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## OPERATIONAL

Bank and fintech for transformation of financial services: What to keep and what is changing in the industry ANNA OMARINI

# ARTIFICIAL INTELLIGENCE

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# DEAR READER,

As the financial services industry continues to embrace transformation, advanced artificial intelligence models are already being utilized to drive superior customer experience, provide high-speed data analysis that generates meaningful insights, and to improve efficiency and cost-effectiveness.

Generative AI has made a significant early impact on the financial sector, and there is much more to come. The highly regulated nature of our industry, and the importance of data management mean that the huge potential of AI must be harnessed effectively – and safely. Solutions will need to address existing pain points – from knowledge management to software development and regulatory compliance – while also ensuring institutions can experiment and learn from GenAI.

This edition of the Capco Journal of Financial Transformation examines practical applications of Al across our industry, including banking and fintechs, asset management, investment advice, credit rating, software development and financial ecosystems. Contributions to this edition come from engineers, researchers, scientists, and business executives working at the leading edge of Al, as well as the subject matter experts here at Capco, who are developing innovative Al-powered solutions for our clients. To realize the full benefits of artificial intelligence, business leaders need to have a robust Al governance model in place, that meets the needs of their organizations while mitigating the risks of new technology to trust, accuracy, fairness, inclusivity, and intellectual property. A new generation of software developers who place Al at the heart of their approach is also emerging. Both GenAl governance and these 'Developers 3.0' are examined in this edition.

This year Capco is celebrating its 25th anniversary, and our mission remains as clear today as a quarter century ago: to simplify complexity for our clients, leveraging disruptive thinking to deliver lasting change for our clients and their customers. By showcasing the very best industry expertise, independent thinking and strategic insight, our Journal is our commitment to bold transformation and looking beyond the status quo. I hope you find the latest edition to be timely and informative.

Thank you to all our contributors and readers.

Lance Levy, Capco CEO

# BANK AND FINTECH FOR TRANSFORMATION OF FINANCIAL SERVICES: WHAT TO KEEP AND WHAT IS CHANGING IN THE INDUSTRY

ANNA OMARINI | Tenured Researcher, Department of Finance, Bocconi University

## ABSTRACT

Technology in banking has always had the power to affect the fundamentals of business, such as information and risk analysis, distribution, monitoring, and processing. The relationship between technology and banking is, however, quite different to how it used to be, predominantly due to stronger interdependencies, both technological as well as strategic. Today's digital technologies have the power to improve efficiency and effectiveness in services, as well as exerting increasing influence on banks' products and delivery methods, and increasingly on strategies. Digitalization is changing the rules of the game in many industries, and this results in the emergence of complex and dynamic ecosystems for growth and innovation. The main forces shaping these changes have led the financial services industry to reconsider the role of banking and finance, more as an "enabler" for many other businesses and commercial initiatives than as a mere provider of products and services. This paper looks at how financial services organizations are transforming themselves using the new technologies at their disposal and tries to determine what should be kept and what needs to change.

## **1. INTRODUCTION**

In recent years, the term financial technology, or fintech, has emerged as a key driver for most of the changes in the financial services industry, even though technology has always been an enabler. This is because the core business is made of services and services can be produced and delivered to processes with a high degree of technological intensity.

Technology in banking has always had the power to affect the fundamentals of business, such as information and risk analysis, distribution, monitoring, and processing [Llewellyn (1999, 2003)]. However, it is useful to make a distinction between technologies of the past and the digital technologies of the present. The latter not only have the power to improve efficiency and effectiveness in services but have also started to exert increasing influence on banks' products and delivery methods [ECB (1999)]. Consequently, if we think of fintech there are two meanings worth considering. Firstly, there is the implementation of technology in the industry to improve efficiencies in the back end of a single financial institution (payments infrastructure, for clearing and settlement, as well as offer new services to customers, such as ATMs), as well that of stock market infrastructures to increase buying and selling securities in general. This is the "old" fintech. Secondly, because of the nature of immaterial components of financial services, which makes it quite simple to distribute globally as well as to develop many innovations by simply unbundling and rebundling solutions, they are the most successful evolutionary entities and disruptors. They combine multiple sources of value - such as cost efficiency and customer experience and engagement - to create disruptive new business models and exponential gains. This is the second definition of fintech. FSB (2017) describes fintech "as technologically enabled

innovation in financial services that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services. Fintech innovations are affecting many different areas of financial services."

