



No. 131

Analyses et synthèses

Digital transformation in the French banking sector



Overview

The ACPR conducted in 2017, and published in early 2018, two studies on the digital revolution, one dedicated to the insurance sector¹ and the other to the banking sector². It seemed worthwhile to repeat these two studies a few years later, in order to assess developments in these two sectors. This work, which focuses on the banking sector, drew on a survey similar to the 2017-2018 one and comprising about fifty questions, that was sent to eight representative banking institutions in the French market.

Three major changes define the current digital transformation: firstly, the expectations of customers, whose digitised uses were confirmed during the recent health crisis; secondly, the competitive environment - already significantly affected in the area of payment - with the effective emergence of new players, "Fintechs", and the prospect of an increased presence of "Bigtechs"; and lastly, the development of new technologies, which are renewing prospects as regards the analysis of data and connections with other players, partners or customers. When analysing the risks and opportunities, it is indeed the first development that is at the heart of the considerations of surveyed institutions: the digital transformation of the industry means that they run the risk of losing their relationship with customers whose new uses they would not be able to satisfy; and conversely, it allows them to consider new offers and better quality services. It is therefore a natural consequence that the banks' efforts are most notable in this area -online interaction has become the norm and the tools developed for this purpose have progressed considerably- and that such area sees a concentration of numerous projects for the coming years. This also affects how banks approach future competition with new entrants: **determined to maintain customer relationship** in their value chain, they must nevertheless anticipate scenarios where it will be necessary to cope with their competitors. The increasing number of acquisitions of innovative players (technical suppliers, Fintechs, etc.) and partnerships testifies to the banks' desire to anticipate changes in the banking market. The increasing number of acquisitions of innovative players (technical suppliers, Fintechs, etc.) and partnerships testifies to the banks' desire to anticipate changes in the banking market. However, it requires significant efforts to integrate these innovative partners into their processes and to operate using an open architecture - whether it be by distributing products designed by others or by making their banking services available on an *à la carte* basis. These banking-as-a-service or banking-as-a-platform models -which could foreshadow an ever-increasing use of and adaptation to platforms by the banking sector- are, however, not universally adopted by banks, and they are never a core strategic objective.

In terms of the technologies used, the last four years have seen a clear **maturity of the banking industry** in the development and deployment of **artificial intelligence-based** tools: prototypes have been followed, in many places, by operational solutions that contribute to improving relations with customers, better identifying risks and supporting the fight against money laundering and terrorist financing. Conversely, **the progress of distributed ledger technologies appears to be slower-paced**: very few use cases have emerged. It is also proceeding in a more differentiated manner: only a portion of the players seems to be actively exploring the field, expecting that the stabilisation of the regulatory framework and the emergence of secure tokenised assets (central bank

¹ *Analyses et synthèses* No.87 <https://acpr.banque-france.fr/etude-sur-la-revolution-numerique-dans-le-secteur-francais-de-lassurance>

² *Analyses et synthèses* No.88 <https://acpr.banque-france.fr/etude-sur-la-revolution-numerique-dans-le-secteur-francais-de-lassurance>

digital currency) will allow for the widespread development of products and services related to shared electronic registry systems (DLT - Distributed Ledger Technologies).

In terms of risk management, the digital transformation is also changing the landscape, increasing certain risks and at the same time offering tools to better identify and control them. **Cyber risk** is a prime example to illustrate this trend. With the increasing surface area of exposure to risk and sophistication of cyber attacks, security is one of the major concerns of the institutions surveyed; this concern is consistently expressed throughout survey responses. In this regard, the use of new technologies and state-of-the-art computing methods can be beneficial for the development of effective security solutions. Artificial intelligence, in particular, is recognised as being more effective in the detection of attacks or in handling suspicious content more quickly. **The fight against money laundering** shows the same dialectic pattern: on the one hand, the fragmentation of distribution chains, the demand for a totally dematerialised relationship, and the growing use of cryptoassets are factors that increase the risk of money laundering; on the other hand, progress in remote identification technologies, the availability of data, and the ability of artificial intelligence to detect suspicious behaviour open up prospects for the fight against money laundering to be more effective.

As far as **governance** is concerned, the management bodies of banks are generally presented as being very closely involved in the definition of the strategies implemented: several institutions have set up committees specifically devoted to monitoring the transformations that is underway. However, the financial effects of these transformations, in particular cost reductions or revenue increases in relation to the investments made, seem difficult to measure.

The adaptation of IT systems is naturally a major issue in digital transformation strategies: the rationalisation of systems, the strengthening of their resilience in the face of growing cyber threats and the search for modularity and reactivity - manifested in particular by the increased number of APIs and the rise in the use of the cloud- constitute the guiding principles of such strategies.

However, digital transformation is not just a technical process; it also has a strong impact on **human resources management** through the major transformations it brings about in the banking business. These transformations involve anticipatory measures during recruitment -with the specific challenge of attracting profiles that are still scarce; they also require change management support for staff that is already employed and the promotion of a **culture of innovation** within the institution.

Four years after the first ACPR study on the digital revolution, this study on digital transformation makes an observation that justifies such lexical shift: although it is still incomplete, the digital transformation of banks is well underway. Its effects on the landscape, products and innovations of the banking sector are clearly visible. In the financial sector undergoing profound changes characterised by the increasing fragmentation of value chains, **banking institutions** remain major players today: they have demonstrated real maturity in digital matters and say they are facing the transformation of their business models with confidence.

Three major changes define the digital transformation	5
1. Customers with already digitised habits have new expectations	5
2. The emergence of new competitors is forcing banks to rethink their business model.....	6
2.1. <i>The emergence of new competitors</i>	6
2.2. <i>The professions most exposed to competition brought about by digitalisation</i>	7
3. New technologies, especially related to artificial intelligence and Big Data analysis, are opening up opportunities for banks.....	9
3.1. <i>Estimated impact of the development of the exploitation of Big data and Artificial Intelligence technologies</i>	9
3.2. <i>Estimated impact of the development of Distributed Ledger Technologies.....</i>	10
3.3. <i>Estimated impact of other technological innovations.....</i>	11
The digital transformation is leading traditional banks to redefine certain aspects of their strategy	13
1. Reviewing the competitive positioning in the ecosystem.....	13
1.1. <i>The development of partnerships.....</i>	13
1.2. <i>Investments in innovative start-ups</i>	13
1.3. <i>Platformisation of the economy with new collaborative models.....</i>	14
2. Strategies for harnessing the new technological potential.....	15
2.1. <i>General overview of implemented digital transformation policies</i>	15
2.2. <i>Customer relations as a priority in the digital transformation strategy</i>	15
2.3. <i>Improving internal operational efficiency</i>	17
3. New risks to be controlled and managed.....	17
3.1. <i>Risk management is evolving due to digitisation</i>	17
3.2. <i>The management of cyber risks.....</i>	18
3.3. <i>The fight against money laundering and the financing of terrorism (AML/CFT)</i>	19
3.4. <i>Control and governance of AI algorithms.....</i>	19
4. A transformation of internal processes.....	20
4.1. <i>Implementing a digital transformation strategy.....</i>	20
4.2. <i>The aggiornamento of information systems</i>	21
4.3. <i>Training, acculturation, recruitment and mobilisation of employees on digital issues: internal change management.....</i>	23
Conclusion	28

Foreword

The ACPR conducted in 2017, and published in early 2018, two studies on the digital revolution, one dedicated to the insurance sector³ and the other to the banking sector⁴. It seemed worthwhile to repeat these two studies a few years later, in order to assess developments in these two sectors. This work, which focuses on the banking sector, drew on a survey similar to the 2017-2018 one and comprising about fifty questions, that was sent to 8 banking institutions⁵ representative of the French market.

