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Impact of fintech and digitalisation on the Belgian banking sector and its supervision

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INTRODUCTION

Fintech and digitalisation have a significant impact on individual banks and on the development and the resilience of the financial sector as a whole. This report summarises the results of the fintech survey conducted by the National Bank of Belgium (NBB) in 2017-2018 and aims to raise awareness on the risks and opportunities of fintech, to share knowledge about the state of development of fintech in the Belgian banking industry, and to provide support in dealing with the challenges that fintech may pose for existing institutions (referred to as 'incumbents').

The first part of this report presents the results of the fintech survey on sectoral level. This part aims to give more insight into the general impact of fintech on the banking sector, the Belgian banking sector's preparedness for the challenges and opportunities related to the development of fintech-related solutions and business models, how banks are positioning themselves in the face of these trends and the impact on their organisation, and the technologies and business models that have so far been implemented in the Belgian financial sector.

The second part of this report contains some of the best practices the NBB has identified and provides guidance to banks regarding aspects prudential supervisors intend to take into consideration when conducting supervision. In this context, reference is also made to relevant publications by the European Banking Authority (EBA) and the Single Supervisory Mechanism (SSM).

The NBB may in the future publish additional reports on similarly important trends in the banking industry or perform additional research on fintech specifically.

PART 1: NBB FINTECH SURVEY RESULTS

In recent years, the financial sector has been characterised by an increasing degree of digitalisation and the introduction of numerous new applications, processes or products under the impetus of technological innovations and changed preferences of the consumer. Digital transformation and fintech are concepts that are closely intertwined and that are characterised on the one hand by the entry into the market of new innovative service providers and on the other hand initiatives of existing institutions whereby the organisation, the service provision and the product range are improved through technological innovations.

The “fintech revolution” seems, for now, to be mainly aimed at market segments where **customers’ expectations are not entirely fulfilled.** The new players who are appearing have innovative business models such as crowdfunding, peer-to-peer loans, alternative ways to carry out transfers and international payments, robo-advice, new electronic trading platforms, etc. These developments will **undeniably have beneficial effects**, such as an improved customer experience, lower transaction costs, and a wider range of services for customer segments that were previously not or under-served.

At the same time, a new form of **support services** is emerging whereby fintech players work together with existing market participants and offer certain operational processes which are **more efficient, more secure, or better,** such as cloud computing solutions, facilities for the electronic identification of customers, data analysis software that can be used to study customers’ behaviour, and distributed ledger services which make it possible to eliminate intermediaries and conclude transactions in a more secure and efficient way.

Given the importance of these evolutions, the Bank has taken various steps to enter into a dialogue with both new and established players in the market. In this context, it has set up a central contact point ('fintech single point of contact'), in cooperation with the Financial Services and Markets Authority (FSMA), that deals with fintech-related questions. Through an active dialogue with market players, this central contact point keeps abreast of the fast-changing and sometimes complex innovations, and answers questions on regulation, supervision and licencing.

The Bank also participates, jointly with the law-makers, in **various initiatives** aimed at adapting the Belgian regulatory framework to this new, changing financial environment.

It is however clear from the nature of the fintech revolution that the response by the supervisory authorities must be coordinated and developed at **EU level, or even in a pan-European perspective**. The Bank is therefore also working with various international institutions to develop regulations that take proper account of the prudential risks and protect the stability of the financial system, without restricting the chances and opportunities offered by fintech innovations.

Besides encouraging innovation, as prudential supervisors we are of course also very aware of **the potential risks** the fintech revolution could bring, for example in terms of the **profitability and business model** of existing financial institutions.

To this extent, the Bank wished to gather a sector-wide insight into the important trends and evolutions regarding fintech and digitalisation in the existing Belgian financial landscape. It conducted **a survey** among a representative group of incumbent credit institutions[1] to harvest useful insights into the Belgian banking sector’s preparedness for the challenges and opportunities that go hand in hand with the development of fintech-related solutions and business models.

The objective of the survey was threefold:

First the Bank wanted to gain insight into the **vision, the strategy and the maturity of Belgian institutions regarding fintech**.