However, both have paved the way for technological transformation, which over time has become a key priority for many banks and financial services institutions that were seeking to remain competitive and meet customers' evolving demands. More recently, tech changes have driven the market into a digital vortex, where organizations are forced to compete in a digital environment in which business models, offerings, and value chains are digitalized to the maximum extent possible. This has led to the creation of new disruptions and blurring of the lines between industries. The advent of new ways of doing business, such as "platform-as-a-service" (PaaS), "software-as-a-service" (SaaS), and more specific to our case, "banking-as-a-service" (BaaS), are helping to lower the barriers to sophisticated financial applications by allowing people and talent to focus on business value added tasks as opposed to the building, supporting, and managing of infrastructures.

Digitalization is changing the rules of the game in many industries, and this results in the emergence of complex and dynamic ecosystems for growth and innovation.

The main forces shaping these changes have led the financial services industry to reconsider the role of banking and finance, to become more of an "enabler" for many other businesses and commercial initiatives (such as the embedded finance phenomenon) than a mere provider of products and services. And there is a growing market awareness of the role that technology is playing with regards to this vision.

At this stage, there are two key issues that are crucial in the quest for digital transformation of banking and financial services. The first pertains to key trending topics that shape the industry, while the second revolves around the solutions and platforms employed to enable these trends. With regards to the trending topics, there are a few of them, such as sustainability, segment-specific banking, digital financial advisory, digital identity, instant payment cryptocurrencies, central bank digital currency (CBDC), and open banking and finance, etc.

Given the rapid pace of change, what industry leaders need to consider is: where does the new come from, and what should we keep from the old? The new comes from the way the market and its actors are looking at customers. For many years, banks have driven their activities from the perspective of segment-specific banking, where banking interfaces – such as branches, websites, e-banking portals, and mobile apps, more recently – have typically been designed with a single interface intended to cater to multiple customer groups.

This approach fails to consider the diverse needs, preferences, attitudes, and behaviors of customers. In specific, it fails to consider the changes in behaviors, expectations, and attitudes that accrue as a result of socio-economic changes and supply and demand cycles of innovation. Banks also ignored the fact that functional requirements are only one of the reasons why customers make a choice, and that different customers have different needs and expectations. Even simple issues, such as the differing expectations between different age or wealth groups, are typically ignored. Addressing the unique needs of various customer segments, such as private banking or high net worth clients, will need to involve some form of digital transformation.

The second key dimension of digital transformation relates to the solutions and platforms employed to enable these trends. Value chains need to change from pipeline business models to platforms business models where unbundling them into different modules of products or services can develop new value propositions.

The financial services industry is facing new waves of change because of these technologies, and banks are the most affected by many of these changes. They are facing competition not only from their conventional peers, but also, due to their customers becoming more knowledgeable and demanding, with fintechs, bigtechs, and even retailers. This situation is exacerbated by the fact that customers are constantly changing their attitudes, behaviors, and habits.

We are currently in the early stages of transforming the banking sector and the implementation of new technologies, and both regulators and supervisors must also face the additional challenge of digital transformation, which requires achieving the right balance between promoting new digital value propositions and protecting customers and banks against the risks inherent in digitalization of financial services. Under these circumstances, there are old and new risks, but also old and new managerial principles and rules to detect and become aware of. The new enlarged non-financial risks (for example, fraud, cyber risk, operational and strategic risks, etc.) come from the increasing use of cloud, big data, platforms, artificial intelligence (Al), machine learning, and other seamless tools, which aim to increase personalization and improve user experiences to deepen relationships. While old risks remain, they may even become exacerbated by the new complexities.

If we then consider managerial rules, we need to recognize that there are core principles – such as the basic principles of keeping safe economic, financial, and patrimonial balances – and that simply because business is undertaken it does not mean the business has changed.

The new is the digital layers that lie on top of the old ones, making value chains looking – only apparently – shortened. However, they introduce a kind of infinitive intermediation in the market [Omarini (2019)] when the old infrastructures are still in use (think of some services of payment).

New banking is moving its business model framework from vertical silos to platforms and richer ecosystems. The result will be the de-integration of financial solutions, which can easily become embedded into the business value chains of others. This new trend comes from the increasing adoption of modularity, which drives companies to move towards product componentization [Tuunanen et al. (2012), Accenture (2021)]. All of this is not completely new to the financial services industry, because banks have always developed bundles of services. What is new is that modularity and componentization require a deeper understanding of the customer base that is available today to design and develop customization and personalization for selected needs and use cases for the market [de Blok et al. (2014), Moon et al. (2010), Bask et al. (2011), Silvestro and Lustrato (2015), Bleier et al. (2018), Anshari et al. (2019)].