This issue of *Analyses et synthèses* aims to present a summary of the answers provided by surveyed institutions, in order to highlight the main trends of the digital transformation of the French banking sector. This study does not aim to provide a compliance review of the systems or organisations described by the respondents. Nor does it aim to formulate a judgement or to define the Authority's policies with regard to the diagnosis made by the respondents or the prospects outlined by them.

Authors: T. Dufour, M. Vileyn, O. Fliche, J. Dorlencourt, G. Clément (Fintech-Innovation Hub: fintech-innovation@acpr.banque-france.fr)

Keywords: Banking, digitisation, innovation, Fintech

JEL codes: G28, G18, K23, L51

³ *Analyses et synthèses* No.87 <https://acpr.banque-france.fr/etude-sur-la-revolution-numerique-dans-le-secteur-francais-de-la-surance>

⁴ *Analyses et synthèses* No.88 <https://acpr.banque-france.fr/etude-sur-la-revolution-numerique-dans-le-secteur-francais-de-la-surance>

⁵ BNP Paribas, Crédit Mutuel - Alliance fédérale, Crédit Mutuel - Arkéa, Groupe BPCE, Groupe Crédit Agricole, HSBC, La Banque postale, Société Générale.

1. Customers with already digitised habits have new expectations

Digital transformation is not a trend that is unique to the financial sector: all industries are affected by it. Some sectors -such as entertainment, communication...- appear to be further along in this transformation process and are helping to raise standards in terms of customer and product experience in general.

In order to better understand these new expectations, banks have progressively taken steps to acquire the necessary tools by combining surveys (satisfaction surveys, focus groups, interviews with prospects, etc.) and studies (relationship barometers for each target customer with verbatim records, etc.). Banks with a territorial network of branches have also organised channels for feedback from bank advisers.

Customers are now expressing new needs as regards their relationship with their bank, namely:

A need for easy to access, "multi-channel" digital tools with paths that are "fluid", yet secure, allowing customers to carry out all the management actions associated with their products online.

A need for immediacy and flexibility in customer relations. Banking customers expect more immediacy, both in terms of access to assistance (which should be possible outside of "traditional" working days and hours) and in terms of the response time attached to their query.

A need for personalised service and customer autonomy. On the one hand, customers are expressing a need for personalisation, both concerning the services requested and in the banking relationship itself: the ability to consult a dedicated advisor for complex operations, and the monitoring of their career paths and key "life moments" such as marriage or the birth of a child. On the other hand, customers want to be able to manage their products autonomously and carry out management actions independently (blocking credit cards or modifying credit limits, carrying out transfers, issuing statements, etc.): "self-care" supports the shift towards a requirement for greater "added value" in face-to-face interactions. Some institutions also mention their customers' concern to retain control of their data.

When asked about the impact of these developments on the products offered, the banks state that they believe it is less the products themselves rather than their distribution or the underlying technologies that should evolve. However, several trends in the evolution of products or services have been identified:

- development of products that make better use of customer data and are more easily adaptable to each target: banking aggregation, personalised investment packages;
- products that go beyond pure banking, meaning that they are coupled with non-banking products or services in order to meet “need spheres” or “life moments” (housing, health, travel, etc.);
- “green” products: several survey answers show the growing interest of customers for this particular topic as well as the success encountered by environmentally or socially responsible investment products.

Health crisis and digital transformation

The digital transformation initiated a few years ago, the development of digitised services -and business continuity plans- have enabled banks to quickly adapt to the circumstances brought about by the health crisis and to ensure continuity of banking activity. This health crisis has itself contributed to the acceleration of digitisation inside institutions (with teleworking, paperless administrative processes, and the deployment of collaborative tools): according to several respondents, some of the methods adopted during the first lockdown, in order to deal with the emergency and meet operational requirements, will be retained for future organisational projects.

Due to COVID, banking organisations also noted a strong acceleration in the use of digital channels and customer areas by all customers (regardless of age) to purchase or manage their products, and an increase in the use of digital functionalities, particularly for payments.

2. The emergence of new competitors is forcing banks to rethink their business model

2.1. The emergence of new competitors

When asked about the emergence of competitors and their own competitive positioning, the institutions mention first and foremost the competitors likely to steal the customer relationship from them: players offering banking services, or only payment services, entirely digitally, online; in other words, "neo-banks", to use the term that is commonly, although often incorrectly, used⁶. It is in this area that the banks surveyed have focused their efforts and are assessing their competitive positioning, which is reflected in the fact that almost all the players surveyed have developed their own 100% digital bank or offer.

The distinction between Fintechs, Bigtechs and other potential competitors, such as telecom operators or technology providers, comes in a second step, when specifying the niches or customer segments where the competition has a distinctive feature. Fintechs and Bigtechs can, in some cases, also be seen as partners.

Their main benefits are, according to the respondents:

- Their greater capacity for innovation;

⁶ Cf. the [reminder of the rules for using the term "neo-bank"](#) published by the ACPR in its April 2021 issue.

- Their greater agility or ability to provide customised services;
- Better communication, in terms of marketing, in the media but also through social networks. In this respect, some answers underline, on the one hand, that social networks are managed by Bigtechs and, on the other hand, that the new communication codes they bring are often better leveraged by small innovative players (Fintechs);
- More accessible offers in terms of pricing;
- For Bigtechs, a financial capacity that allow them to make substantial investments and acquisitions in the most promising technologies.

Several institutions also quote “regulatory pressure”, which they consider to be less strong on their competitors, which, among other things, provides them with more readily available capital.

Banks consider, on the other hand, that the main weaknesses of Fintechs lie in their size, uncertainty about their viability and their underestimation of regulatory constraints. As for Bigtechs, some institutions feel that they do not enjoy the same level of trust from their customers, mainly because of the conditions of use of their data.

2.2. The professions most exposed to competition brought about by digitalisation

Retail banking is widely cited as the most exposed to the competition brought about by digital transformation: customers are looking for straightforward services, easily provided by new entrants with better digital skills. Payments in particular are very much affected by this phenomenon, with the implementation of numerous remote payment innovations and the massive arrival of new players. The asset management business appears to be less impacted to date, but fast moving developments are seen as likely, as there is a growing adherence to automated advice and robo-advisors.

In the field of corporate and institutional banking, transformative drivers are clearly identified: new players compete with banks for the provision of ancillary services (invoicing, automated accounting) to businesses or for the provision of “tailored” services, but banks remain indispensable for the structuring of any complex product as well as for day-to-day assistance.

Competition due to the digitalisation of the sector is having an impact on the revenues of traditional players: pricing pressure on core products and the compression of commissions (through the arrival of players shortening distribution chains) are the two most mentioned sources of revenue reduction.

