



# ANALYSES ET SYNTHÈSES

-  Survey on the digital revolution in the French banking sector

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As the pace of change of the digital revolution quickens, the *Autorité de contrôle prudentiel et de résolution* (ACPR) conducted a survey on the challenges of the digital revolution in the French banking and insurance sectors. This cross-sectoral survey was conducted in the second half of 2017. It was made up of around 100 open-ended questions and was addressed to a representative sample of six banks<sup>1</sup> and eleven insurance companies<sup>2</sup> from the two French market sectors.

This issue of *Analyses et Synthèses* focuses on presenting the survey findings for the French banking sector.

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## 1. Digital transformation is an unavoidable structural shock for the banking sector: this observation is shared by all the French banks surveyed

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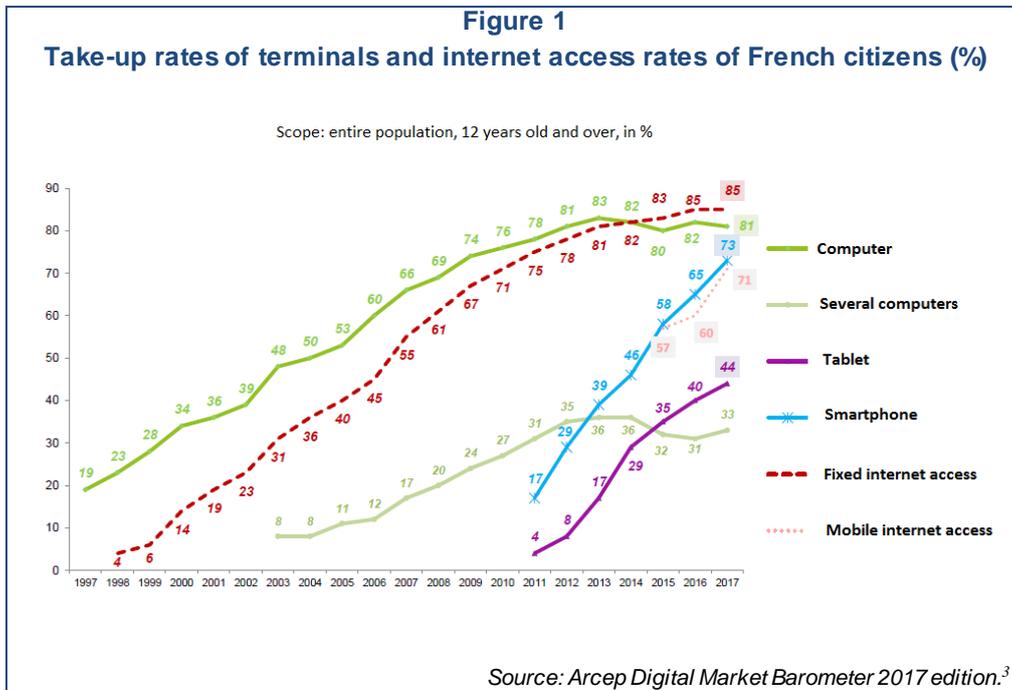
### 1.1. Digital transformation is carried by a wave of quite highly interconnected technological innovations that are nonetheless at varying levels of development

While the beginnings of the digital revolution were built on an accumulation of technological innovations, it is probably the boom in **mobile telephones and high-speed internet** that lies behind the major changes in the banking sector. While banks seized upon the internet in the 1990s and 2000s, it was the commercial success of the smartphone since Apple's first iPhone came on the market in 2007, along with the roll-out of broadband networks (3G in 2001 and 4G since 2012), which revolutionised the consumption of financial services to the point where it is now a more important communications channel for the banking sector than the internet. For example, one banking group observed that in 2016 online banking services were accessed using computers 60% of the time, with smartphones used in 40% of cases. In 2012, these figures were 93% and 7%, respectively. These new practices significantly exacerbate the challenges faced by the banking sector. The 2017 edition of the Digital Market Barometer published by the *Autorité de régulation des communications électroniques et des postes* (Arcep – France's regulatory authority for telecommunication and postal services), the *Conseil Général de l'Économie* (CGE – the General Economic Council) and the *Agence du Numérique* (France's Digital Agency) also shows that in France the adoption and use of the smartphone increased more than two times faster than the internet.

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<sup>1</sup> BNP Paribas, BPCE, Groupe Crédit Agricole, Groupe Crédit Mutuel, La Banque Postale and Société Générale.

<sup>2</sup> AG2R La Mondiale, Allianz, Aviva, AXA, CNP, Covéa, Crédit Agricole Assurance, Generali, Groupama, MACIF and MAIF.



All banks have developed their own mobile application but significant investment is still required in this area to continue to improve application ergonomics and enhance functionality beyond the most basic operations. While smartphones are mainly used for everyday banking services such as checking bank accounts, arranging transfers, managing cards and downloading bank details, people also use them to look up information, perform simulations and compare offers and increasingly to subscribe to products. However, depending on the bank, it is thought that mobile telephones will continue to be more suited to straightforward subscription processes (such as consumer lending) rather than complex products (such as mortgage lending) where multichannel processes involving human advisers will remain more appropriate. At the same time, the use of social media in banks' online advertising campaigns is becoming increasingly important, even though it remains secondary in terms of their interactions with customers. Connected objects (watches, personal assistants, household appliances, etc.) are also contributing to the digital revolution but, with the exception of some insurance businesses, their use at this stage seems to be less essential to banking services (although certain practical uses have been identified in the fields of specialised financial services and car leasing).

The explosion in uses from the enhanced connectivity sparked by mobile terminals further – and substantially – increases the **volumes of data** collected by banks, in all formats (figures, texts, images, audio, geolocation, etc.) and of all types (structured and unstructured data)<sup>4</sup>. This data includes account operation data that banks still consider to be underexploited and data on interactions with customers (mobile application, emails, etc.). Some banking groups also state that they are open to exploiting open data such as socio-economic data, survey data or even data from social media. For example, weather forecasts can help in predicting demand for consumer credit. Given the wealth of existing data available, banks

<sup>3</sup> The 2017 edition of the Digital Market Barometer published by the *Autorité de régulation des communications électroniques et des postes* (Arcep – France's regulatory authority for telecommunication and postal services), the *Conseil Général de l'Économie* (CGE – the General Economic Council) and the *Agence du Numérique* (France's Digital Agency): [www.arcep.fr](http://www.arcep.fr)

<sup>4</sup> Unstructured data are not stored via pre-defined data models or schema and have no embedded sequencing. The absence of a set format generally leads to ambiguities and irregularities in the data that complicate its exploitation.

have identified numerous opportunities for big data use in marketing (anticipating churn in certain highly competitive products), combating fraud or even managing risk (monitoring vulnerable populations, for example).

Equally, customer awareness of the value of their data is increasing all the time and has been raised by new provisions in regard to the right to data portability.<sup>5</sup> Nevertheless, qualitative studies carried out by banks highlight that customers may fear "Big Brother" and have high expectations in terms of transparency and control over the use of data. According to the same studies it would also appear that customers are still reluctant to accept the extensive use of their data to greater personalise their risk.