In this regard, Belgian credit institutions were asked to assess the general impact of fintech on the banking sector and how they are positioning themselves towards these trends and evolutions. The Bank also collected data on fintech players that are actively being monitored by Belgian credit institutions, and the reasons why they are of particular interest. Furthermore, incumbent institutions are monitoring the different risks,

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[1] But also payment and electronic money institutions and insurance companies

challenges, threats and opportunities the digital revolution poses in terms of impact on their internal organisation, the need for specific HR initiatives, the budgetary costs and the involvement of independent control functions.

Second, the survey was designed to provide valuable insights to **anticipate the arrival and further roll-out of new technologies and business models.**

To achieve this goal, information has been collected on institutions' perception of the potential of new business models such as crowdfunding, peer-to-peer lending, virtual currencies, regtech solutions, etc., and on the concrete initiatives the Belgian banks have taken in these areas. Moreover, banks were queried on their assessment of the maturity of certain underlying technologies such as blockchain, artificial intelligence/machine learning, application programming interfaces (APIs), and on the concrete initiatives they have taken regarding these technologies.

Lastly, we also wanted to collect **feedback on the regulatory framework and supervisory practices**, taking into account fintech evolutions.

During a fintech workshop in May 2018, the NBB already shared the general conclusions of this survey with the Belgian banking sector. However, it would also like to share the results of this survey with a broader audience, through this publication.

SCENARIO ANALYSIS

The potentially disruptive impact of fintech developments on existing financial institutions has already been widely debated in recent years and has led to numerous – although somewhat theoretical - projections by supervisory authorities and regulators, inter alia the Basel Committee[2].

At the current juncture, it is very difficult to predict how quickly a given scenario will materialise and what its consequences will be. There will likely be different degrees of materialisation and/or blends of different scenarios across business lines. To get more insight into the sector's view on how the Belgian financial sector will evolve in the future, in our survey we presented the Belgian banks with 5 different scenarios[3] and asked them which ones they believed would most likely materialise in Belgium.

In a **first scenario**, which is also the most extreme scenario, banking services become **disintermediated**, making banks irrelevant, as customers interact directly with individual financial services providers, for example by lending directly from investors through a platform, instead of indirectly through a bank's balance sheet.

In a **second scenario**, the **relegated bank** scenario, incumbent banks become commoditised service providers and customer relationships are owned by new intermediaries, such as fintech and bigtech companies. These fintech and bigtechs use front-end customer platforms to offer a variety of financial services and use incumbent banks only because of their banking licenses, to provide core commoditised banking services such as lending, deposit-taking or other services.

In a **third scenario**, financial services become increasingly modularised but incumbents can carve out enough of a niche to survive. In this **distributed bank scenario**, banks and fintech companies operate as joint ventures where delivery of services is shared across parties.

Another future scenario with potential would be the **new bank scenario**, in which incumbent banks cannot survive the wave of technology-enabled disruption and are replaced by new technology- driven banks, such as neo banks or other challenger banks.

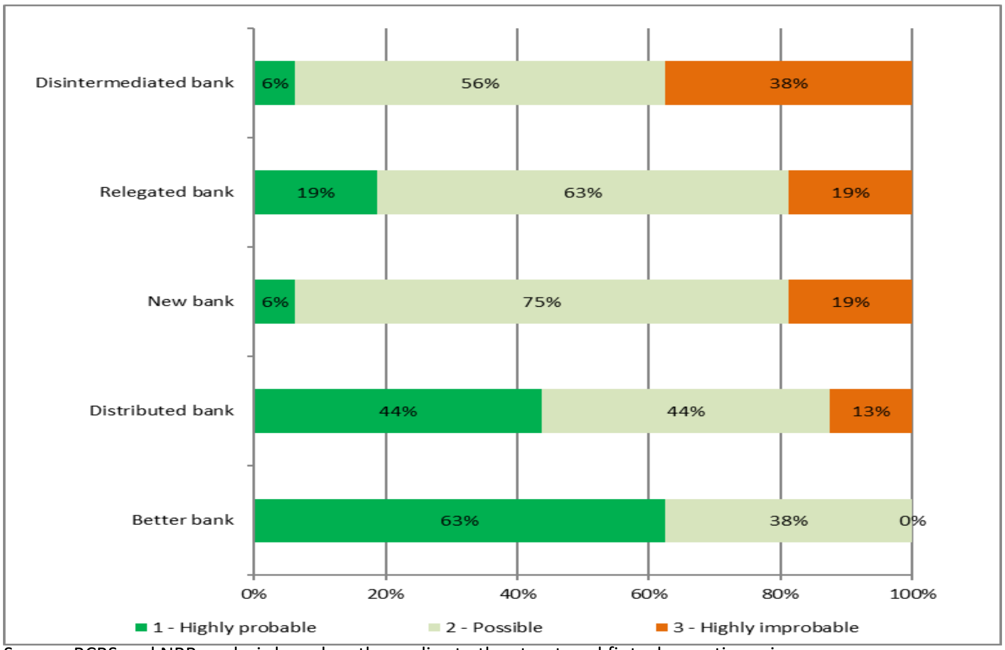
2 Basel Committee on Banking Supervision Sound Practices on the implications of fintech developments for banks and bank supervisors (https://www.bis.org/bcbs/publ/d431.htm).