Conversely and at the same time, digitisation is also seen as creating new sources of revenue, from:

- the development of e-commerce, which can open up new opportunities for consumer credit;
- new instant payment options;
- the use of customer data, allowing a better understanding of customer needs and thus opening up new opportunities for additional equipment, cross-selling or the possibility of monetising higher value-added advice; in the longer term, some institutions even mention opportunities to use such data for commercial purposes, initially in an aggregated and anonymised format;

- New partnerships with Fintechs (see section II, 1).

Four scenarii for the banking industry of tomorrow

Drawing on analyses made by the ECB on the possible development paths of the financial sector, the ACPR asked the institutions surveyed to assess the most likely transformations to occur in the financial sector in the coming years.

Four scenarii were proposed to the institutions for analysis:

The first scenario -that of a **stable banking industry**- would see banking institutions remain the reference players: the integration of innovations (through internal development or the acquisition of Fintechs), coupled with a successful digital transformation, would enable banks to retain their "customer base" by meeting their expectations, while capturing the associated revenues.

Most respondents consider this scenario unlikely, believing on the one hand that Fintechs will be a permanent presence and on the other hand that changes in the regulatory framework (notably by favouring "open" data) will further facilitate the entry and development of these competitors. Only one institution makes this its central scenario, considering that banks will be able to adapt and maintain "a pre-eminent role in the service of economic growth in Europe".

The second scenario foresees increased competition between traditional players and Fintechs: the latter would manage to establish themselves in the long term and take advantage of technological advances (availability of data, AI, etc.) to offer innovative services. In this scenario, banks would remain central players in the banking system but would be competing with or bypassed by new services, putting greater pressure on their profitability.

This scenario is regarded as the most probable one in most of the answers received and, in effect, is already observed in practice. Respondents believe they have significant advantages in this scenario, either in relation to new entrants or in comparison to their traditional competitors. Some stress the importance of regulation for the actual conditions of competition.

The third scenario would see a greater degree of success for Fintechs -or Bigtechs- and a **more fundamental transformation of banking intermediation**. Incoming players would capture the bulk of the relationship with customers, leaving traditional players in the role of product manager or core banking service provider.

While this scenario is not considered to be the most plausible one, views are relatively diverse on the likelihood of its occurrence. The obstacles that were identified in this scenario are quite diverse: however, it is clear from the answers received that banks are determined and feel able to maintain the relationship with their customers.

Lastly, the last scenario, and most disruptive one, would see **the very principle of financial intermediation called into question**. In this scenario, technological or organisational solutions would make it possible to find new ways of matching supply and demand for "banking services" in the broadest sense: the development of the blockchain, the systematic use of stable coins, crowdfunding and, more generally, the development of decentralised finance (DeFi) could challenge the current mechanisms of the financial sector.

This scenario is considered the most unlikely, especially as it would, according to respondents, pose a risk to financial stability. However, one of the respondents stressed that such a scenario would not mean the end of traditional banking players but their adaptation, with a possible increased role as advisor or trusted third party.

More generally, and irrespective of their views on the likelihood of the various scenarios, it should be noted that some institutions are exploring new models, such as bank as a platform or bank as a service, which could enable them to adapt to major changes in the banking landscape.

3. New technologies, especially related to artificial intelligence and Big Data analysis, are opening up opportunities for banks

The third major development in the digital transformation concerns, naturally, technology. While the first study on the subject of digital transformation focused on the emergence of banking applications (and, more broadly, technological developments relating to communication or interaction with the customer), banks now seem to have fully mastered these tools. Research is now focusing on more complex and potentially more disruptive technologies.

3.1. Estimated impact of the development of the exploitation of Big data and Artificial Intelligence technologies

The use and analysis of massive volumes of data ("big data") has already been implemented for some years by some of the institutions surveyed, which have created internal platforms or datalakes to centralise group data and facilitate its use. Big data is now considered inseparable from artificial intelligence (AI) technologies.

The related innovations are considered to be the most critical and several answers also underline the technical challenges: in particular, the use of these technologies depends on the overall quality of the data and raises the question of the capacity of teams to use the appropriate tools to build new services.

Is it a far-reaching transformation of internal processes and customer relations or a means of occasionally optimising one aspect of the banking business or another? The assessment of the future impact of these technologies varies quite considerably depending on the players. Several of the banks participating in the study emphasise the need to gain technological maturity and to invest heavily for this purpose: in the meantime, these technologies are considered to be more accessible than before, thanks to the increased number of turnkey and open source tools and the growing arrival on the labour market of specialists trained in these technologies.

However, almost all respondents express interest in the deployment of different types of AI solutions (Machine Learning, Deep Learning applied to computer vision, Optical Character Recognition (OCR), powerful search tools, voice recognition, natural language analysis or generation, etc.). The main categories of use cases - and expected benefits - are listed below:

1) Improving the customer 'experience' and satisfaction: voicebot, chatbot, recommendations, decision-support systems. Customisation and better adaptation of supply to demand are also seen as an opportunity to increase business revenues.

2) Optimising the banking value chain: optimisation of internal processes and cost reduction through task prioritisation, workflow management, advanced document reading. AI enables the processing of unstructured data and offers the opportunity to automate previously manual processes. Alongside the rise of self-care, AI is helping to free branch advisors from low value-added tasks.

3) Risk reduction, whether they be financial risks (credit risk...), operational risks or compliance risks. The fight against fraud or the fight against money laundering and terrorist financing are frequently cited as privileged areas of application.

Finally, a notable difference compared to the situation observed when the previous study was conducted in 2017-2018, many solutions using these technologies, for a wide variety of use cases, seem to have been effectively deployed and are used by banking institutions on a daily basis.

Data: a resource that must be protected

As holders of large amounts of personal data, the banking organisations involved unanimously consider data as a strategic asset to be protected as well as exploited. Data is indeed at the heart of digital transformation and many innovations are based on its use, as this study shows.

In their answers, the institutions surveyed emphasised the need for data protection: this includes protection against theft or against data being potentially compromised through cyber attacks, as well as protection of the source of the data and control of its sharing. The banks' answers thus testify to a strong attachment to the control of customer relations and a clear amount of caution in sharing customer data, whether with competitors or partners.

To date, banks remain very cautious about the possibility of "monetising" their customers' banking data, but discussions are underway. Against this background, the use of privacy enhanced technology (PET) is mentioned by several actors as a way of reconciling the protection of customers' privacy, the confidentiality of institutions' operational processes and the opportunities for enhancing the value of banking data.

3.2. Estimated impact of the development of Distributed Ledger Technologies⁷

A comparison of the answers to this question received in 2017 and 2021 yields surprising results: in many cases, answers received in 2021 are less informative and reflect a more uncertain view of the topic.

However, none of the respondents deny the potential offered by this technology.

The position of players with a wait-and-see approach may be summarised using one of the answers received: *"Blockchain-related technologies have suffered from the bad reputation of cryptocurrencies (sic). Technical teams are now more experienced in the matter and use cases should emerge in the coming months."*

Other institutions, which consider the impact on the banking business to be significant, even "disruptive", are anticipating a strong development of uses, and appear to be much more active in the field of research. These research projects are carried out internally but also by consortia of local financial centre players. Involvement in experiments on central bank digital currency led by the Banque de

⁷ A shared electronic recording device is generally understood to be a kind of technology that allows the distributed recording of encrypted data

France is also mentioned in some answers. However, solutions using distributed ledger technologies have not yet been implemented in any significant way.