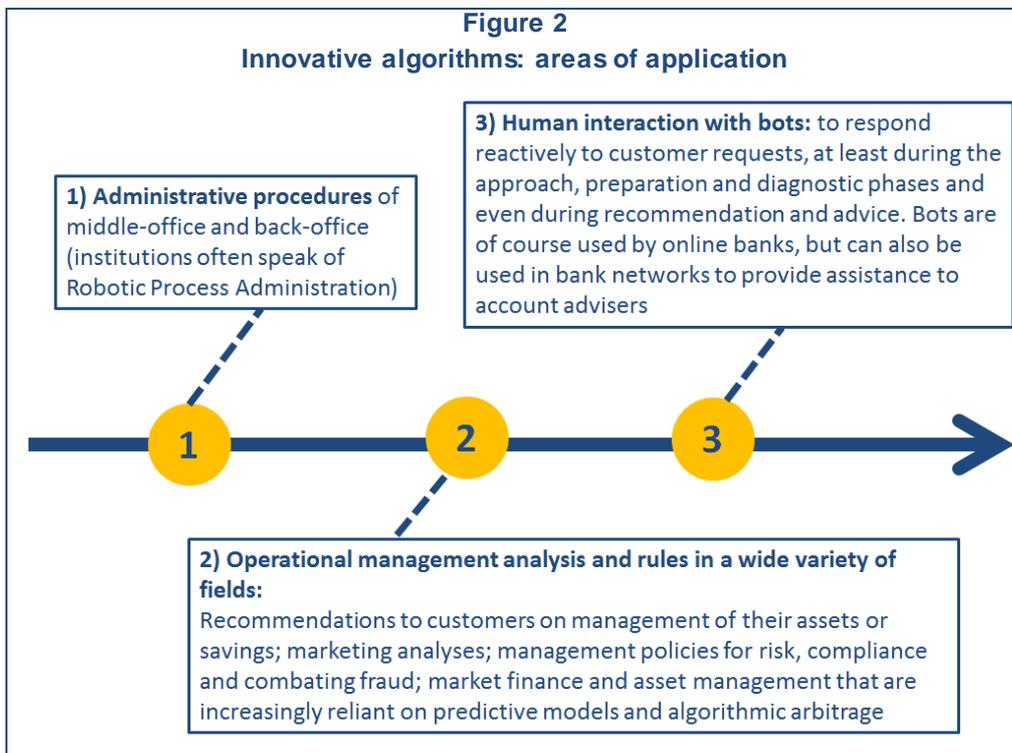
The exponential growth in available data furthers the development of **innovative algorithms**.<sup>6</sup> The theoretical principles behind algorithms were established in the 1950s,<sup>7</sup> but the growth in collected data and the substantial improvements in computer processing have now made their use possible. French banks appear to be investing most heavily in this area of innovation, even if the degree of sophistication of algorithms is extremely variable. The banks point to three key areas of application (see [Figure 2](#)).

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<sup>5</sup> Article 20 of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (GDPR – General Data Protection Regulation) and Article 48 of Law No. 2016-1321 of 7 October 2016 for a Digital Republic incorporating the new Article L. 224-42-2 of the French Consumer Code.

<sup>6</sup> These algorithms are often likened to artificial intelligence (AI), as they allow machines to perform tasks that require intelligence when they are performed by humans. In terms of AI, the fields most frequently mentioned by banks include optical character recognition (OCR), natural language processing (NLP) and pattern recognition (PR).

<sup>7</sup> In 1950, the British mathematician Alan Turing developed the theoretical principles with his Turing test, and in 1957, the American psychologist Frank Rosenblatt invented the perceptron algorithm.

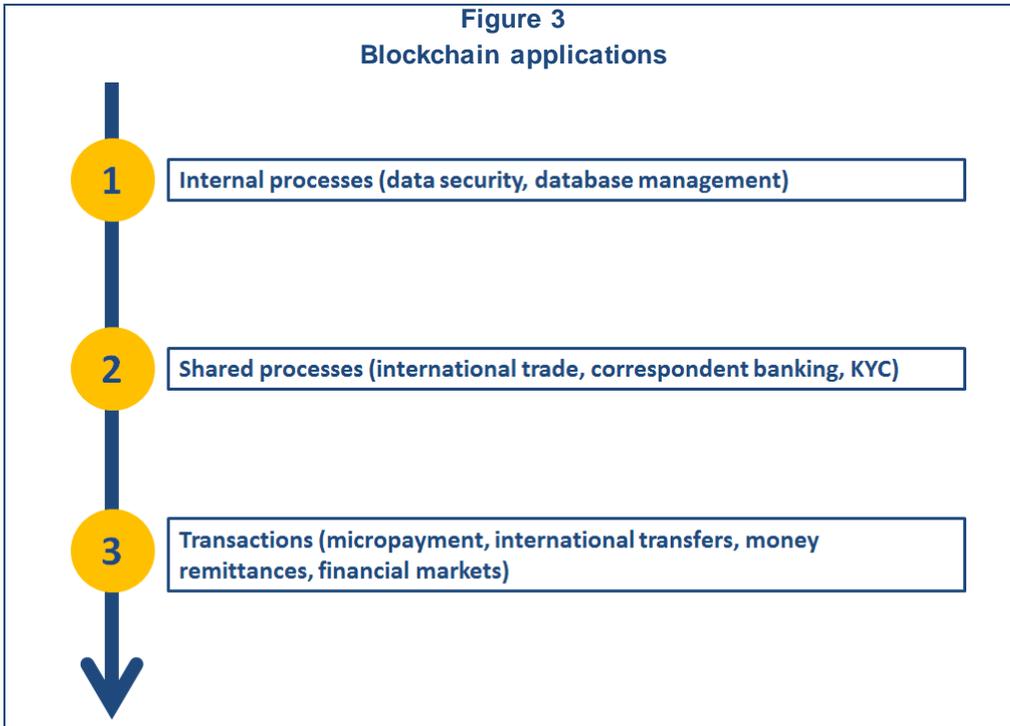


The vast majority of the trials currently underway seek to develop algorithms with settings supervised and controlled by the institutions, although banks are also looking into machine learning algorithms whose settings depend on the experience acquired by the algorithm. This raises significant challenges in terms of auditability and interpretability.<sup>8</sup>

The last major technological innovation is **blockchain**, which draws on cryptographic and computing techniques to provide a secure decentralised solution. Blockchain technology was developed for use with the crypto-asset Bitcoin in 2009, whose transactions are recorded in a public permissionless blockchain operating without any restricted access or central authority. However, there are different varieties of blockchain technology that have been developed to meet the needs of the financial sector and those may be different from the Bitcoin blockchain. There are numerous potential applications for this technology in the financial sector but they can be separated into three categories (see Figure 3).

<sup>8</sup> Report of the Financial Stability Board, "Artificial intelligence and machine learning in financial services: market developments and financial stability implications", November 2017.

**Figure 3**  
**Blockchain applications**



In the latter category, blockchain could be used for functions that are currently assured by payment and market infrastructures (depository, clearing and settlement). It appears that banks feel that the technology is not yet fully mature, despite the progress made by the wide range of French and international initiatives. Due to the regulatory and technological challenges involved,<sup>9</sup> using a public permissionless blockchain in the financial services sector remains problematic. Institutions are focusing more on the development of private blockchains for internal or shared processes. These are not expected to go into production until 2020, or even 2025. Against this backdrop, the Ordinance of 9 December 2017 on the use of a shared electronic recording device for the representation and transmission of financial securities provides an innovative initial basis for their application, which institutions find to be particularly useful.