3 These scenarios are based on the ones used by the BCBS in its sound practices paper regarding the impact of fintech on banks (cf. footnote 2)

The **final scenario** of the **better bank**, is that in which incumbent banks digitise and modernise themselves to retain the customer relationship and core banking services, by leveraging enabling technologies to change their current business models and where needed by partnering up with fintech players.

Although in Belgium several concrete initiatives have been taken which could point to the materialisation of one of the scenarios mentioned above, in many of these concrete cases where innovative technologies are used, it seems that the traditional banks are working together with new fintech players. This confirms that the future scenario most banks have in mind for themselves is to become better banks and, accordingly, digitise and modernise themselves to retain the customer relationship. As a second plausible outcome, Belgian banks see potential in focusing on their core business while fintech players take over part of the value chain (distributed bank).

Figure 1: Banks' views on probability of future scenarios



Source: BCBS and NBB analysis based on the replies to the structured fintech questionnaire

SWOT ANALYSIS

Banks were asked to provide their own SWOT analysis (strengths, weaknesses, opportunities and threats) to assess the impact of fintech/digitalisation on their institution. Based on the survey results, banks have indicated the following strengths to withhold the pressure from new fintech companies and as a basis to modernise themselves as explained in the better bank scenario:

- having a large established customer base & deep knowledge of their customers
- having experience with (complex) regulation and risk management requirements
- being considered as a trusted party by customers
- financial resources that provide for innovation capacity (although this answer is more applicable to the larger Belgian banks)

In terms of opportunities, banks recognise that a better insight in the behaviour and preferences of the customer will have a positive effect on the quality of products and services they offer. Additionally, resource-intensive internal processes can be further optimised using new technologies, resulting in cost-saving opportunities.