According to these institutions, blockchain represents an opportunity in terms of:

- 1) The creation of new products: smart contracts⁸, non-fungible tokens⁹, cryptoassets¹⁰,...
- 2) The management and recording of financial securities transactions or, more generally, the management of operations involving many players and where the costs associated with the verification of transactions are high (e.g. in trade finance)
- 3) The management of identities and associated attributes (e.g. in the context of shared KYC (Know Your Customer) systems or for the emergence of Self Sovereign Identity¹¹ solutions).

The impact of this technology in the payments sector is also considered critical in some answers: the prospect of the emergence of stablecoins or central bank digital currencies could lead to a redefinition of payment and distribution channels between the various types of currencies.

3.3. Estimated impact of other technological innovations

Among the **other trends in technological innovation** encompassed in the digital revolution, some are still in their infancy but already seem to be attracting the attention of the banking industry.

This is the case with quantum computing: in a defensive approach, the possibilities offered in terms of decryption are being carefully monitored by some banks, while their own internal uses (e.g. to improve risk modelling) are also in the realm of possibility.

Biometric technologies are also mentioned: although they have already been used for some time, they will undoubtedly undergo strong development with the expected increase in the degree of security of customer identity verification processes (both at the time of entering into a business relationship and for the validation of certain actions).

Nevertheless, it can be noted that to date banks are for the most part not developing services based on connected object technology, due to a lack of identified use cases.

⁸ Smart contracts are computer protocols, usually deployed on a blockchain, that automatically execute certain transactions when predefined conditions are met.

⁹ They are a specific type of cryptoasset that represents a digital object such as an image, a video, an audio file, to which a digital identity is attached that is linked to a set of owners.

¹⁰ A cryptoasset is generally understood to be a digital representation of a value or rights that can be issued, recorded, transferred or stored electronically, using distributed ledger or similar technology.

¹¹ It is an approach to digital identity that gives individuals control over their digital identity.

The challenge of digital sobriety

Ecology is a topic of growing interest in society. When applied to the financial sector, this concern can take several forms: the ecological impact of financial investments, the vulnerability of the financial sector to climate change (through climate risks), the growing appetite of clients for "green" products...

In the context of digital transformation, it is the concept of "digital sobriety" that covers all actions aimed at reconciling the growing use of new technologies with the ecological challenge. When asked about their vision of digital sobriety, all the institutions surveyed said they were thinking about these issues and implementing actions to limit their environmental footprint. Behind this unanimous determination, different levels of commitment can be identified, with some institutions displaying quantified objectives, while others confine themselves to more general commitments.

The actions and commitments of banking institutions are structured around three main themes:

Measuring energy footprint and consumption: depending on the institution, the measurement of the carbon footprint or the level of energy consumption (and the measurement of the origin of electricity) is done at different levels (group, branch, etc.) and according to different metrics. Several players specifically measure the contribution of their information system (IS) to their environmental impact. These indicators are often monitored by dedicated committees (CSR committee, Green IT committee, etc.) and are sometimes the subject of quantified commitments.

Awareness-raising and involvement in international work. Awareness can be raised through training sessions, meetings, accounts, incentives or, more effectively, by including these objectives in profit-sharing agreements. Several banking groups are also involved in international or sectoral initiatives, such as participation in the Net-Zero Banking Alliance, CIGREF's Green IT work and the signing of commitments such as the Sustainable IT Charter.

Reducing their carbon footprint. However, the most important aspect is, of course, the initiatives implemented to effectively reduce their ISs consumption footprint.

These initiatives may include:

- Technological choices in terms of infrastructure: several banks mention the potential impact of the cloud, linked to its flexibility (and more generally to the pooling of needs). Some players are working on optimising the energy consumption of data centres (free cooling).
- Development choices and data management policies: review of the code for the most consuming algorithms, review of the data retention policy to avoid duplication or inefficiencies.
- The integration of "green" criteria in the procedures for choosing IT service providers (calls for tender, specifications).



The digital transformation is leading traditional banks to redefine certain aspects of their strategy

1. Reviewing the competitive positioning in the ecosystem

1.1. The development of partnerships

In order to capture the most innovative technical solutions and improve **the adaptation of their offers or their organisation, banks have stepped up partnerships** with innovative players. These take two main forms:

- **Distribution partnerships:** some banks offer their customers solutions provided by third parties (a model that is particularly present for services such as account management for very small and small businesses);
- **Direct use of Fintechs or Regtechs:** banks are then customers of Fintechs, the solutions of which they integrate into their own products.

The complementary nature of partners is highlighted in the answers: banks provide knowledge of the regulations and are an entry point into the financial sector (via their APIs, in particular), while Fintechs or technical service providers provide their technical and digital know-how and their understanding of customer expectations. The difficulties that these partnerships may meet are not, however, overlooked: security and compliance issues are primary causes for such issues.

One institution stands out in its answers on partnerships: it asserts its desire to keep development projects in-house as much as possible or -when the integration of a third-party solution is necessary- to work directly with the software publishers that developed the solution rather than with integrators or distributors. In particular, it notes that the growing trend of software publishers offering "software as a service" (SaaS) solutions raises security and technological dependence issues.

By virtue of their activity, banks have another way of relating to innovative actors, choosing to provide **support in the context of a business relationship**: account maintenance, provision of credit lines, advice and monitoring, preferential pricing.

Finally, the incubation structures that allow banks to get closer to the innovative "ecosystem" are worth mentioning, as they represent a selection channel for future partnerships in addition to a source of information on the main trends in the innovation landscape: numerous banking institutions have their own **incubators** or participate to varying degrees in the operation and funding of such facilities.

1.2. Investments in innovative start-ups

The increase in partnerships is also reflected in the development of new strategies for banks to take equity stakes in undertakings during the various stages of their development (seed, start-up and expansion). These equity stakes can take different forms and follow various objectives depending on the entities under consideration and the specific strategies of each group:

Some of the equity investments concern suppliers to the banks, who provide them with state-of-the-art tools or technologies. Recognising the importance of having control over their service providers, banks are creating capital-based links to guide the development of these players and secure contractual relations.

Banks also regularly invest in Fintechs associated with the distribution or sale of the bank's products (online brokers, robo-advisors, players offering online banking-type services, etc.) in order to extend their offer to new types of products, segments of the market that they do not capture -or not sufficiently so.

These two types of investment most often follow long-term strategies and are linked to a desire to secure long-term technical partnerships. While the acquisition of a minority stake is the preferred option, takeovers can be more comprehensive, through the use of preference shares or majority stakes.

In the context of investment funds set up by banks, it can also be noted that some investments follow a different -research- logic and concern Fintechs that do not have specific links with the investor but show a clear growth potential. In such case, the decision criteria are the same as for other investments in innovative companies in another sector: envisaged growth, quality of the team and of the product or service, opportunity for financial gain over a 5-7 year period...

