS etc.; identification techniques, tokenization, blockchain and social payments; new models of cooperation with banks (Platform / API bank, PSD2, Direct Banking); exploiting new, "smart» devices and access networks (smart watch, wearables, webTV, IoT, etc.); cybersecurity; personal finance; alternative lending, customer acquisition applications, loyalty and instant redemption; digital transactions / supplementary services (eg. gamification). The following figure depicts all the stakeholders of the open innovation initiative that were involved.

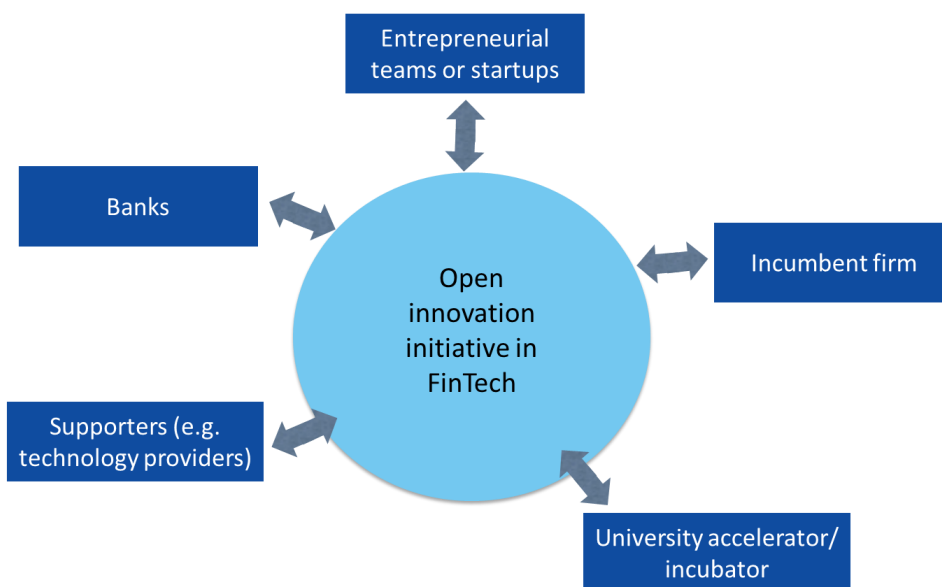


Figure 1: The IDEA open innovation initiative stakeholders

The IDEA open innovation initiative consisted of the following growing stages (adapted from West and Bogers, 2014):

- Obtaining and searching digital transformations. The program initially introduced participants to the requirements, challenges and unique characteristics of the specific financial service context and supported them in the idea generation for digital transformation.
- Integrating the selected digital transformations with the incumbent firm's activities. Startups and entrepreneurial teams then worked to further define the basic building blocks of their digital transformation, as well as to build a mock-up prototype of the proposed innovative product/service.
- Commercializing the selected digital transformations offered by the ventures. Startups and entrepreneurial teams were evaluated at this stage and those selected got further support to proceed with the implementation of their digital transformation ideas and test them in a market context.

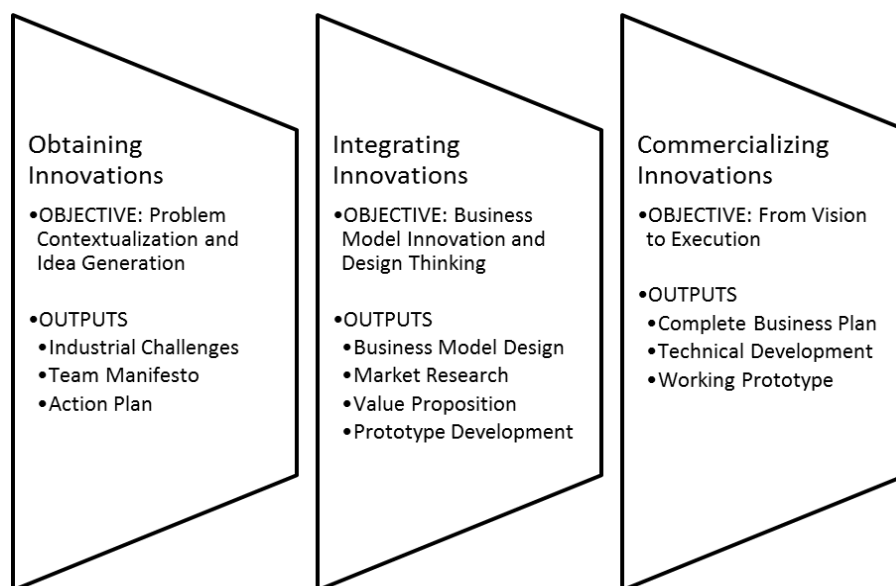


Figure 2: The IDEA open innovation initiative stages (adapted from West and Bogers, 2014)