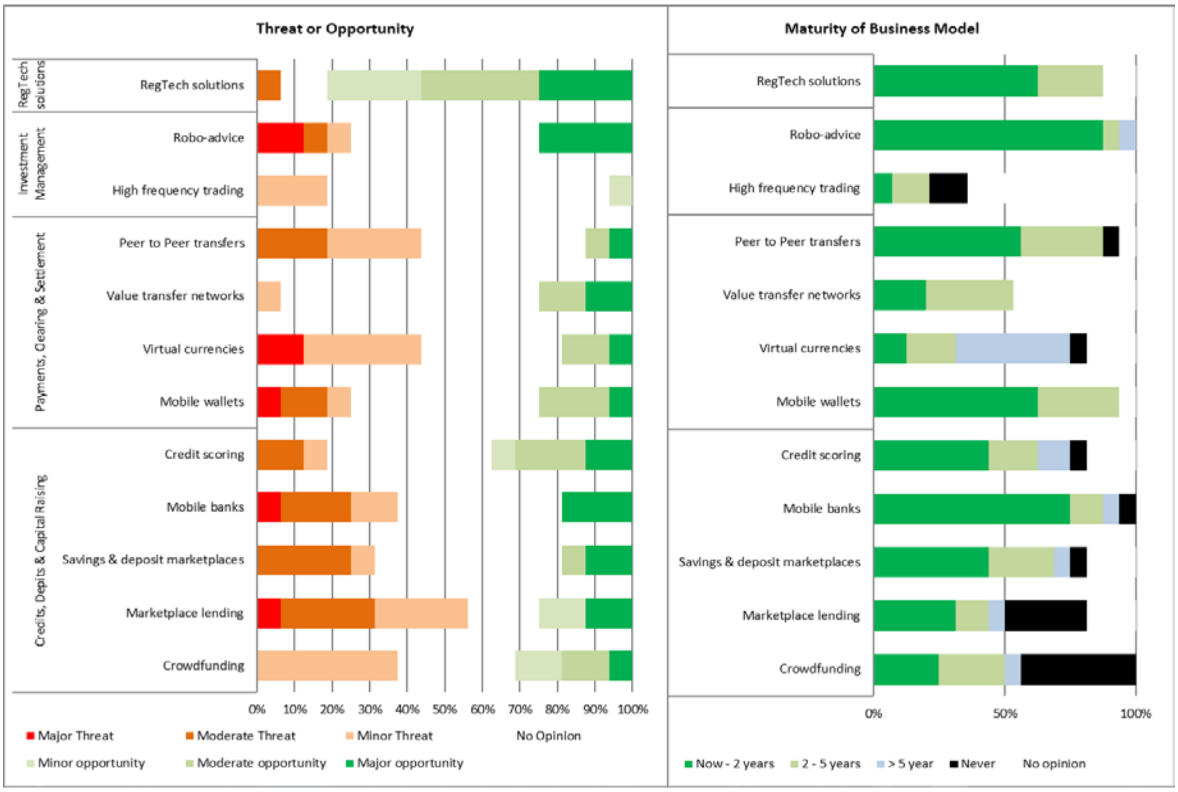
On the other hand, banks do fear to lose the (physical) customer relationship they have – which is deemed to be one of the driving factors behind the trust of their customers – as more and more financial services are being offered online. Choosing 'the winning horse" in between an abundance of fintech solutions also proves to be difficult for banks, as they have to invest in technology without the guarantee that it will be picked up by the market. Working together with or buying fintech start-ups also means additional strategic risk for banks to manage, especially when moving into new products and services as a way to compete with emerging fintech players.

Unsurprisingly, the biggest weakness banks indicated when assessing their capabilities to innovate and digitise, is their legacy IT systems, that constrain change enablement. Institutions also indicate they have a hard time attracting the necessary resources to help them digitalise their organisation, which leads to a lack of in-house skills which are needed to evolve. Most of the smaller Belgian banks also indicated they are being forced to act as 'followers' on the market as they lack the financial capacity to experiment with the abundance of fintech solutions that are being developed. Lastly, and again referred to by smaller banks, it was indicated that fintech companies are also somewhat reluctant to partner up with smaller banks due to their limited customer base to test innovative solution, despite the will and interest shown by these banks to establish such partnerships.