## **1.2. These new technologies bring a profound change in customer behaviour and expectations**

While the digital revolution is essentially technological, the banks that were surveyed cite the profound change in customer behaviour as the most decisive factor. The digital revolution pervades all sectors of the economy, and while the impact on sectors such as the media, tourism and trade has already been significant, the financial sector has not been spared either by these cultural changes that involve all customer types (individuals, professionals, businesses, investors). This is reflected in increasingly demanding expectations in terms of responsiveness and customer experience, the reflex to systematically search for information and compare offers before seeking out advice and the desire for greater user autonomy. These changes can be seen in consumer credit, for example, where customers demand ever-shorter response times. Certain institutions also mentioned that some customers appear to have a greater preference for savings products that involve no commitment and little associated risk.

<sup>9</sup> "Les enjeux de la Blockchain pour la Banque de France et l'Autorité de contrôle prudentiel et de résolution", *Réalités industrielles, Annales des Mines*, August 2017.

However, these structural changes do not mean that customer expectations are becoming standardised. Banking institutions feel that expectations are still extremely heterogeneous and that generational or social criteria are less and less helpful in understanding them. The wide variety of uses thus places the institutions in a difficult situation as they try to capture new customers while trying to ensure that they keep their current customer base. Consequently, all banks are trying to respond to these divergent demands by working to offer effective multichannel customer experiences that leave customers the freedom to move from one channel to another (telephone, email, internet, mobile or tablet applications, bank branches) but maintain the continuity and fluidity of the process irrespective of the channel used. In practice, this is far from straightforward. There has been a rapid decline in bank branch traffic<sup>10</sup> but at the same time customers are in contact with their bank far more often through mobile applications and websites. For example, one banking group noted that there was a 43-fold increase in consultations of its mobile application from 2010 to 2016. In addition, the banks' responses show that the decline in branch traffic does not necessarily mean that customer representatives' workloads are reduced, as certain institutions reported significant increases in the number of emails and telephone calls received. The same banking group quoted previously also stated that between 2010 and 2016, email use had quadrupled, telephone calls had tripled and even the number of face-to-face meetings had increased by 30%. Furthermore, the institutions observed that being able to welcome customers physically remained indispensable for products that involve the greatest commitment, such as mortgages or life insurance. This need for human contact also explains why customers are increasingly demanding in terms of the opening and availability of branches and call centres, sometimes resulting in lengthy hours of service.

Even though the digital revolution is characterised by changes in consumer and distribution practices more than by changes in bank products, institutions are nevertheless involved in three major developments in the products:

- (i) They believe that ultimately the transformation will most likely result in the total dematerialisation of financial products, particularly payment means. They expect a reduction and even an end to the use of products requiring physical payment methods (cheque books and bank cards for individual customers and commercial papers and letters of credit for companies). Mobile payments, as well as peer-to-peer transactions, should become more widespread, particularly with the implementation of the Eurosystem's instant payment projects.
- (ii) From the point of view of savings, customers will expect simpler offerings, with greater fee transparency and improved advisory services. Many transactions and a lot of basic advice could be generated using algorithms which would take into consideration a customer's overall assets and their level of associated risk.
- (iii) The development of the digital economy has major consequences on consumption patterns (e-commerce, the sharing economy, the rental economy, etc.), which banks clearly have to take into account in their offering. For example, banks, like certain new entrants, have developed new technological offerings to help the market places to better integrate payment functionalities into the purchasing process.

Under increasing pressure from competitors, banks expect to see a continued reduction in fees – and even an expansion of the no-cost model – on payment

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<sup>10</sup> 20% of French citizens visited their bank branch several times per month in 2016, compared with 52% in 2010 (source: *Fédération Bancaire Française*, "Baromètre 2016 de l'image des banques" (image survey of banks) performed by BVA).

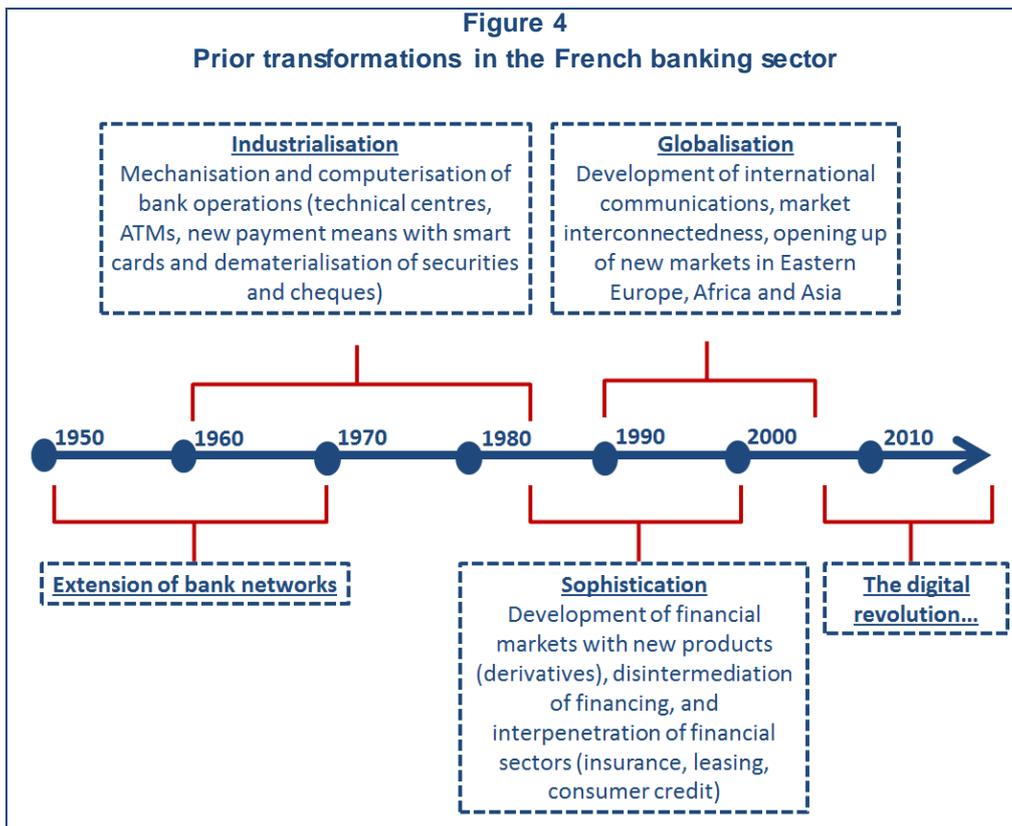
means (cash, bank cards, cheques, transfers and direct debits), brokerage services for unit-linked contracts or collective investment scheme units, and more generally, on everyday banking services where customers feel autonomous. This overall downward trend does not mean that customer expectations on pricing practices are homogeneous. The banks point out that some customers want a flat-rate fee structure while others prefer pricing on the basis of use, perhaps even for payment services that are normally based on annual subscriptions.