1.3. Platformisation of the economy with new collaborative models

The term platformisation refers to the emergence of new players or new marketing venues the primary functionality of which is to aggregate the offers provided by various producers on the one hand and various distributors on the other. Whereas the added value of the traditional bank was based on its ability to control an integrated value chain, from the creation of products to their distribution, the added value of a platform lies in its ability, by bringing together various players, to meet the needs of consumers with a wide range of offers, which are all the more adapted to them as the platform has the ability to exploit customer data.

This trend is well identified by banking players and gives rise to relatively diverse strategic positions. First and foremost, banks remain committed to maintaining control over their distribution channels: "non-proprietary" platforms, i.e. those that allow their products to be distributed by a third party, are not preferred.

However, some banks are developing their capacity to become platforms themselves, mainly through two aspects:

- By integrating products or services not related to their traditional banking activity (Banking as a platform). This evolution coincides with a strategic evolution of banks, many of which believe that their added value in the future will be based on their ability to support their customers not only in their financial transactions, but also during all "life moments" (for individuals) or "spheres of needs" involving such a transaction (moving, birth of a child, change of job, etc.). By integrating insurance products or other services to meet a wider range of needs, banks want to capture new sources of revenue but also to consolidate their position as a trusted third party.

- By offering their clients the opportunity to integrate certain segments of the value chain developed by the bank directly into their processes and offerings. This is the Banking as a service phenomenon, which allows, for example, a merchant site to integrate the payment solutions offered by banking institutions directly into its website.

The shift towards platformisation, in one form or another, places new demands for openness on banks' information systems (IS). In addition to APIs enabling banks

to fulfil their obligations in terms of access to banking data (requirement created by PSD2), platformisation is in fact pushing banks to offer, via APIs, access to their IS: if they want to form fruitful partnerships, banks must be able to share their data, but also to incorporate themselves into third-party IT ecosystems, or to rapidly deploy new functionalities. In other words, it is now about integrating Fintechs into processes through an open API model, and not just funding them.

2. Strategies for harnessing the new technological potential

2.1. General overview of implemented digital transformation policies

Over the last few years, the institutions surveyed have implemented numerous digital transformation actions, along the following main lines of action:

- Streamlining of existing IT systems and migration to the cloud (public or private), with a particular focus on cyber security upgrades;
- In addition, there is a need, driven by the PSD2 Regulation, to "APIlise" existing systems;
- Acculturation of employees to "agile" style project management methods (see §4.4 below);
- Improving customer journeys and "experiences": this area is the most regularly and extensively exemplified in the various answers received. It is also the leading theme of the digital strategies defined for the coming years (see §2.2 below).

The guidelines adopted for the coming years are, for the most part, in line with past transformations. Beyond improving the digital customer journey, which appears to be a shared priority throughout all business lines, the following initiatives should be mentioned:

In retail banking for individuals:

- Various projects focused on using data to personalise the customer experience but also to offer innovative or responsible services or products. The granting of consumer credit, fractional payments, cash back and cross-selling can be cited among the activities concerned by these projects;
- Projects related to the platformisation of the economy (see §1.3 above).

In professional and SME banking:

The cited projects aim to take advantage of APIs to become more integrated into companies' information systems. The development of added services already offered by Fintechs, possibly in partnership with them, is also mentioned: improved cash flow management, pre-accounting, etc.

In private banking and asset management:

The cited projects revolve around aggregation (in order to give clients a "360°" view of their assets by multiplying the use of APIs) and personalised, improved, even automated advice (robo-advisor) using artificial intelligence.

2.2. Customer relations as a priority in the digital transformation strategy

Banks have long been committed to the transformation of customer relationship channels. The institutions surveyed all have online banking portals, as well as an application allowing to perform certain operations. Generally speaking, the banks

consider that they provide their customers with effective digital tools: on a scale of 1 to 5, the banks rate the degree of digitalisation of their customer relations between 3 and 4.

The digitisation of customer relations is most advanced in retail banking, assisted by the implementation of numerous technological solutions (electronic signature, chatbot, OCR, digital safe, etc.): efforts are focused on the last friction points in the customer journey: for example, the signing of amendments to already-signed contracts, 100% online identification, customer-led contract termination, and cross-device paths for customers.

In corporate and investment banking, according to the answers received, the degree of digitisation seems to be varied depending on the business line considered: advanced in cash flow management, where flow activities are highly digitised and competition with Fintechs is established, and less so in the more personalised business lines (structured finance, capital markets, advice).

Almost all of the respondents included in their plans various actions to continue to simplify customer journeys and enhance mobile applications in their various business lines for the coming years.

Securing the contract signing process

The most common ways to secure contracting processes are:

Electronic Signature:

- Deployed in compliance with eIDAS standards to guarantee the integrity of a document and identify its author.
- Use of signature levels adapted to the nature of the operation carried out (subscription, management) and the product.

Electronic identification is implemented by several actors:

- The most commonly used solutions are those that combine ID verification and face matching via video capture.
- The use of remote identity verification providers (RIVPs) is provided for in the French Monetary and Financial Code^a in order to reconcile security with maintaining a good user experience when subscribing to 100% online products.
- To date, the ANSSI (the French National Agency for the Security of Information Systems) has implemented a certification system but has not yet granted such certificates.

Contract management (traceability, retention and archiving):

- Archiving: Setting up electronic safes for archiving contracts and signatures with evidential value and evidence management.
- On traceability: for example, traceability and archiving of IS access.

* This option was introduced by French Decree No. 2020-118 of 12 February 2020

2.3. Improving internal operational efficiency

Regarding **fraud detection**, the use of artificial intelligence allows fraud patterns to be identified and dealt with more quickly, and more especially so as the abundance of data allows for the detection of unusual customer behaviour.

On a broader front, new technologies are heavily used in the context of **compliance processes** (and in particular those related to anti-money laundering and combating the financing of terrorism). Algorithms are used to identify unusual behaviour or transactions but also to improve the efficiency of customer screening processes.

In the area of **financial risk analysis** (counterparty risk, market risk), artificial intelligence is also used by banking institutions to improve existing models or exploit new data sources. In addition to modelling the solvency risk of individual clients (as mentioned above), several institutions have implemented tools that make it possible, for example, to detect outperforming sectors of the economy with a view to optimising investments.

Lastly, and more incidentally, new technologies are used in the fields of communication and reputational risk management to carry out automated online monitoring (sentiment analysis on social networks, identification of controversy risks...).

3. New risks to be controlled and managed

The digital transformation entails new risks, such as cyber risk as well as increasing exposure to pre-existing risks, and banks are adapting their risk management policies accordingly.

Meanwhile, digital transformation provides banks with tools to better identify and control risks.

3.1. Risk management is evolving due to digitisation

While digitalisation leads to an increase in certain risks, the banks note that the tools they offer also make it possible to improve:

- risk modelling, thanks to improved data quality and a better performance of modelling tools;
- the effectiveness of 1st and 2nd level controls.

The development of the ability to cross-reference data between operational risk management systems is likely to make it possible to systematically and effectively exploit data from various sources (operational losses and incidents, permanent control data, Risk and Control Self Assessment, monitoring of outsourced services, etc.) in order to identify pockets of risk that conventional systems would not have identified, or, conversely, to confirm vulnerabilities highlighted by already carried out studies, in order to perform targeted audits. In addition, advances in the analysis of large amounts of data allow a shift from sample testing to broad-based testing for controls.