To gather the bulk of data, we combined multiple sources of data collection that lend greater support to the conclusions. Hence, the following techniques were chosen as the most appropriate:

- Personal observations during the IDEA open innovation initiative. We spent a great deal of time and effort to analyze the digital transformation issues that influence the financial services sector. This was accomplished by interacting with both the incumbent firms and the startups, from the position of the organizer and thus facilitator of the open innovation initiative. Concerning the value of this technique, Cooper and Emory (1995) state that: “observation qualifies as scientific inquiry when it is specifically designated to answer a research question, is systematically planned and executed, uses proper controls, and provides a reliable and valid account of what happened.”
- Semi-structured Interviews with all the stakeholders of the Greek financial services ecosystem (Banks, Insurance Companies, Technology Companies, FinTech Companies, Payment Institutions and Universities) about specific factors that influence the collaboration with the digital ventures. All these stakeholders were involved in the IDEA open innovation initiative. The greatest value of this technique lies in the depth and detail of information that could be secured. This implies that we could have more control and opportunities to elicit feedback when needed. Also interviews with the team members of the digital ventures have taken place. This

type of information can be considered as preliminary or contextual data in order to develop a thorough understanding of the problem situation. The greatest value of this technique lies in the depth and detail of information that could be secured. This implies that we could have more control and opportunities to improve the quality of information acquired and elicit feedback when needed.

## 4 Results

In the IDEA open innovation program, the incumbent firm tried to obtain, integrate and commercialize digital transformations in the financial services sector. The program has run in the time period between September 2016 to March 2017. During the first phase, 104 entrepreneurial teams and startups expressed their interest to collaborate with the incumbent company and get involved in developing innovative solutions. After screening those ventures, 22 of them were selected to develop a detailed implementation plan and requirements analysis of the proposed digital transformation. At the end of this phase, the incumbent firm offered monetary prizes to 5 startups and were selected to develop their digital transformation idea in the real environment of the firm. In the following section, we briefly describe the outcomes of the IDEA in Fintech open innovation program. To maintain confidentiality, the names of the incumbent firm and startups have been concealed, but a thumbnail description of each is provided as follows:

- The digital transformation offered by Startup 1 involves a web platform that enables the user to easily create and deploy complex big data clusters in major cloud IAAS providers. It abstracts from the user vendor specific complexity, it promotes use of best practices and leverages spot instances to achieve maximum cost efficiency.
- The digital transformation offered by Startup 2 involves a Fundraising, Contract / Digital Rights Management, and Digital Distribution entrepreneurial venture, aiming to provide a simple, transparent and robust financial ecosystem for the production of digital media assets.
- The digital transformation offered by Startup 3 involves a entrepreneurial venture in the field of interactive and digital marketing targeting to engage consumers in shopping experiences and other activities through innovative applications and pervasive technologies. It develops a mobile application that rewards users for their presence at particular Points of Interest.
- The digital transformation offered by Startup 4 is a global online crowdfunding platform that integrates all types of crowdfunding in one place, providing a powerful tool of digital funding mechanism for entrepreneurial ventures, entrepreneurs and existing companies.
- The digital transformation offered by Startup 5 involves a digital gift card platform where users can buy, send, change and redeem digital gift cards from their favourite retail brands. Its technology also provides loyalty and reward programmes for all businesses, in a more social and automated way - saving valuable time for business managers and making it more incentive and fun for employees.
- The digital transformation offered by Startup 6 involves an online platform for supermarkets based on sharing economy in order to deliver. Customers can select the physical store of their preference, order their groceries through the website or mobile application, and get them delivered to their place and time of choice.
- The digital transformation offered by Startup 7 manages documents/contracts trade on the blockchain and uses smart contract to eliminate costs, disputes, forgery and unnecessary risks.
- The digital transformation offered by Startup 8 combines fit-tech with fintech, by providing instant gratification for your healthy lifestyle. Using its application, every step taken and every healthy meal consumed is converted into points, while completing daily fitness goals rewards with even more. The points can be spent on its online store on discounts and offers for gym subscriptions, dietitians and fitness stores.