Even though the survey failed to identify a consensus on the proportion of banks' revenues threatened by digital transformation, all players will have to compensate for this loss of income on their most common products. To do so, banks are considering:

- (i) better promoting and monetising the coaching and alert services that would be appreciated by customers, as well as rolling out financial products and services that had been the preserve of a high-end clientele to the general public (e.g. private banking robo-advisers);
- (ii) further developing non-financial services, including telephony products, security products and trust services related to the growth in digital applications such as e-identity, electronic signatures, digital wallets, private cloud, and data theft or online reputation insurance;
- (iii) providing new packages of business start-up services or account switching arrangements that mix bank products with telecom, energy or transport offerings, similar to the boxes sold by telecommunication providers.

### **1.3. France is not lagging behind, but the scale of the challenge is amplified by the rapid pace of change and intensified and increasingly multifaceted competition**

Digital transformation is the latest in a series of structural changes in the banking sector (see [Figure 4](#)). The banks therefore point out that the need to change and adapt is nothing new, and that over their history, they have been able to innovate in terms of organisation, products (leasing in the 1970s, or new financial products in the 1980s and 1990s, for example) and distribution (minitel applications in the past or mobile applications today). The development of the credit card in the 1980s is often cited as a transformation success story for the French banking system.



According to the banking institutions, the French market is not lagging far behind the other comparable developed economies (even though they only provided a little evidence on the basis of their own international experience). They feel that digital applications will generally be more developed in northern European countries and relatively less developed in the south of Europe. The rapid expansion of digital uses in emerging economies, which could lead them to catch up or even leapfrog developed countries, can be explained by three main factors:

- (i) **The first factor is technological.** It reflects the markets' maturity and their positioning in relation to the technological frontier. The new digital practices spread more rapidly in countries where the banking network is sparser, banking services are more fragmented and modern payment instruments, such as bank cards, transfers or direct debits, are less widespread. It also explains the thriving development of e-money via mobile in Africa, fostered by telecom providers, and why the emerging middle class in China, urged on by new multi-sector players such as Ping An, Tencent and Ant Financial Services, switched directly to digital applications.
- (ii) **The second factor is regulatory.** Digital practices spread more easily in countries whose regulatory framework is less structured, shifting directly to the digital stage (exploring or promoting national electronic identification systems, facilitating electronic signing of contracts, supporting innovative trials, etc.).
- (iii) **The third factor is cultural.** European countries and citizens seem more concerned by personal data protection than their American and

Asian counterparts, where the major technology players such as GAFA and BAXT<sup>11</sup> first pilot their innovations.

That said, the surveyed institutions admit that the pace of the changes resulting from the digital revolution is far quicker than during previous structural transformations. As the interconnectedness of markets and individuals makes societies less resistant to change, new products and uses can start a chain reaction, as the success of the smartphone shows. The institutions therefore recognise that, in contrast to previous transformations, the digital revolution is less predictable, more decentralised and faster-paced and consequently requires greater agility. They no longer lead demand through their own concepts and developments, as was the case with the bank card. Changes are now customer-driven.

Banks recognise that their response to these changes can be restricted by information system legacy issues, social obligations (in terms of human resources policies) and, as a large company, their size. Some institutions also feel that reinforcing the regulatory culture to the point where it results in excessive requirements for standardisation and centralisation can also run counter to a spirit of innovation.

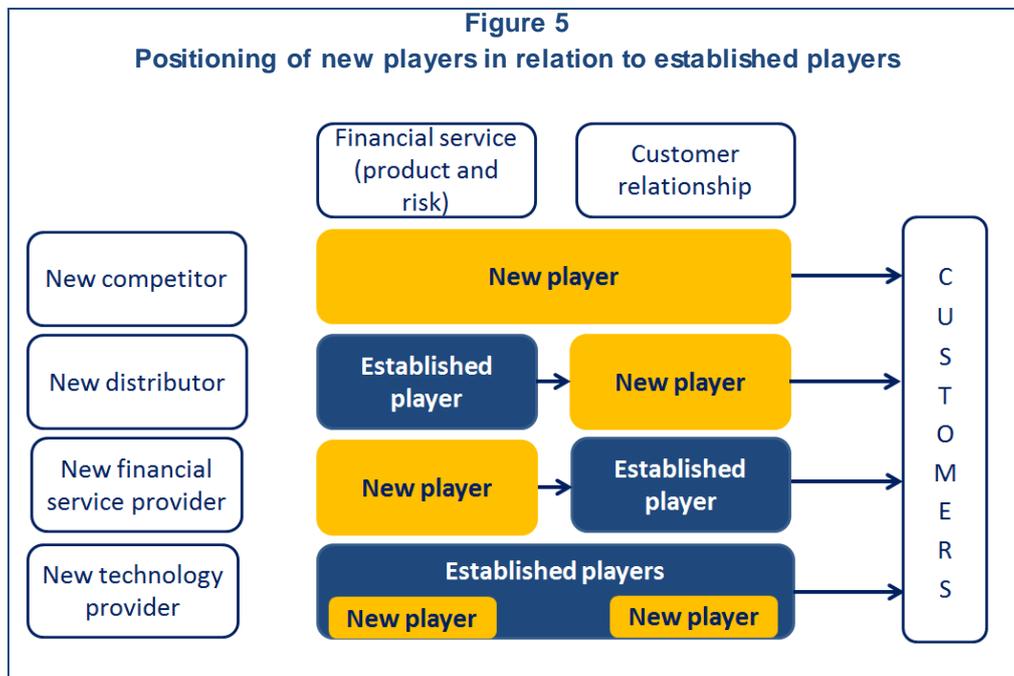
By contrast, the banks state that they are not particularly fearful of young start-ups in the financial sector, also known as FinTechs, which until now have only captured limited market shares. The majority of banks feel that they will not reach critical size because of their segmented commercial offering, restricted financial resources and relative immaturity in terms of data security and confidentiality. Many also note that FinTechs, whose positioning in the banking ecosystem varies, increasingly operate within the framework of a partnership with established players (see [Figure 5](#)). However, the new young start-ups in the financial sector are not the only source of competition, and banking institutions share greater fears with regard to:

- (i) the internet and digital juggernauts that have access to data, highly developed expertise in terms of customer experience and substantial financial resources;
- (ii) more established players such as telecom providers or large retail companies, which have a powerful distribution network and are looking for new growth drivers;
- (iii) other financial players, such as insurance undertakings, which are positioning themselves in the new sectors opened up by the second European Payment Services Directive referred to as PSD2.<sup>12</sup>

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<sup>11</sup> GAFA and BAXT refer to "Google, Apple, Facebook and Amazon", and "Baidu, Alibaba, Xiaomi and Tencent", respectively.

<sup>12</sup> Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market.



Nevertheless, French banks believe that they enjoy certain advantages that will allow them to successfully conclude their digital transformation.