The new also comes from the digitalization of the many processes that have been re-designed, as well as the need to make a number of older products match the tech-driven pace of change.

The new current outlook reveals nascent ecosystems made of independent actors, where the traditional supply-centered oligopoly is coupled with fintechs, techfins, retailers, etc. Within this also lies the disruptive aspect of PSD2 (Payment Service Directive 2) and 3 for Europe, and similar initiatives in other major markets. PSD2, which seems to be going one step beyond its regulatory mandate [Cortet et al. (2016)], is indeed an impressive accelerator of the digitalization process that is already affecting banking. In fact, it aims to boost competition in the market, and, therefore, customer mobility, by increasing unbundling and modularization in the industry. It is also challenging the financial services landscape, and its stability, by severely impacting revenue streams that were considered sticky by banks.

The difference with the past, in terms of the relationship between technology and banking, is the stronger interdependencies: technological as well as strategic interdependence.

#### 2. THE DIGITAL TRANSFORMATION OF THE CONSUMER

When thinking of the consumer, we must bear in mind that what they demand and expect from banks can only be partially defined in financial terms. Indeed, they want their life to be easy and the path to their goals to be a simple one. They look for convenience, product simplicity, ease of use, cost savings, personalized offerings, and memorable experiences [Omarini (2019)].

The COVID-19 pandemic has further incentivized customers to shift away from traditional branches of banking towards digital channels, placing the industry at a turning point. For a long time, the main objective of most banks was to increase their share of the customer's so-called "share of wallet", which meant that banks tried to get as large a share of a customer's wealth as possible. However, over time, some large institutions have shifted their activity from deposit-taking, lending, securities underwriting, and trust services toward dealer and market-making activities, brokerage services, and proprietary trading. The result has been a fall in customercentricity; hence traditional banking has lost significance visà-vis other forms of financial intermediation and counterparts (namely fintechs, bigtechs, etc.).

While banks have traditionally been convenient one-stop shops for businesses and consumers, they are currently undertaking this digital shift differently. On the one hand, there are several banks that have not evolved their products in a way that matches the tech-driven pace of change in other industries. On the other hand, there are others that still find it difficult to undertake this change. A recent ECB study (2023) found that banks – under its supervision – still find it difficult to isolate and quantify the cost and revenue impacts of their digital transformation strategies and processes. The study also found that half of the sampled banks do not monitor the number of customers digitally onboarded; only one in four banks can quantify the volume of digital sales. Only half of the banks monitor the number of digitally concluded loans (e.g., pre-decided loans, consumer credit), which stands at around 45% of their total loan portfolio.

This means that there is still a lack of vision regarding how digitalization is impacting the competitive landscape and which organizations are the game changers that are playing different roles in the market arena, so that they may be both competitors and partners.

Of course, it is not all bad news. There are a number of banks, such as the Royal Bank of Canada, ING, BBVA, that have embraced digital transformation, have declared renewed and different visions, and driven their business models to change.

Products such as checking accounts, loans, and even corporate advisory can only seem to be undifferentiated. If this is the case, then people may increasingly feel frustrated by the financial fragmentation that banks have imposed on many consumer processes and related experiences. For instance, buying a home once required navigating a complex environment of disconnected real-estate brokers, mortgage lenders, insurance companies, lawyers, and so on. At that time, the bank-customer relationship was driven by the branch's manager, and the face-to-face relationship helped mitigate a number of concerns/issues. Furthermore, there were not that many alternatives in the market with whom the borrower had a long-term banking relationship with. Today, there are many new ways to reach and connect with consumers, and banks need to identify and engage with these customers, as their newer competitors are doing.

Everyday banking encompasses day-to-day financial services, such as checking and savings accounts, credit cards, personal loans, payment processing, and lines of credit on the traditional-banking side, for individuals and for small and medium-size enterprises (SMEs). This arena will also include e-commerce ecosystems, loyalty programs, discounts, advertising, and peer-to-peer marketplaces; meaning that banking need no longer be an obligation but something easy and even potentially enjoyable. Think of the fully-fledged e-commerce bank: Kaspi from Kazakhistan. Kaspi's customers "

The goal of everyday banking is to be contextual and invisible. However, keep an eye on the other side of the coin: transparency and consumer protection.

have access to millions of products from more than 400,000 partnering merchants, ranging from low-price clothing and cosmetics to higher-price electronics, furniture, and jewelry. It enables easy, discounted shopping at retailers. Kaspi charges its partners a 5 to 11% fee, and its users pay nothing. For frequent purchases, they get cash bonuses deposited directly into their Kaspi accounts; a strong incentive to make Kaspi their primary bank [McKinsey (2022)].