The results presented below are indicative and have been divided in the following main categories: Innovation Activity, Technology, Business Strategy, Regulation –Social Impact and FinTech in Greece.

Regarding the innovation activity of the organizations, we tried to capture their innovation capacity and readiness for digital transformation. The Greek financial services ecosystem has recognized the importance of innovation, and most of the organizations involved, run some type of innovation activity. In the question whether incumbents can innovate using their own internal resources, the participants believe that the incumbents have the capacity to innovate by themselves. Regarding the innovation categories that incumbents should focus, the case revealed that they should innovate in the Products and Services and especially in the way that Payments are conducted. Customer Engagement Innovation is also a category that incumbents should focus in order to maintain their strong customer base.

Another dimension of disruption is technology, which has seriously affected financial services industry, especially during the last decade. New technologies give the opportunity to new players to enter the financial services market, by offering new or seriously improved products and services. The new technologies affecting the industry are being evaluated by the participants, alongside with the likelihood to disrupt the various sectors of financial services area. Trying to understand whether technology has affected financial services industry during the last decade, all stakeholders at least agree. In addition, all the participants think that technology can indeed offer opportunities to new companies to enter a business segment and earn a market share, often in relatively short period. Regarding the emerging technologies that have the potential to transform the financial industry, Blockchain and Big Data Analytics and Mobile Platforms are the leading technologies, that the stakeholders believe that will cause the greatest impact. Robo-Advisors and Internet of Things are following.

According to the case study participants, the business areas more likely to be disrupted are: the Payments, the Invest and Wealth Management, the Deposit and Lending, the Capital Raising, the Insurance and finally the Market Provisioning.

Taking a step forward, we tried to understand the factors that drive to success in the financial services industry, and also identify the strengths and the weaknesses of both incumbents and new players. One of the conclusions was the incumbents' strengths against new players. Trust and access to customers' data are the power that established organizations have. On the other hand, startups' strengths are the agility and speed to the market, the technology expertise and the focus on a limited product set. Concerning the incumbents' response to the challenge caused by FinTech companies, the case results have shown that the best strategy that incumbents should follow is to collaborate with the new players and invest more funds to innovation activities.

Another important issue was the relation between regulation and market changes in order to capture the social impact of FinTech phenomenon. It is true that regulation can drive changes in financial services industry, and PSD2 (Payment Services Directive 2) is a very recent example. Whether regulation can adapt to the pace of technological change is an issue that remains controversial. Millennials, on the other hand, can easily adapt to the pace of technology and are those that support and empower the FinTech movement. According to the case study the social impact of FinTech is the access to financial services for the unbanked, the opportunities given to the new players, the low-cost transactions and finally new models of sharing economy.

Finally, we tried to examine whether Greece's specific situation affects the national financial services industry and also to measure how familiar is the people with new technologies. The findings are very interesting, with the participants to agree that the recent capital controls that were imposed by the Banks eroded the trust of their customers, whereas the current economic situation of the country benefits the FinTech movement. The things that are against it are the Greek regulation and taxation system that doesn't support businesses and the familiarity of the Greek people with technology.

## 5 Conclusion

The basic conclusion of the study is that FinTech is obviously disrupting the financial services ecosystem, and the transformation of the traditional business models will be massive and unlike anything the sector has experienced before.

Our conclusions indicate that innovation is a very important factor that drives the disruption, but is also a necessity for the survival of the incumbents. According to our case study, the importance of innovation is completely understood by the stakeholders of the Greek financial services ecosystem, with most of them to run some kind of innovation activity. Collaboration with startups is also essential for the incumbents in order to maintain their market share.

As such, our conclusions indicate that collaboration is a win-win situation for both incumbents and new players. With effective collaboration, the stakeholders can combine their strengths, fight their weaknesses and finally share the profit. The business strategy that will follow is a vital issue for both incumbents and startups. The most important factors for success in financial services are customer's trust, convenient processes, low-cost transactions and strong customer base. The incumbent's strengths against new players are mostly the trust of the people, the access to customer data and the physical branch network, whereas their weaknesses are the legacy technologies and the lack of agility. By contrast, the new players have more agility and speed to the market mostly due to their focus on a very limited product set. They are also more capable to innovate with many technological resources. But on the other hand, they don't enjoy yet the customer's trust and are mostly inexperienced with restricted investment capital. By combining their strengths all stakeholders can meet their targets and business objectives. The majority of the experts, as well as, the case study results indicate that the best response of the incumbents to the FinTech challenge is the collaboration with the new players.