They feel that their innovative capacity will be protected by their universal banking business model, which guarantees the risk diversification and financial soundness required to carry out the investments and overcome the setbacks that are unavoidable in any innovation strategy. They also point out their regulatory experience, their expertise in data security and protection and the image of trust and proximity that they continue to benefit from in the eyes of their customers. Some players also mention their international presence, which enables them to compare and pilot innovations in certain countries before rolling them out to other markets. Banks also admit that their strategy can be opportunistic, which leads them to buy out new FinTech players or replicate certain innovations, such as cash-gifting or account aggregators.

Banks are also eager to seize the opportunities that digital transformation creates. It could, for example, be the ideal moment to strengthen customer relationship by offering a broader range of services. Thanks to the economies of scale that should be generated by the new distribution methods, banks may be able to serve a larger customer base while improving operational efficiency. This decline in operating costs can result from greater customer autonomy, reduced overheads and a general improvement in operational efficacy (industrialisation, automation, performance of AI algorithms), which together could offset the growth in IT costs associated with the expansion of digital practices (development costs, or increased server availability demand for example).

Lastly, while it is true that digital transformation generates more competition in the short term, some feel that in the longer term, it could accentuate concentration in the European area banking sector, which could be to their benefit.

**Table 1**  
**Summary of the strengths and weaknesses of French banks regarding digital transformation**

STRENGTHS	WEAKNESSES AND CONCERNS
<ul style="list-style-type: none"> <li>- Scale and diversity of income, ensuring stability and investment capacity</li> <li>- Diversity of business lines and geographical locations</li> <li>- Innovation and experimentation skills</li> <li>- Retained customer trust</li> <li>- Experience of risk and regulation</li> </ul>	<ul style="list-style-type: none"> <li>- Information system and procedural framework</li> <li>- Regulatory culture, centralisation, standardisation, pyramidal organisation</li> <li>- Attractiveness challenge to hire young graduates (competition from digital players)</li> <li>- Integration of digital tech in current distribution models</li> <li>- A profusion of initiatives that complicates decision-making and ability to progress from trial phase to industrialisation</li> </ul>

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## 2. The strategies of French banking institutions to deal with the digital revolution demonstrate a genuine – though sometimes recently acquired – awakening

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### 2.1 The institutions have gradually organised a strategic response: it was initially mainly "defensive" but now touches upon all the transformation levers

In the middle of the 2000s, digital transformation mainly implied the launch of an online bank, which fulfilled the needs of those customers tempted by the flexibility of remote customer relationships and attractive pricing policies. Today, the majority of French banking groups have a banking solution that is fully remote (online, via mobile or via telephone), and those that until recently did not offer this service have decided to launch their own offering as they are aware that a fully remote solution attracts certain groups of people (young and international populations or people likely to change bank and able to take advantage of the Macron Law's<sup>13</sup> provisions on banking mobility). Fully remote banking solutions can also act as favourable testing grounds for certain innovations prior to considering rolling them out to other group business lines. However, it appears that remote banking is a crowded market, creating fierce competition in terms of marketing and fees,<sup>14</sup> and that few of those institutions are profitable. Lastly, a fully remote banking solution is no longer adequate to respond to all of the challenges faced by the banking sector as a result of the digital revolution.

The responses provided during the survey demonstrate that French financial institutions are genuinely aware of the issues at stake, even though in many cases that awareness is quite recent. Indeed, since 2014/2015, digital transformation has become a central pillar of banks' strategic planning. It is difficult to compare the scale of the initiatives undertaken by French banks (see [Box 1](#)) but the responses show that these strategies generally aim as a priority at maintaining the current customer base in an extremely competitive French market. These strategies can be based on different levers:

**(i) Shifting corporate culture towards more innovation, requiring shorter decision-making processes and a more decentralised model**

Banks stress that the human and cultural challenges involved in implementing their digital transformation are more serious than the technological challenge. In terms of governance, financial institutions sometimes find it difficult to combine the plethora of monitoring initiatives and trials that is perhaps unavoidable in large organisations, with their conversion into production. By their very nature, innovation processes require more decentralised and more agile procedures, whereas production and roll-out still need centralised processes. This has led certain institutions to thoroughly overhaul their governance framework while others have placed greater reliance on their mutualist structure, which is inherently decentralised.

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<sup>13</sup> Law No. 2015-990 of 6 August 2015 for growth, activity and equality of economic opportunities. Article 43 that amended Article L. 312-1-7 of the French Monetary and Financial Code.

<sup>14</sup> For example, Boursorama is targeting 2 million customers by 2020 (source: Société Générale Investor Day 2017) and Orange Bank is also aiming for 2 million customers by 2027 (source: 2 November 2017 press release).

It also calls for an expansion of human resource policies to ensure that the retraining of certain employees is well handled, the skills of other employees are enhanced and the high-demand profiles, such as IT and data experts or customer experience specialists, are recruited. While the financial institutions admit difficulties in rallying the workforce as a whole around this digital transformation, the development of more flexible training and working methods using digital tools can, on the other hand, help to get buy-in from employees.

**(ii) Modernising information systems to enable the roll-out of new technologies and increase data exploitation capacities**

Secured high quality information systems are crucial to successful digital transformation. In this field, institutions have to face conflicting challenges of flexibility (development of agile methodologies, increasingly regular software updates), openness (shared databases, development of programming interfaces) and security (against the surge in cyber-risk). In addition, while this momentum towards greater openness may result from regulatory constraints such as the second European Payment Services Directive (PSD2), application programming interfaces (API) can also facilitate the development of innovative banking solutions with external partners. Opening up information systems should also allow the construction of data lakes needed for innovative and effective exploitation of data, whereas data is currently often compartmentalised in different information silos.

Ultimately, while the starting positions of banking institutions may vary, which can explain their differences in strategy, they are generally looking for transition from a "bunker"-style security system to an "airport"-style security system, using the terms employed by one of the surveyed banks. However, the responses received highlight the substantially different approaches taken with regard to the use of cloud computing, even though they were recently the subject of new draft recommendations from the European Banking Authority.<sup>15</sup> Some institutions feel that cloud computing is essential to their transformation given the security and resilience it offers. On the other hand, other institutions stress the risks of data confidentiality and technological dependence inherent in these solutions. Lastly, others have adopted an intermediate strategy, preferring private cloud computing but accepting public cloud computing for specific targeted uses.

**(iii) Overhauling and dematerialising the customer experience to respond to changes in banking practices**

Financial institutions are looking at process dematerialisation in order to simplify and shorten the customer experience and boost their distance selling. Through their applications and digital tools, they are aiming to give customers greater autonomy during the approach and information phases (online mortgage simulation is one such example) while also facilitating new customer contact and the purchase of financial products (prioritising the simplest products such as consumer credit). However, it is difficult to compare their progress.