The common thread running through all day-to-day financial services is that customers want them to be hassle free, reliable, highly automated, and inexpensive. The goal of everyday banking is to be contextual and invisible, which means offering services that are cheap, easy, and accessible through many channels, such as the use case of "buy now pay later" (BNPL).

In combination, the above factors are fundamentally transforming the industry, resulting in increased competition, and as a result, falling profit margins for banks [KPMG (2016, 2023)]. If you consider that the average global banking returnon-equity (RoE) has fallen from 15% in 2008 to around 9.5 percent in 2021 and could potentially fall to 7.2% by 2030 [McKinsey (2022)] it quickly becomes clear why banking executives are so concerned.

Banking executives can no longer focus solely on costs, product and process quality, or speed and efficiency. They must also strive for new sources of innovation, creativity, and revenues. These increasingly complex forms of competition have forced banks to find new ways to attract and retain customers, who now, more than ever, command the power to choose [Omarini (2015)]. This new paradigm presents a formidable and constant set of challenges.



Image generated by Adobe Firefly

Customers are increasingly informed of what options are available to them, which in turn has led them to become more demanding. Thus, the paradox of the twenty-first century economy is that on one hand, consumers have more choices, which might yield less satisfaction, and on the other, top management has more strategic options that yield less value [Prahalad and Ramaswamy (2004)]. Hence, knowledge of what customers want is increasingly driving this new emerging paradigm.

The fact that digital technologies are changing the habits of how individuals do their banking will concern both banks and new players. They need to decide whether to take a purely transaction-driven business approach, which will allow them to survive under certain circumstances (such as volume, economies of scale, etc.), or a more relational-driven business approach, which will mean continuous innovation, boosted and driven by new ways of data management.

The current outlook for the banking industry reveals a network of platforms and a set of nascent ecosystems approaches [Breidbach et al. (2014)] made of independent actors, where the traditional, supply-centered oligopolies are coupled with fintechs, bigtechs, retailers, etc. Within the new open banking framework also lies the disruptive aspect of PSD2 in Europe, and similar trends in other jurisdictions. Open banking provides "access to account" and communications with authorized third parties, customers, and payment account information. BIS (2019) defined it as "The sharing and leveraging of customer-permissioned data by banks with third party developers and firms to build applications and services, including for example those that provide real-time payments, greater financial transparency options for account holders, marketing, and cross-selling opportunities."

This is only the starting point, and there is no shortage of ideas regarding the challenges that banks face and the strategies they need to undertake in order to respond [Accenture (2018a, 2018b, 2020), AT Kerney (2021), CapGemini (2019, 2020, 2021), PwC (2018a, 2018b), Deloitte (2017, 2020, 2020a, 2020b), EY (2017), KPMG (2020), McKinsey (2017), Microsoft et al. (2017), Zachariadis and Oczan (2016), Dratva (2020)].

Banks have a number of options. They can view open banking and open finance frameworks (which, from June 2023, also allows sharing of information regarding mortgages, insurances, etc.) merely from a compliance perspective, or think of them as new competitive frameworks to develop. They can also expand their business lines (think of BaaS) or even transform their strategies and related business models [Cortet et al. (2016), Omarini (2022, 2023)]. Open banking and open finance are allowing new players to thrive not only in the payments area, but also in other areas of banking as well, once they have access to account and not-account information. This disruption is key to the everincreasing unbundling and modularization of banking. While all the necessary conditions are already in place for the re-bundling stage, where the core objectives of financial intermediation may remain the same, the methods and functionaries relating to those objectives change with digital technologies and market developments. Think of the bankingas-a-service (BaaS) paradigm, which is driving endless possibilities, paving the way towards a truly embedded finance environment.

In this regard, BaaS unlocks new values because it allows banking to be embedded in adjacent ecosystems. It is the opportunity to eliminate the frictions in user interactions, among clients or partners, that make financial services more and more contextualized.

A high degree of open innovation [Chesbrough (2011)] is the result of the above. And the way banking has started being embedded in many other business value chains has also started empowering consumers to access not only their accounts, but also their mortgages, credits, student loans, automotive finance, insurances, investments, or pensions and loans. Ultimately, this access allows for the delivery of additional value in the form of saving-related services, identity services, more accurate creditworthiness assessments, financial inclusion, and a more tailored financial advice support service.