These techniques are being deployed in numerous fields:

- Fraud risk management: cross-referencing data provides a "360°" view of the customer;
- Cyber risks management (see below §3.2)
- Compliance risks management, including AML-CFT (see below §3.3)

The use of data analysis techniques also helps to improve the control of risks that are specific to the banking sector. Digitalisation has thus led to the emergence of new indicators measuring the solvency of individuals (default risk), but also the evolution of asset prices (market risk, counterparty risk).

3.2. The management of cyber risks

All the institutions surveyed raised that digitalisation brings with it increased exposure to cyber risk. Several channels explain this growing vulnerability: increasing number of partnerships (which imply increased data exchanges and points of vulnerability), increasing complexity of IS with multiple "layers", increasing dependence on tools or service providers that may be affected by cyberattacks, which are themselves increasingly frequent and sophisticated.

Cyber risk actually encompasses several risks:

- Risk of service interruption caused by an attack ("denial of service" or ransomware, in particular) or data loss;
- Risk of data breaches and disclosure of sensitive and strategic data (a risk that is then linked to reputation risk);
- Fraud risk.

At the same time, and without it being a cyber risk *per se*, the regulatory framework is also increasingly demanding in terms of cyber security (EBA Guidelines, DORA, GDPR, OSE) and requires banking institutions to take the necessary steps to prevent these new risks.

Several levels of action are identified by the banks **in order to reduce cyber risks**.

Firstly, the banks are conducting mapping work.

Technically, the strengthening of cybersecurity affects the entire life cycle of information systems. At the design stage of services, a Security By Design approach can be applied to integrate these issues during the development phase (DevSecOps). Once the service is deployed, the integration of updates must be carried out with increased speed. Securing information systems also requires the implementation of audits, penetration testing and various internal security controls to reduce exposure to cyber risks.

This point of focus extends to the vulnerabilities of partners: checks are then carried out as early as the pre-contractual phase, via an assessment of partners and subcontractors.

In terms of resilience, banks are also working to define response plans *ex ante* for cyber security incidents, with risk classification criteria, forensic analysis tools and solutions to ensure business continuity (duplication of databases, tools incorporating 'downgraded mode' operating options).

Other concrete measures can be taken to reduce cyber risks: better availability of technical teams, deployment of new tools, acceleration of patching processes provided by the main software publishers in the event of vulnerability, etc. In this respect, artificial intelligence technologies are recognised as being able to better detect attacks and to process suspicious content more quickly (or even automatically).

From a human resources perspective, the strengthening of IT security, beyond the recruitment of cybersecurity experts, is leading banks to increase the awareness of business teams of cybersecurity risks in order to avoid phishing-type attacks.

3.3. The fight against money laundering and the financing of terrorism (AML/CFT)

The stakeholders surveyed all testify to the fact that the risks of money laundering and terrorist financing are on the rise as the pace of digitalisation increases. More specifically, three points of concern are raised:

- The increased number of parties involved in transactions (payment institutions/e-money institutions/intermediaries) makes the end-to-end monitoring of transactions more intricate.
- Customer demand for a fully dematerialised relationship is hindered by the regulatory and technical framework for remote identification which is not fully mature yet and which varies depending on the country considered, including within the European Union.
- Lastly, the rise of cryptoassets (payment token, utility token, stable coin) is seen as a risk driver for the AML/CFT risk because of the anonymisation of transactions that these innovations often enable. The emergence of a legal framework (a national one with the French PACTE Law, and a European one, tomorrow, with the MiCA regime) is welcomed as a step forward, yet the banking players still consider that risk control will have to go through the consolidation of the regulatory framework at a global level, and through the development of transaction analysis tools (chain analysis).

At the same time, several of the stakeholders surveyed believe that new technologies make it possible to deploy more effective solutions for the monitoring and analysis of AML/CFT risks: artificial intelligence, in particular, allows for the analysis of large volumes of data quickly and makes the identification of suspicious behaviour or unusual transactions easier.

With one exception, the surveyed banks do not appear to be considering or exploring the idea of capitalising on their expertise and technology to become a trusted third party provider in the 'know your customer' processes. Conversely, some respondents advocate for shifting some of the final responsibility towards the providers of regtech solutions used in their AML/CFT process.

3.4. Control and governance of AI algorithms

The increased use of AI tools poses specific risks¹² -risks related to bias, fairness, etc.- which have been well identified by banking institutions (although no occurrence of these risks has been identified at this stage). To prevent them, banks have adopted several types of measures.

On a technical level, the prevention of bias presupposes the existence of tools aimed at documenting and analysing the models used, tools that make it possible to monitor deviations. Some players conduct direct checks upstream, on the training data used for a given model.

¹² For further details on the challenges of AI use, refer to the [ACPR report on the governance of AI algorithms in the financial sector \(2020\)](#)

In terms of governance, approaches may vary: some institutions rely on existing structures dedicated to monitoring models, others have set up dedicated committees in charge of:

- Prioritising AI project roadmaps according to their strategic value and impact on customers;
- Drafting written policies, procedural notes, charters or other internal standards on the use of AI and data, and better addressing the risks associated with diversity, non-discrimination and equity;
- Defining how algorithms are monitored to correct biases during the design phase and the operation phase;
- Setting up warning systems.

Issues related to explainability are also cited by institutions, some of which have taken part in the work carried out by the ACPR's Fintech Innovation Hub on this matter¹³. However, the work carried out at the European level on artificial intelligence (draft European regulation presented by the Commission on 21 April 2021) is not specifically mentioned by the banking institutions.

4. A transformation of internal processes

4.1. Implementing a digital transformation strategy

The banking institutions surveyed have not changed their governance in any radical way to address the digital transformation. Yet, the management bodies of these banks are generally presented as being heavily involved in the definition of the implemented strategies: in addition to adopting strategic guidelines, these bodies are usually tasked with monitoring transformations, and several players stress the training courses attended by directors or the frequency of presentations to these management bodies of work related to the digital transformation.

To monitor the transformations linked to digital transformation, several institutions have set up committees specifically dedicated to this task (referred to alternatively as the Digital Transformation Committee, the Innovation Committee, etc.), or sets of coordinated committees (e.g. a tripartite Major Projects Committee/IS Strategic Committee/IS Risk Committee).

In terms of internal organisation, however, the digital transformation is not steered or led at the same level in all institutions: some have set up a specific cross-functional department, whereas other groups provide for each director to be responsible for implementing this strategy in his or her business line.

All entities have set up specific budgets to address this transformation, but the scope of these budgets may vary -for example, in terms of the integration of information system transformation costs- which makes comparisons arduous. The expected effects of these transformations are also hard to quantify: banks do not generally distinguish between the various possible origins of planned cost reductions. Generally speaking, rationalisations or synergies, rather than cost reductions, are sought in the course of conduct of the digital transformation: in line with their strategy, banks understand digital transformation as a transformation of their business rather than a way of pursuing a traditional business model at lower cost.

¹³ In addition to the report that has already been referred to, refer to information available on [Tech Sprint on explainability](#) led by the ACPR in July 2021.