Institutions are also introducing innovation policies in order to speed up these transformations. Although institutions may have initially adopted a wait-and-see – and even defensive – approach towards young start-ups, they now see them more as potential partners rather than competitors. Nevertheless, their strategies can significantly differ. Some prefer managing innovations internally to ensure full control over the technological expertise, and therefore prefer purchasing the

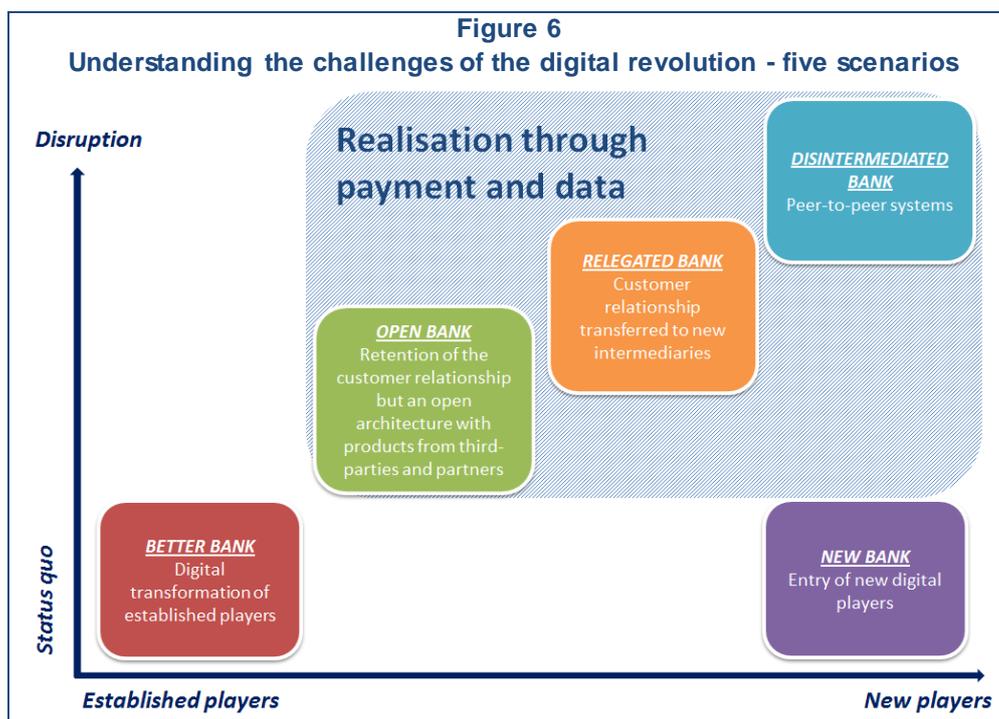
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<sup>15</sup> European Banking Authority, "Final Report: Recommendations on outsourcing to cloud service providers", 20 December 2017 (EBA/REC/2017/03).

source codes and technologies rather than the innovation players themselves. Others roll out an open innovation policy that is not always apparent as it involves greater numbers of commercial or technological partnerships, participation in venture capital funds and the launch of incubators or accelerators. This cooperation with young start-ups can sometimes result in banking institutions investing in minority holdings, but most prefer to avoid taking majority holdings unless the investment is considered strategic.

Therefore, while French banks have launched numerous initiatives and made significant investments both in terms of financial and human resources, it is difficult to compare the scale of their efforts. Additionally, strategies that may appear similar on the surface can be quite different depending on their history and starting positions. This comparison is made even more difficult by the significantly different communication strategies adopted by banks. While some prefer to be discrete, others are more expansive, thus blurring the real picture. Furthermore, when reporting on their transformation, institutions tend to focus their communication on commercial objectives such as the number of customers using online services or the percentage of sales made remotely, but few financial indicators are made available. In reality, much of the IT investment that contributes to digital transformation is swallowed up in the overall IT budget. And as numerous regulatory projects add to these budgets, it is often impossible to distinguish between amounts set aside to comply with regulatory requirements and those intended to improve the customer experience.

2.2. Even if banks continue to believe in the resilience and relevance of the universal banking model, the distribution of financial products could be significantly affected by the digital revolution



The banks were questioned about five potential forward-looking scenarios.<sup>16</sup> No forward-looking scenario was favoured in their responses, but the institutions acknowledged that their ability to retain control over the entire value chain could be undermined. While some feel that the scenarios in which banks retain all or part of their customer relationship (better bank and open bank) are the most likely to occur, others are less optimistic. However, French banks are most concerned by the threat of ceding the direct customer relationship to new intermediaries (the relegated bank scenario), as has already occurred in the hotel industry with the arrival of booking platforms, with, for example, the risk that a single interface captures the customer relationship and the bank is relegated to providing back-office support and managing the risk. This would increase the risks involved in their marketing performance (less awareness of customer needs and less control over content), in their management of risk (dilution of accountability) and in their regulatory obligations in respect of anti-money laundering and countering the financing of terrorism (AML/CFT). Consequently, French banks hope for the better bank scenario (the successful digital transformation of current players) and the open bank scenario (banks retain the customer relationship while opening up its interfaces to several financial service providers). Generally, banks stress the Schumpeterian nature of digital transformation<sup>17</sup>: the banking landscape will inevitably change and new players may capture or eat away at certain niches, but the risk of the incumbent banks being replaced is thought to be low (the new bank and disintermediated scenarios).

<sup>16</sup> These five scenarios are based on the analyses proposed by the Basel Committee on Banking Supervision in its report on the impact of FinTechs on the banking sector, "Sound Practices: Implications of fintech developments for banks and bank supervisors", February 2018: <https://www.bis.org/bcbs/publ/d431.pdf>

<sup>17</sup> The economist Joseph Schumpeter in his book "Capitalism, Socialism and Democracy", put forward the theory of the process of "creative destruction" generated by innovation: the arrival of new innovation players can contribute to the disappearance of incumbent enterprises that have been unable to innovate.

While it is extremely difficult to predict the future, intermediation platforms based on aggregation technologies present a serious challenge. Many new entrants are positioning themselves as intermediaries by offering a customer relationship platform and distributing the financial products of third parties within the framework of an open architecture product: this could be the case of bank account aggregators,<sup>18</sup> whose activities are regulated by PSD2 and who claim to have 2.5 million users in France. Depending on the customer experience that they are able to offer, these new player could capture all or part of the customer relationship. It is also this user experience that the major digital players build their business model and reputation on. If these new players manage to monopolise the customer relationship, the financial players could then be relegated to product development and risk management functions.

The key challenge for banking institutions is therefore to retain their relationship with customers and remain their first financial partner, offering a large range of products and services to serve their customers over the long term. Maintaining control of everyday payment and banking services is central in the battle for customers. Faced with the new PSD2 players, each bank is developing its own aggregation tool, sometimes in cooperation with specialised French FinTechs. This is also what is at stake with the development of mobile payments, which aims to counter payment initiation services providers for online purchases, which are now governed by PSD2, while providing new means of payment for convenience store purchases and integrating new functionalities such as loyalty card management. French banks have thus created the company *PayLib*, which brings together the banks involved in this survey to offer a mobile payment service for Android smartphones. Some players have also agreed partnerships with *Apple Pay*. That said, at a time when contactless credit card payment is developing rapidly, mobile payment solutions still appear to be struggling to find a market in France. In addition to PSD2, some institutions feel that instant payment settlements will result in major upheavals for the economic model of the credit card.<sup>19</sup>

### **2.3. Access to data seems crucial to safeguarding the bank business model**

While all the institutions have similar ambitions in terms of customer relationships, the survey reveals subtle differences in positioning. For example, certain banks seem more inclined towards implementing a distributed bank model, in which management of the customer relationship can be combined with the distribution of products and services from third-party partners. This may take the form of services that are not strictly financial but strengthen the relationship between the bank and its customers (concierge services, digital services such as online storage, or budget management tools, for example). Other banks believe that on less strategic markets they can accept making their balance sheet available to service providers, which would maintain the customer relationship and the distribution of their products.