Opportunities associated with BaaS are taking the retail banking sector by storm, as organizations search for not only new ways of improving customer engagement and enhancing experiences, but also finding new sources of revenues from within and without the financial services marketplace [Finastra (2022)].

The era when all financial services were dominated by monolithic banking entities is over. We believe that the future of banking will be contested by banks and nonbanks in different arenas. An example would be everyday banking where payments, small savings, and consumer loans are core services, but that investment advisory, complex financing, and BaaS are also available.

Moreover, considering that in such a changing environment retail banking is increasingly in the business of being chosen [Omarini (2015)], being customer-centric requires shifting from a product-oriented view of business to a more service-oriented one, as the latter requires focusing on how the customers make "use of banks and banking" and not on the characteristics of the products. In this regard, customer intimacy can be a potential future direction because it aims to continually tailor, shape and re-shape products and services to fit an increasingly fine definition of the customer's expectations and needs.

Under the new customer intimate and digitalized approach, it is mandatory to look for new segmentation bases and criteria, because the success of both open banking and open finance will depend on customers being prepared and educated in becoming engaged, and willing to allow third-party providers to have access to their financial data. And therein lies that old core principle of "trust", which had been driven the financial services industry since its beginning and which will continue to matter to customers.

### 3. BANKING AND FINANCIAL SERVICES PLATFORMIZATION

Times have changed, and not even one of banking's main products has remained exclusively in the hands of banks or other conventional financial intermediaries. The banking business is one that is undergoing major transformation, as many of the boundaries between it and potential competitors have collapsed. New players in the banking industry have different understandings of what customers value and are more committed to customers than traditional financial service providers.

This huge change is being driven by new potential functionality, which is also spreading at the societal level [Alijani and Wintjes (2017)], where the borderless extension of financial innovation is experiencing great change and where the new fintech phenomenon has started developing and reshaping the industry's value propositions and related business models [IMF and World Bank (2019)].

All this will, in turn, accelerate the fragmentation of the value chains in the banking sector; as mentioned before, consumers are free to choose services provided by a set of third-party providers on the basis constituted by the (open) account they hold within a bank. This shift requires that everyone becomes aware of the need to move their mindset and related strategy from controlling to managing customers' money [Bareisis (2013), Omarini (2019)].

This means that the focus for every organization must shift from the value chain and the company's value proposition to the different ways value for customers can be developed and enriched over time. In this regard, vertical or pipeline business models may not be that good at satisfying the increasing customers' expectations, because they are all becoming very good at "comparing and contrasting" different offerings. Hence, organizations must look for a more holistic approach to customer knowledge and customer value. Providing customers with solutions through digital platforms is also transforming the banking business into business platformbased ecosystems, within which entities create value for one another by producing or consuming goods and services that mutually support one another.

In the first stage, banking is moving onto digital platforms; cross-industry interconnections will increase and result in new competitive threats. Providers of banking services will progressively come to see themselves in the role of "enablers" of transactions occurring on digital platforms and within business ecosystems.

For retail banking, especially in Europe, the advent of digital platforms can be expected to cause a shift away from the traditional universal banking business model towards a re-new customer-centered universal banking model. In the former, economies of scale and scope dominated strategic thinking, and conflicting of interests between business sections arose easily within the same legal entity. In the latter, the unbundling and re-bundling of services and respective business models are first selected and then chosen for a given purpose (such as solving a customer's need, improving quality, developing a new customer experience, etc.).

At this point, it is important not to confuse "platform" and "ecosystem". Platforms create value by eliminating frictions from transactions and exchanges; for example, in the case of a marketplace. The concept of ecosystems has become increasingly popular in several streams of literature (e.g., strategy, organization, innovation, digital models). The notion was first pioneered by Moore (1993), who referred to ecosystems as cross-industry entities. According to Moore's characterization, companies both collaborate and compete to innovate and evolve together, to adapt to their environment.

Since its inception, the ecosystem concept, in the field of strategy has started underlining the idea of interdependence between each single species within the ecosystem. The future of each player is indeed related to that of the others. Ecosystems are characterized by both symbiotic and antagonistic relationships, without which each single player would lose its own individual meaning. While the boundaries of an ecosystem may be blurred, companies should try to identify the players upon which their success depend [Adner and Kapoor (2009), Gawer (2009, 2021), Gawer and Cusumano (2014)]. The ecosystem also focuses on questions of access and openness, highlighting measures such as the number of partners, network density, and actors' centrality in larger networks.

In the second stage, the banking industry is going to evolve towards platform-based ecosystems, through organizing the contributions of multiple companies that collaborate to create a unique value proposition within a thematic customer journey.