4.2. The *aggiornamento* of information systems

At the time of the survey, the institutions gave a positive assessment of the adaptation of their information systems (IS) to the ongoing digital transformation: in terms of agility and interconnectivity, they rate their information systems between 3 and 4 (on a scale from 1 to 5). They generally consider that their IS will retain their capacity to meet their needs in the short and medium term

However, all the institutions indicate that the transformation of their information systems is a priority in order to remain competitive, and major work is underway to rationalise, secure and improve the performance of their IS. In addition to the key issue of security, the main area of transformation identified by the institutions is that of the modularity and openness of ISs.

The implementation of the second Payment Services Directive¹⁴ has served as a catalyst for API development projects: beyond the APIs imposed by this standard (for access to payment data), several institutions are actively working to increase the number of these interfaces and to standardise them in order to improve their ability to interact with their partners. This APIsation is also conceived as a general evolution of the IS towards a more modular model: several players have therefore developed API platforms at the level of their banking group to accelerate the development of new products (by allowing the various entities or departments to call upon internal software "bricks") and to break down the data "silos" linked to the fragmented nature of legacy applications.

This openness is also associated with efforts to standardise development and deployment tools and data formats in order to speed up the delivery of new applications or the integration of partners. At the same time, respondents underline the importance of deploying new IT project management methods (agile methods) to ensure that projects are implemented quickly and that they evolve in line with user needs.

The use of cloud computing is seen by institutions as a critical leverage point in the transformation of ISs towards greater scalability and responsiveness. The cloud strategies deployed by banks all show an increased use of these technologies compared with the 2017 survey. More specifically, a significant proportion of institutions now favour a flexible strategy - in contrast to the cautious or even defensive approaches generally observed in 2017: where the private cloud was the only one considered or implemented in 2017, an increasing number of organisations are adopting the public cloud, or at least a hybrid solution (private/public cloud). The most pro-active banks are even contemplating a complete transition to adapted public cloud infrastructures.

Over and above the general principle, it is therefore on the methods and extent of the switchover of ISs to the cloud that the differences between institutions lie, in terms of:

- the extent of the use of public cloud solutions One issue is the possibility of using the public cloud for sensitive applications or data. Some institutions refer to the government's trusted cloud strategy to adapt their solutions to the sensitivity level of their environments;
- the relationship with cloud providers (single provider to facilitate integration into the IS, multi-vendor to limit the risks of technological dependence and operational risks);

¹⁴ [Directive 2015/2366 of 25 November 2015](#)

- The type of data to be stored in the cloud;
- The pace of migration of applications to the cloud and the priorities to be adopted (core banking, ancillary services or new projects).

Cloud computing

Cloud strategies vary between banking institutions: not only because of differences in their IS architectures, but also because they do not all have the same strategic priorities, the same target markets or the same partnership policies. However, the general diagnosis on the benefits and risks of using the cloud is broadly shared.

The advantages of using the cloud.

From a technical perspective, the cloud is seen as enabling faster deployment of new IT tools and increasing the ability to work with external partners to design and distribute new products or to have them distributed; this also constitutes an improvement in trading capacities through reduced time to market.

The cloud also facilitates the development of innovative solutions: AI-related technologies in particular require large, easily accessible databases.

From an economic standpoint, the cloud would reduce the operating costs of the infrastructure (via pooling) and of IT applications. Resource consumption is also more flexible, especially thanks to "on demand" storage options.

In terms of operational risk, some argue that these state-of-the-art services offer greater simplicity and reliability and allow for business continuity in the event of localised failure thanks to the ability to duplicate databases. Finally, the cloud helps improving the working environment, increasing collective and individual productivity and facilitating sharing and exchange.

The risks and drawbacks of using the cloud.

Reversibility is the first risk mentioned by the stakeholders. The risk of technological dependence, especially the one linked to the low number of suppliers with significant capacities, has led some players to move forward more cautiously with their cloud strategy, or to favour strategies that limit this risk by increasing the number of suppliers.

The cloud also poses risks to companies in terms of the protection and use of personal data, especially so in relation to the GDPR (regulatory risk) Regulation, the Cloud Act and the invalidation of the Privacy Shield. Data protection, both when viewed as personal data (GDPR focus) and as customer data (commercial focus) is a significant concern for banking organisations wishing to preserve their strategic independence. These players are also involved in the development of sovereign cloud solutions, standards, or in the co-construction of clouds designed specifically for the financial sector.

Finally, cost control is more intricate, both during migration and in operation, and even more so because of the consumption-based billing model.

Several banks have chosen to actively pursue a Cloud First or Move to Cloud strategy in order to reap the financial and operational benefits of the cloud as well as those linked to innovation and agility. The solutions currently in use are often of the hybrid sort, but banks are no longer limiting the use of the public cloud to simple collaborative use cases or to the specific needs of each project: several institutions have switched certain essential applications to these solutions or are considering a complete switch-over of their IS towards these media.

However, for the majority of respondents, the internal and private cloud is still favoured for the most sensitive data and critical core banking applications. Internal cloud technologies are increasingly based on open source solutions in order to facilitate the modernisation and robustness of their applicative legacy.

4.3. Training, acculturation, recruitment and mobilisation of employees on digital issues: internal change management

Digital transformation is not limited to a technical process, it also involves major transformations in the various business lines of banking institutions: the tools to be mastered are changing, the methods communication with customers are evolving, and employees' expectations are evolving as well. This transformation of business lines and needs must be anticipated when hiring, but it also requires change management for already employed personnel. Beyond the evolution of available technical skills, banks are seeking to internally promote a culture of innovation.

New hiring needs

Within the framework of forward-looking management of positions and skills (staff management), several stakeholders have implemented forward-looking policies to identify jobs, skills, and managerial and organisational models in order to ensure that human needs and resources are well matched.

In their answer, all banking institutions cite an increased need for expert profiles on technical subjects: data, AI, IT, Cloud etc... Specialised in data science, data analysis, data engineering, UX Design¹⁵, architecture or software development. Yet, this need also extends to hybrid profiles combining business skills (e.g. legal or financial) and familiarity with new technologies. New positions and titles are appearing in organisational charts.

¹⁵ User interface design (UX: "user experience")

Banks report potential difficulties in recruiting and retaining these profiles in the highly competitive market in which they are scarce (the number of candidates is much lower than the demand). However, for the banking sector, these difficulties are a point of attention rather than an insuperable obstacle: the vast majority of institutions achieve their recruitment targets.

Efforts made to tackle these difficulties focus both on the early identification of prospects (e.g. through partnerships with engineering schools, training institutes, etc.), on the expansion of potential employment pools (opening additional IT sites, setting up establishments abroad, etc.) and on taking better account of the expectations of future employees (adapting pay grids, of course, but also the working time regime, the hierarchical structure, the management methods, etc.).

Acculturation and training of the workforce

In addition to recruiting the necessary experts, banks have set up extensive training programmes to train their employees in the new tools and working methods associated with digital technology. This effort ensures that human resources made available by new technological solutions in certain fields are reallocated to tasks with higher added value.

Skills development primarily concerns the acquisition of new skills, whether this acquisition is a reaction to the transformation of the company's needs (reskilling) or aims to increase the skills of employees (upskilling) so that they can integrate the digital transformation into their daily activities. But the development of skills also encompasses "soft skills" and methods of conducting business: managers are the focus of particular attention within banking institutions. Several programmes mentioned by the latter are specifically aimed at them: seminars cycles for senior or middle managers, targeted training on the integration of the impacts of digital technology in their business line, meetings with entrepreneurs who have created Fintechs or researchers working on new technologies...