Irrespective of these differences, all the institutions questioned insisted on the strategic challenge of data access, which is essential to their ability to retain customer relationships. With this in mind, the majority of the institutions believe that

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<sup>18</sup> Such as the "Bankin" application, whose parent company PERSPECTEEV is licensed as a payment institution by the ACPR, which offers bank account aggregation services but has also entered into partnership with the robo-adviser Yomoni, which has the status of an asset management company and insurance intermediary.

<sup>19</sup> The Eurosystem's "Instant Payment" project (see press release of 22 June 2017).

in theory they have an enormous wealth of data that could be better exploited – payment account data, for example. By contrast, there is genuine interest in new data sources, for example from social media or geolocation solutions, but this is still largely at the exploratory stage.

In this context, banks are particularly sensitive to having a level playing field – for all players, irrespective of status – for data access and exploitation, as well as data protection and security requirements. The year 2018 is considered to be critical, as the second European Payment Services Directive (PSD2) and the new European General Data Protection Regulation (GDPR)<sup>20</sup> will come into force.

However, even though data is cited as a major issue both in terms of marketing and regulation, it appears that banks' data strategies are not yet entirely fixed: their governance in relation to data protection is often recent and it is unclear whether institutions have made adequate progress on their implementation of API to satisfy PSD2. Furthermore, the trials conducted internally based on the exploitation of certain data seem to run into technical (data availability), regulatory (compliance) and organisational (internal ownership of the data) difficulties.

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<sup>20</sup> Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data.

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### 3. While the retail business is naturally at the heart of these strategic ambitions, the digital revolution should also concern all bank business lines and functions, including control

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#### 3.1. After putting in place a fully remote banking solution, the institutions are now working on the digitalisation of their legacy retail banking networks

The challenge of digital transformation is particularly crucial to the retail banking sector for individual customers. In this respect, the banks' responses are often similar in that they focus on a multichannel strategy that has to meet a threefold – marketing, technological and human – challenge.

**First, this leads to retail banks pursuing the development of their mobile and internet applications by providing greater functionality and improving customer experience.** The responses provided during the survey show that institutions have initiated major projects to dematerialise and overhaul the customer experience with the stated goal of boosting their distance selling. For example, customers feel that the processes for contacting representatives or taking out loans are often too long and complicated (needing to send supporting documents, etc.). Questions of customer authentication, security and compliance are central to these considerations. The aim is to provide ergonomic and clear processes, while complying with legal restrictions in respect of customer information, subscription and data protection.

Through digital interfaces, proactive alert-based approaches and research tools, banks also try to give customers greater autonomy (the concept of "self-servicing"). Even though "artificial intelligence" (AI) can be a greatly overused expression, as it is applied to algorithms whose settings are known and controlled by the banking institutions, banks feel that AI tools can automate or at the very least support customer relationships and advisory services. This is particularly applicable to wealth management strategies and projects for robo-advisers or to customer relationships with chatbots.

**Second, this encourages retail banks to review their marketing strategy and pricing policies in a restricted environment.** Today, marketing relies heavily on new digital practices, such as online advertising and social media, and the extensive use of data. Consequently, several institutions pointed out that they had projects in place to set up a *Data Management Platform* to better personalise their interactions with customers and anticipate their behaviour (foreseeing churn or the development of a real estate project or detecting structural budgetary difficulties, for example). The key challenge will be to get past the different silos and the inconsistencies in the quality of the data held in them (structured and unstructured data, sharing data from different domains) and to further develop tools to exploit the masses of data. The institutions are therefore working on setting up *data lakes*, but to do so an in-house economic model of the data must be defined (who owns the data, who is responsible for collection and quality, who has access and under what conditions and who is responsible).

**Lastly, this encourages retail banks to rescale their networks of branches and administrative centres and at the same time to enhance their call centres, which have to develop specific expertise.** While digital tools easily fulfil customers' everyday needs, such as checking bank accounts, making transfers, ordering cheque books and more recently aggregating accounts and managing

budgets, institutions would like branches and call centres to contribute expertise and add value to the customer experience, as they feel that branches remain essential to consolidating a model of long-term profitability.

Although it may not be the only challenge for retail banking, analysts and rating agencies often look closely at the issue of branch networks, for which banks have diverging strategies and communication. Some have streamlined their networks while others have opted against change, at least for the moment. Two factors, in addition to differences based on the original scale and locations of the branches, shed light on these contrasting strategies:

- (i) First, the growth in digital practices does not necessarily lead to a reduction in customer interactions, but on the contrary can increase contact between banking advisers and customers through the numerous formats available (email, telephone calls, etc.).
- (ii) Second, advisers play different roles depending on the bank. In some cases, the customer account manager continues to be central to the business relationship, but in others, banks would like to provide more flexible distribution models with customers choosing their own style of relationship.

The responses testify to the proliferation of initiatives intended to improve the customer relationship with account managers, be they in a branch or in a call centre. Therefore, banking institutions are rolling out AI tools to support customer advisers and help them to reply to the growing number of emails received or to look for answers on the financial products on offer, for example. This involves a process of modernisation, equipping branches and staff with tablets, smartphones and wifi hotspots, which implies new investments to guarantee the security of IT infrastructures.

### **3.2. For banks' other business lines, their initiatives seem to be more recent**

The digital revolution impacts all bank business lines. While there is now substantial investment devoted to digitising the retail banking business lines, generally less is invested in private banking and banking services for business and the self-employed, which must now in turn deal with new competitors arriving in their sectors. In private banking, certain institutions have noticed heightened competition in the fields of discretionary investment management and advisory portfolio services, for example. Thanks to automated financial advice tools, private banking services could be made more accessible to certain segments of the population that up to now have been excluded.

In corporate and investment banking, the challenges of the digital revolution are no less significant. Institutions point out the competition from platforms in bond issuances on the primary market or trading in plain vanilla instruments. With regard to market operations, digital uses could progressively accentuate the distinction between high value-added services (merger-acquisitions, public offerings or issuances of shares or obligations) and plain vanilla services (such as foreign exchange transactions), which rely increasingly on digital platforms and automated processes. In the brokerage and trading industry, whereas the sector is moving towards handling orders free of charge, process efficiency could also benefit from new technologies (data usage, or the potential of blockchain, for example).

Greatest progress has been made on initiatives to automate back-office processes, which in some cases have gone into production. Corporate and investment banks

have also launched numerous trials in artificial intelligence in areas including product recommendations to customers, automatic requests for quote recognition and analyses of legal documents to verify clauses. However, the responses seem to highlight the varying levels of maturity between French banking institutions. Some have reviewed their internal organisation or worked on putting in place an online offering that covers the majority of products and stages of customer interaction (research, pre-trade, trade and post-trade), while at other corporate and investment banks, their investigations appear to be more recent and less organised.