Ecosystem members must coordinate to create a unique value proposition for the consumer, which would not exist without an underlying ecosystem. The unique value proposition will offer customers new experiences, so that every participant in the experience network will be under the same umbrella name platform-based ecosystem and works towards creating value as well as competing in value extraction. This results in constant tension in the strategy development process. At this point, the balance between collaborating and competing is delicate and crucial, and requires a high degree of transparency for effective collaboration and value co-creation in order to achieve a win-win strategy in co-extracting economic value.

In comparison to platforms-based ecosystems, platforms are simple business models. Both within the B2B and B2C sectors, success will be dependent on the ability to sustain large scale investment, often over a period [(Shipilov and Burelli (2020)].

The emergence of the platform-based ecosystem can be attributed to the fact that it ultimately serves the purpose of facilitating innovation and enhancing value proposition to end customers by making innovation co-evolving [Adner and Kapoor (2010)]. It also provides impetus [Brass et al. (2004)] for interorganizational ecosystem collaboration to reduce costs and increase economies of scale and scope. These findings are also in line with what was postulated by Chesbrough (2011) on the open innovation, and the achievement of common goals.

At this stage, what matters is the openness of this new paradigm, where every player may interact within one or more surrounding ecosystems [Omarini (2018)]. All this demands a new vision that is both focused and broad, highly dynamic, and interconnectable to new value propositions, based on relationships, platforms, and the sharing of information. Under these circumstances, there is a strong need for balancing the opportunities for openness with the need for consumers' protection, which is fundamental to maintaining trust and security in the financial services market.

# 4. WHAT SHOULD BE KEPT AND WHAT NEEDS TO CHANGE?

The question regarding what needs to change and what should be kept is derived from the changes that the financial services industry is undergoing.

While the core objectives of financial intermediation may remain the same, the methods and functions relating to those objectives are changing with digital technology and market developments (namely platforms and platform-business ecosystems). Within the new environment, which is affected by so many unknown variables, it becomes important to recognize the need to change patterns of analysis.

It is time to recognize that it is difficult to adopt deterministic models of input-output. This is because organizations are cognitive systems; hence, it is important to recognize their dynamics linked to learning processes and logic transformation, especially when banking and financial services are becoming increasingly customer knowledge driven.

It is time for every organization to counteract the excesses of macroeconomic theory, which has long considered banking as a "black box", designed to mediate cash flows and incomeoriented balance conditions at the global level, paying less attention to its counterparties. It is also the time to be less influenced by models based on discounted cash flows.

The new frameworks provide us with two points of analyses worth outlining. The first is that similar to their traditional counterparts, new financial services providers aspire to develop the core purposes of financial intermediation, albeit with new methods and functionaries. The second point is that in many cases there is still a banking organization or a consolidated infrastructure somewhere in the fintech and bigtech stack; similar to third-party app developers who rely on smartphone sensors, processors, and interfaces. For instance, fintech developers need banks somewhere in the stack for such things as access to consumer deposits or related account data, payment infrastructures, credit origination, and compliance management. Although there is a new generation of banking strategies entering the market, we believe that the fundamental principles of managing each of the vertical businesses, where the new financial services providers have started entering the market (payments, lending, financial advice, etc.), keep their relevance. They are still relevant for both maintaining old equilibriums and developing new ones by improving resiliency, as well as keeping the entire industry safe and stable, albeit under different emerging frameworks.

It should be noted that the new-bank-like organizations, which are tech-driven firms, are ultimately offering financial services, and, in doing so, are all working in related businesses; hence, some of the critical industry specific issues will remain in the market.

Given all of these facts, one must bear in mind that despite the role that fintechs, or any other new financial services providers, play, we must recognize that the business of banking is still complex. This complexity has been exacerbated by digital technologies and new frameworks [Omarini (2019)].

Every third-party financial services provider must be aware of the business they are in and recognize that being part of the financial services industry is only the first layer of complexity that they need to manage. Add to that the issue of deciding whether or not they want to be part of one or more platforms or ecosystems.

Finally, it is worth remembering that banking is a people business [Omarini (2015, 2019)], which means that factors such as trust, distinct professional knowledge, soundness, and a strong culture of fact-based decision making, will remain relevant.

At this stage, the main challenge for financial services providers will be to move away from being a provider in the service of customers to becoming the customers' provider. To achieve this goal, each organization must recognize that the blurring of the lines in the industry is causing a rethinking of the definition of what banking, banks, and bank-like companies are going to be for individuals in the near future.