The main benefits for the incumbents by collaborating with startups are the increased awareness of new market trends and emerging technologies, and even more, the agile development of products-services. But, on the other hand, the most important barriers to effective collaboration between incumbents and startups is the mutual trust and the unclear decision-making model.

Particularly in Greece, incumbents have the capacity to innovate by using their own internal resources, and this fact is proven by the offered innovative products and services, especially in the Consumer Banking sector. There are four big players that drive the process of creating a Fintech scene in Greece. But today, the financial organizations are facing many technological challenges. Banks and established companies are mostly having trouble in adapting legacy infrastructure to meet new business demands, in finding top technology talent and finally in addressing cybersecurity threats. On the other side, new players and startups are struggling to raise the necessary capital to grow and to keep up with the constantly changing regulatory demands.

Taking a step forward, our conclusions indicate that regulation is a basic factor that can drive changes in financial services industry. For example, PSD2 opens the financial services market to new players, abolishing banks' monopoly on customers' account information and transaction services. Banks are obliged to provide access to their customers' accounts through open APIs to third-parties, which will build innovative financial services on top of banks' data and infrastructure. But whether regulation can adapt to the pace of technological change is an issue that raises controversy. The sure thing is that FinTech movement is strongly supported by Millennials and their digital nature. Millennials and the generations to follow are the force of change in traditional business models and organizations and financial services is one of the most affected sectors.

Finally, our conclusions indicate that FinTech in Greece is something relatively new. The country's economic situation benefits the FinTech movement, according to the opinion of the most participants of our case study. Furthermore, the recent capital controls have eroded Banks' trust, which is the most important factor of success in the industry. Greek people are not yet so familiar to adapt to the new

fully digitalized financial services, but there have been important steps to improve this situation. But finally, it is the Greek regulation and taxation system that prevents the rapid growth of FinTech in our country.

## **6 Limitations and Implications of the research**

As within any research, there are certain limitations that the reader should take in consideration. We face a relatively new field of research, the one of digital transformation, where literature is not particularly extended, and even less research has been conducted at an industry level analysis (i.e. fintech). The primary limitation of the research is the generalizability of the conclusions that can be made from the research as part of the study, taking in consideration that the case study research methodology renders the generalizability of the results to be questionable at least, especially when the research is conducted on a limited number of case studies. Our data is mainly collected for a single case study and is limited to a single country and to a limited amount of stakeholders. At the same time, the sector of financial services can be seen as a restriction, but it was deliberately chosen in order to gain a better understanding on the specific topic. In this way, we managed to better focus on the issues and on the firms under consideration and to draw in-depth conclusions that can be extended to a larger sample while not being able to focus on each case separately. While the digital transformation opinions of the stakeholders analyzed at the case study were complex, they cannot be considered representative for all the markets and geographies. The root cause of this limitation is that there is a very limited number of available information sources regarding enterprise digital transformation programs on scientific libraries and literature. In addition such information is rather confidential and it is not publicly shared by companies. Further research would have to be conducted in order to prove the findings as generalizable. Finally, another limitation is that there are very few studies with qualitative and quantitative data and findings, for topics like digital transformation benefits, outcomes, Return On Investment etc. as the digital transformation is a new trending topic. Lack of such information creates additional barriers in conducting such a research.

Digital transformation of the financial services industry is a research sector that will have a significant potential in the years to come as more and more entrepreneurs and more and more firms are involved in it. Our research is particularly useful to entrepreneurs or aspiring entrepreneurs who are active in the business environment that is shaped and increasingly influenced by new technologies. We believe that more researchers should be encouraged to engage in this particularly important research topic that will grow further in the years to come due to the fact that the advancements in digital technologies will disrupt, if not yet, the entire set of industries and markets, therefore studies on the domain of digital transformation will be required to be used as guides by enterprises, government institutions and digital technology professionals. Research can be developed by studying a number of different disciplines than those described in this research to compare the results and to draw out more general conclusions. It is also proposed to collect data from the companies themselves, wherever possible. From the limitations described previously, it can easily be determined that there is space for improvement which can be performed in future research and could contribute to the validation of the contributions that were introduced by this study. Furthermore, future studies can be based upon the observations of this study.

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