#### **Box 1: French bank blockchain initiatives**

In the field of blockchain, the majority of banks are investing in market initiatives such as LabChain, piloted by the *Caisse des Dépôts et des Consignations* on digital identity, the MADRE project with the Banque de France on a SEPA Creditor Identifier register,<sup>21</sup> or international consortiums such as Liquidshare to facilitate SMEs' access to markets by simplifying post-market procedures. Other banks, although fewer in number, are also carrying out blockchain projects in the field of unlisted securities, international payment flows, financing of international trade (for example, the Digital Trade Chain Consortium or a project on the trading of oil) or investment fund management (such as the FundChain initiative in Luxembourg).

### **3.3. The control functions could draw further benefits from digital transformation, while the potential of RegTech<sup>22</sup> in terms of control and risk management is intriguing**

Changing the corporate culture could certainly benefit from the support of the control functions (risk, finance, audit and compliance), but this is rarely referred to in the responses received. The majority of the institutions surveyed stated that they had barely begun digitising their control functions, even if the compliance and finance functions are often involved in business-line transformation programmes through their participation in new product and project selection committees. That said, the main RegTech opportunities identified by the banks are in the following areas:

#### **(i) anti-money laundering and counter-terrorist financing systems**

The institutions cited their projects regarding "Know Your Customer" programmes, particularly during first remote contact with customers (by mobile or internet). Big data solutions could also improve transaction monitoring and cryptographic techniques could contribute to the secure sharing of information between institutions.

#### **(ii) operational and compliance risk control system**

This is particularly the case for combating fraud internally and externally thanks to the expanded use and cross-referencing of data (payment means fraud, fraudulent trading, etc.). New technologies could also help institutions to identify and accept new regulatory standards and their impacts.

<sup>21</sup> The Banque de France's node for this project went into production in December 2017, while the nodes of the other participating banks will gradually go into production. The participating banks stressed the usefulness of this common approach, headed by the Banque de France, for acquiring technology.

<sup>22</sup> Contraction of the words "Regulation" and "Technology", referring to innovative technological solutions aimed at meeting regulatory requirements in a more efficient and effective manner.

**(iii) control system for other risks**

The responses reflect interest in using big data for credit rating tools as well as a fairly significant degree of caution, even if the approaches in relation to consumer credit have been increasingly refined. Ratings of counterparty risk could however be improved with the use of machine learning. The identification of poorly performing or defaulting counterparties could also benefit from the more intensive use of data. Also, though of lesser importance, better forecasting of early repayments could improve asset-liability management

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## **4. The digital revolution creates opportunities but also contributes to the emergence of new risks that the banking sector will have to properly grasp for its transformation to be a success**

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### **4.1 First, the revolution harbours a strategic risk as it puts institutions' business models and HR policies to the test**

The strategic risk to established players occasioned by the digital revolution is universally recognised as a key risk. At a time when the customer relationship has greater bearing than ever on business and pricing models, the ability of banks to retain and improve the customer relationship is being severely put to the test by the digital revolution. For example, merchants expanding their activities to include financial services (payment services, consumer credit, insurance, etc.) can lead to losses of market share and also undermine banks' ability to know their customers' needs. The strategic challenge is also deemed to be extremely serious with regard to payments, as it could result in the decoupling of basic services from high value-added services. As the costs of the former are sometimes covered by income from the latter, some banks worry that this could compromise the overall economic balance of these activities.

The banks also stress their dependence on operating system providers for the development of applications (iOS, Android) and on social media and search engines for online advertising. Consequently, although in certain fields this could often be outsourced to external service providers, banks feel that technological expertise is once again taking on strategic importance.

Against this backdrop, the strategic response from banking groups should also take into account the social dimension of this digital transformation. The reorganisation of banking groups and the boom in new technologies could have significant consequences – that have not yet become clear – for the management of careers and the workforce (structural reorganisation, process overhauls, changes in skill requirements, network and back-office sizes, etc.). Strategy buy-in from banking group employees will also be critical to the success of these transformations.

### **4.2 Digital transformation exacerbates operational risks, requiring institutions to implement effective and lasting modernisation of their information systems**

The banking institutions generally perceive digitalisation of operations and processes as a driver of operational risk reduction. However, given the growth in information system interconnectedness, particularly through the deployment of application programming interfaces (API), greater reliance on service providers and the increasing sophistication of attacks, all of the institutions without exception stressed that cyber-risks have now become far more alarming. From a commercial perspective, the resilience of information systems is even more important as customers are less patient and less understanding if systems are down, while social networks can exacerbate the risks to a bank's reputation. Generally, the proliferation of partnerships in the open architecture models raises questions for the banks as to how best to monitor outsourced activities.

These cyber-risks often necessitate the development of a new strategic programme, sometimes combined with the goal of obtaining certification (such as ISO 27001 on cybersecurity) and the recruitment of additional security specialists.

Banks often mention that the creation or strengthening of Computer Emergency Response Teams forms part of their action plans. In addition to these monitoring and response programmes, institutions have to reduce their IT risks at the earliest possible stages by carrying out a modernisation programme for their information systems. And given the budgetary and commercial constraints, the juxtaposition of numerous information systems presents institutions with difficult choices. Banking groups' divergent strategies with regard to cloud computing illustrate these difficulties.

#### **4.3 Lastly, while changes in the banking sector fuel new compliance risks, the new technologies can also contribute to mitigating them**

It appears that banks' strategies in regard to data are not yet entirely fixed. Institutions must meet the challenges both of data quality (Basel Committee on Banking Supervision standard BCBS 239 on risk data and reporting)<sup>23</sup> and of data protection under the new European regulation that will come into force in May 2018 (GDPR), which has led them to piloting successive compliance projects for different purposes on a range of data scopes. While banks on the whole welcome the GDPR as a positive driver that will serve to strengthen customer trust, putting it into practice appears to be complex and not yet finalised.

As for anti-money laundering and countering the financing of terrorism, while new technologies can contribute to the effectiveness of know-your-client controls and to the monitoring of transactions, the proliferation of players and products generates new vulnerabilities too. In this respect, the banking institutions argue for the development in France of a digital identity solution that would be available to private players and would therefore reinforce security at the moment of first contact with customers. The possibilities offered by European regulations on electronic identification and notification<sup>24</sup> are a first step. On 5 January 2018, the French government announced the launch of a programme to introduce this type of framework by autumn of 2019.<sup>25</sup>

The answers given in the survey in regard to consumer protection show that by designing customer experience on the basis of digital interaction tools, financial institutions are confronted with choices that can sometimes be difficult. This applies to all the phases of prospecting, selling and monitoring remote customer relationships. The challenge is to create a more user-friendly and fluid customer experience that also meets security standards and complies with regulatory requirements on the disclosure of information, the duty to advise and obtaining consent.

Faced with the compliance risks, new technologies can also offer useful ripostes through the use of RegTech solutions. In this area, as in the others, the challenge will be to spot the most promising innovations among the plethora of offers and to manage to progress from the trial phase to industrialisation.

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<sup>23</sup> Basel Committee on Banking Supervision, "Principles for effective risk data aggregation and risk reporting", January 2013.

<sup>24</sup> Regulation (EU) No. 910/2014 of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market (eIDAS Regulation).

<sup>25</sup> Joint press release of 5 January 2018 from the French Ministry of the Interior, Ministry of Justice and the Secretary of State for the Digital Economy on the launch of a programme to implement secure digital identity solutions.



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