#### **5. CONCLUSIONS**

The discussions above demonstrate that banking, as a business, is not in search of relevance, but has instead started renewing itself and becoming reactive to customers' behaviors and changing habits.

Embedded finance, which seems to be one of the future trends in banking, has opened the way for an ever-infinite intermediation, because both banks and non-banks are becoming increasingly crucial to everyday life. Customers are taking a more active interest in saving and investing, as well as lending and borrowing.

As we move further into the realm of digital banking and finance, there will be a greater need for the industry to rethink a number of its old concepts, including asking what is banking and what is the role of banks. It also drives the industry to accept that money, which is the "good" exchanged in the industry, is becoming increasingly digital. Its virtuality will call on regulators and the industry to give digital money more attention, and help bridge any trust gaps that could emerge in the changing market landscape. Digital money will be increasingly demanded as attitudes and behaviors change, and will influence how value is exchanged in the future. On one hand, there are banks that have been leading the industry for a long time and need to decide whether they adapt themselves to the many changes the industry is undergoing or being the changer. On the other hand, there are other financial services providers (namely fintechs, bigtechs, etc.), which are looking to build trust among their counterparties, be they individuals or organizations.

We want to underline that today's markets are driven by choice, and customers have an abundance of options to choose from. Hence, each business must adopt a holistic mindset and bear in mind that in the digital age every business is in a permanent state of being in the business of being chosen.

Choosing from multiple options is always based on differences, be they implicit or explicit, so that differentiation is needed to give the customer a reason to choose a particular service and related experience. Hence, differentiation is becoming one of the most important and challenging drivers for competing in the market; and at present, it is not discretionary.

This is because, in the future, a single bank or financial services provider will not necessarily be called upon to provide many more services by itself, but is expected to help customers make better use of their services and to cross-buy services from a platform-business ecosystem.

#### REFERENCES

Accenture, 2018a, "The brave new world of open banking," https://tinyurl.com/bzfaf3c3

Accenture, 2018b, "Competing in the new era," report

Accenture, 2019, "Competing with banking ecosystems," https://tinyurl.com/mpmjj49v

Accenture, 2020, "Banking in 2020. New trends to watch," report

Accenture, 2021, "The future of banking," report

Adner, R., and R. Kapoor, 2010, "Value creation in innovation ecosystems: how the structure of technological interdependence affects firm performance in new technology generations," Strategic Management Journal 31:3, 306-333

Alijani, S., and R. Wintjes, 2017, "Interplay between technological and social innovation," SIMPACT working paper series 2017:3, https://tinyurl.com/2p9etpsm

Anshari M., Nabil Almunawar M, Ariff Lim S., Al-Mudimigh A., 2019, Customer relationship management and big data enabled: personalization & customization of services, in Applied Computing and Informatics, Volume 15, Issue 2, July, 94-101.

AT Kearney, 2021, "Retail banking radar: change looms in Europe," report

Bareisis, Z., 2013, "The rise of the new bank account? The quest for transactional account primacy," Celent report

Bask, A., M. Lipponen, M. Rajahonka, and M. Tinnilä, 2011, "Framework for modularity and customization: service perspective," Journal of Business & Industrial Marketing 26:5, 306-319

BIS, 2019, "Report on open banking and application programming interfaces," Bank for International Settlements, https://tinyurl.com/37cx4ana

Bleier A., Keyser A., Verleye K., 2018, "Customer Engagement Through Personalization and Customization" in Customer Engagement Marketing, 2018

Brass, D. J., J. Galaskiewicz, H. R. Greve, and W. Tsai, 2004, "Taking stock of networks and organizations: a multilevel perspective," Academy of Management Journal 47:6, 795-817

Breidbach, C. F., R. Brodie, and L. Hollebeek, 2014, "Beyond virtuality: from engagement platforms to engagement ecosystems," Managing Service Quality 24:6, 592-611

Capgemini, 2019, "World retail banking report 2019," https://tinyurl.com/2pvmscyf

Capgemini, 2020, "World fintech report," https://tinyurl.com/ysdahc2f

Capgemini, 2021, "World retail banking report 2021," https://tinyurl.com/4vcayht9

Chesbrough, H., 2011, Open services innovation: rethinking your business to grow and compete in a new era, John Wiley & Sons

Cortet, M., T. Rijks, and S. Nijland, 2016, "PSD2: The digital transformation accelerator for banks," Journal of Payments Strategy & Systems 10:1, 13-27