Other formal collaborative initiatives such as hackathons or best practice exchange platforms are also being rolled out within the banking groups.

The agile method to foster a culture of innovation

When asked how far they have progressed in terms of developing a culture of innovation within their organisation, banks currently consider themselves to be in an intermediate position: on a scale of 1 to 5, their score varies from 2 to 4, with an average at 3.6.

In order to foster this culture of innovation, the banks feel that they need to focus on:

- The importance of these issues in the institution's governance system and strategy;
- A proactive recruitment policy, as well as an ongoing training and acculturation programme for employees (see above);
- Supporting in-house innovation, in particular via incubators or intrapreneurship mechanisms;
- Increasing exchanges with innovative players in the ecosystem: partnerships focused on products or investments, dialogue...

The banks believe that the main obstacles to embracing a culture of innovation are the fragmentation of activities into "siloes" business lines, cumbersome decision-making processes or rigid project management structures.

Yet, the institutions surveyed repeatedly mention an increase in the use of "agile" management methods. Applied to an innovative project, this collaborative development approach translates into a shared view of the stages of innovation deployment, which begins with an exploration and ideation phase, continues with an incubation phase that should lead to a prototype (Proof of Concept - POC) and then, after successive iterations, to a "minimum viable product" (MVP)- before the launch of new products.

Regulatory framework and innovation: the outlook of banking institutions

For the majority of the institutions surveyed, regulation is not holding back the digital transformation of banks

Regulations are considered to be adapted to the use of new technologies by financial institutions. More specifically, the existence of a specific framework in France dedicated to cryptoasset-related activities is cited as a potential advantage for French players. However, the attention of public authorities is drawn to more general issues: equal treatment, regulatory fragmentation and complexity, and the competitiveness of the European regulatory framework.

Equal treatment in the application of regulations is the most frequently mentioned issue. Several surveyed banks would like for the "same business, same risk, same rule" principle to be strictly applied. One example mentioned several times has to do with data processing: several institutions feel that some Fintechs or Bigtechs access their customers' data without strictly complying with the regulations. Other examples mentioned concern the application of anti-money laundering and combating the financing of terrorism (AML/CFT) requirements or of security requirements.

The fragmentation of regulation or supervisory practices is also featured in many answers. It is often pointed out that regulations are not always fully harmonised within the European Union: the case of the transposition of the Second Payment Services Directive (PSD2) is mentioned in this regard, as well as the existence in France of the status of financing company, which does not exist at the European level. The complexity of complying with the regulations for certain activities where several sectoral regulations apply and several supervisory authorities have jurisdiction was also noted: the example of the General Data Protection Regulation (GDPR) and the PSD2 Regulation was notably mentioned.

Lastly, the competitiveness of the European regulatory framework has been commented upon on several occasions. Some respondents expressed concern that European regulation is too restrictive compared to that of other non-European countries. Particular mention is made of China and the United States, where the protection of personal data lacks the same protective framework as in the European Union, which may facilitate the use of services based on mass data processing. As another example, the application of EU AML/CFT requirements to the provision of payment services where part of the transaction takes place outside the EU (transfer of funds between a EU country and a country outside the EU) makes it difficult for a global fund transfer solution to emerge made by a European player. Two respondents also pointed out that the liability incurred by banks when using non-European cloud providers was too heavy, especially with regard to internal control requirements.

The European strategy for digital finance seems to address the main challenges of digital transformation

Overall, banks believe that the EU's digital finance strategy should support the adoption of new technologies. However, they identified issues that should be addressed by additional measures, or that they would have liked to see addressed differently in the strategy, such as open finance, data sharing, digital identity and cloud services.

A framework facilitating data sharing and open finance could benefit players other than banks. It was pointed out in some answers that greater openness in the sharing of data held by banks could primarily benefit new players such as Fintechs or large non-European players such as Bigtechs that are already specialised in data collection.

The measures pertaining to the implementation of digital identity are viewed very positively by the respondents. Its use should facilitate the development of innovative digital services while ensuring compliance with AML/CFT requirements. However, some institutions regret that this type of solution is not available in France yet, and call to speeding up the associated timetable.

The regulation of cloud services and their use by financial institutions (DORA) should facilitate the adoption of cloud solutions, but it has been subject to criticism for its complexity and due to a possible "edge effect" that could discriminate against smaller players: one respondent indicated that the EU-wide supervisory framework for critical cloud service providers provided for by DORA could constitute a competitive advantage over smaller players who, not being subject to this supervisory framework, could be considered less secure.



Conclusion

Four years after the first ACPR study on the digital revolution, this study on digital transformation makes an observation that justifies this lexical shift: although it is still incomplete, the digital transformation of banks is well underway. Its effects on the landscape, products and innovations of the banking sector are clearly visible. In the financial sector undergoing profound changes characterised by the increasing fragmentation of value chains, **banking institutions** remain major players today: they have demonstrated real maturity in digital matters and they often face the transformation of their business models with confidence.

The evolution of customer expectations -linked to the increase in the quality of customer experiences offered by Bigtechs, an effect that was further strengthened by Covid-related events- has been and remains the primary driver of this transformation. Online interaction has become the norm and the tools developed for this purpose have improved considerably. However, the risk of losing the relationship with the customer remains a key concern for traditional institutions and their digital strategies.

It is in this particular light that players assess a competitive landscape that has been modified by the early successes of Fintechs and the new use cases they have been able to introduce, particularly in the field of payments. Banks have an ambivalent position towards these innovative actors, considering them both as partners and as competitors. The same applies to Bigtechs, which have so far refrained from directly and massively entering the French banking sector.

The increasing number of acquisitions of innovative players (technical suppliers, Fintechs, etc.) is evidence of banks' desire to anticipate changes in the banking market, but it is also proof of their growing efforts to integrate partners into their processes and to operate in an open architecture -either by distributing products designed by others or by making their banking services available *à la carte*.

These Banking-as-a-service or Banking-as-a-platform models are not universally adopted but banks are all keen to improve their agility, while increasing their resilience to the growing cyber threat. This is reflected, in particular, by major investments in their IT services, with a focus on modularity and responsiveness -a trend that is made especially evident by the increase in the number of APIs and the growing use of the cloud (both public and private).

In terms of the technologies used, the last four years have seen a clear maturation of the banking industry in the development and deployment of artificial intelligence-based tools: prototypes have been followed, in many places, by operational solutions that contribute to improving relations with customers, better identifying risks and supporting the fight against money laundering and terrorist financing. Conversely, the progress of distributed ledger technologies appears to be slower-paced: very few use cases have emerged. It is also proceeding in a more

differentiated manner: only a portion of the players seem to be actively exploring the field, expecting that the stabilisation of the regulatory framework and the emergence of secure tokenised assets (central bank digital currency) will allow for the widespread development of products and services related to DLT.

Governance, organisation, IT, recruitment and change management, corporate culture: the digital transformation is already a reality for traditional banking institutions. They are nevertheless aware that their efforts to adapt must continue in order to maintain their position in a highly innovative and ever-changing competitive environment.