De Blok, C., B. Meijboom, K. Luijkx, J. Schols, and R. Schroeder, 2014, "Interfaces in service modularity: a typology developed in modular health care provision," Journal of Operations Management 32:4, 175-189

Deloitte, 2017, "Open banking. How to flourish in an uncertain future," report

Deloitte, 2020, "Banking and capital markets outlook: fortifying the core for the next wave of disruption," report

Deloitte, 2020a, "Banking on the future: vision 2020," report

Deloitte, 2020b, "Open banking around the world: towards a cross-industry data sharing ecosystem," report

Dratva, R., 2020, "Is open banking driving the financial industry towards a true electronic market?" Electronic Markets 30:1, 65-67

ECB, 1999, "The effects of technology on the EU banking systems," European Central Bank, https://tinyurl.com/4vn4mf5j

ECB, 2023, "Take-aways from the horizontal assessment of the survey on digital transformation and the use of fintech," European Central Bank, February

EY, 2017, "Fintech adoption index 2017," https:// tinyurl.com/3dsw5djh

Financial Stability Board, 2017, "Financial stability implications from fintech," https://tinyurl. com/224anzud

Finastra, 2022, "Banking as a Service: Outlook 2022. Paving the way for Embedded Finance. Market assessment and imperatives for success", report

Gawer, A., 2009, "Platform dynamics and strategies: from products to services," Platforms, Markets and Innovation 45, 57

Gawer, A., 2021, "Digital platforms and ecosystems: remarks on the dominant organizational forms of the digital age," Innovation: Organization & Management 24:1, 110-124

Gawer, A., and M. A. Cusumano, 2014, "Industry platforms and ecosystem innovation," Journal of Product Innovation Management 31:3, 417-433

lansiti, M., and R. Levien, 2004, "Strategy as ecology," Harvard Business Review 82:3, 68-78

IMF and World Bank, 2019, "Fintech: The experience so far," IMF policy paper no.19/024, https://tinyurl.com/yvhcd644

KPMG, 2016, "The profitability of EU banks: hard work or a lost cause?" https://tinyurl.com/2p82nzmt KPMG, 2020, "Can fintech lead innovation post COVID-19?" https://tinyurl.com/4ckydb8z

KPMG, 2023, "The pulse of fintech", report, https://assets.kpmg.com/content/dam/kpmg/au/ pdf/2023/the-pulse-of-fintech-h1-2023.pdf

Llewellyn, D. T., 1999, The new economics of banking (no. 5), SUERF studies

McKinsey, 2017, "Data sharing and open banking," https://tinyurl.com/4cfhbjz2

McKinsey, 2022, "Banking is radically transforming. Many banks can thrive by fundamentally changing the way that financial services are embedded into daily life", https://finyurl.com/38jydz3p

Microsoft, Avanade, Accenture, 2017, "PSD2 and open banking: using regulation to kick-start the transformation of banking," report

Moon, S. K., J. Shu, T. W. Simpson, and S. R. Kumara, 2010, "A module-based service model for mass customization: service family design," IIE Transactions 43:3, 153-163

Moore, J. F., 1993, "Predators and prey: a new ecology of competition," Harvard Business Review 71:3, 75-86

Omarini A., 2015, Retail banking. Business transformation and competitive strategies for the future, Palgrave Macmillan

Omarini A., 2019, Banks and banking: digital transformation and the hype of fintech. Business impacts, new frameworks and managerial implications, McGrawHill

Omarini A., 2022, "Unbundling and re-bundling the open industry of banking," in K.T. Liaw (ed.), The Routledge handbook of fintech, Routledge

Prahalad, C. K., and V. Ramaswamy, 2004, The future of competition: co-creating unique value with customers, Harvard Business Press

PwC, 2018a, "Open banking and so what?" https://tinyurl.com/4ej34wr4

PwC, 2018b, "Five ingredients to catch up open banking," https://tinyurl.com/42n5jsbd

Shipilov A., and F. Burelli, 2020, "Don't confuse platforms with ecosystems," INSEAD Knowledge, https://tinyurl.com/37ruzyju

Silvestro, R., and P. Lustrato, 2015, "Exploring the "mid office" concept as an enabler of mass customization in services," International Journal of Operations & Production Management 35:6, 866–894

Tuunanen, T., A. Bask, and H. Merisalo-Rantanen, 2012, "Typology for modular service design: review of literature," International Journal of Service Science, Management, Engineering, and Technology (JJSSMET) 3:3, 99-112

Zachariadis, M., and P. Ozcan, 2016, "The API economy and digital transformation in financial services: the case of open banking," SWIFT Institute Working Paper

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