SECTORAL OBSERVATIONS ON NEW FINTECH BUSINESS MODELS AND TECHNOLOGIES

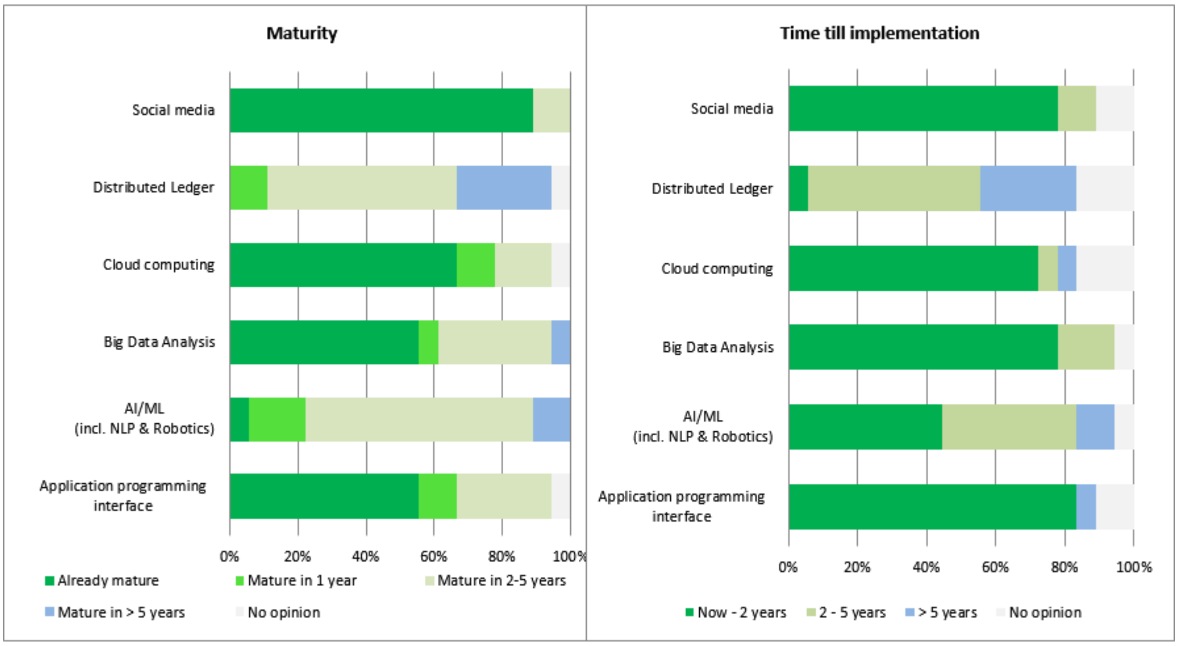
Belgian incumbent banks clearly see several opportunities as well as threats in new 'fintech' business models (figure 2). New business models focusing on regtech solutions, (alternative) credit scoring and robo advice are gradually reaching maturity and present opportunities to develop new business or improve efficiency by partnering with new players active in these domains. On the other hand, business models focused on peer-to-peer transfers, mobile banks and savings and deposit marketplaces are perceived as threats. In these business areas, innovative actors are reaching a mature level where they threaten the revenues of incumbents in some business lines. Also interesting to note is the lack of consensus and the perceived limited potential, in the Belgian market, for marketplace lending and crowdfunding services. Finally, the survey results point to some rather sceptical views on virtual currencies, due to the lack of a regulatory framework and frequent issues around volatility, cyber incidents and fraud.

Figure 2: New business models: threat or opportunity?



Source: NBB analysis based on the replies to the structured fintech questionnaire

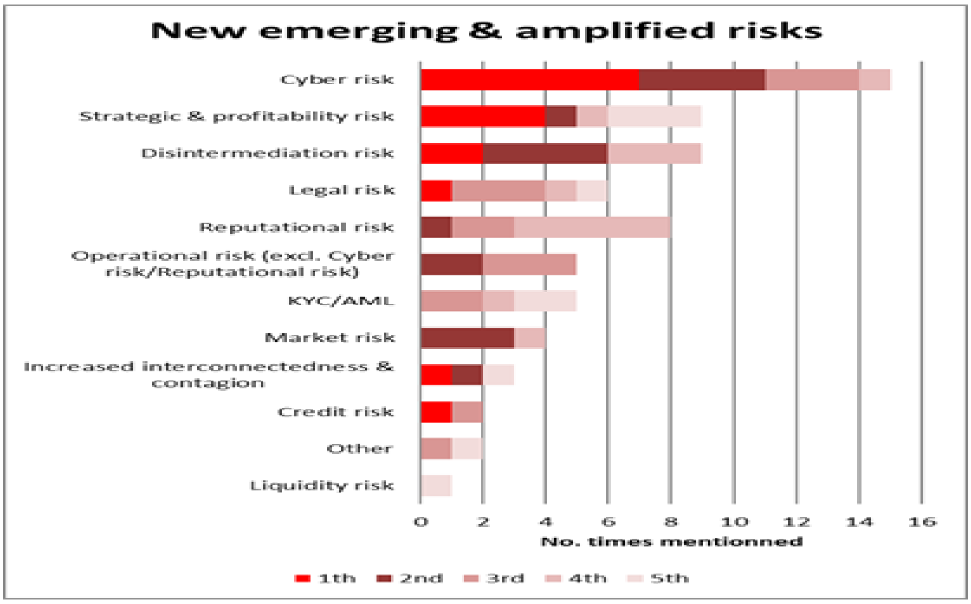
The views of Belgian incumbent banks on the maturity and internal implementation of a series of new supporting 'fintech' technologies are rather convergent, except as regards distributed ledger technologies and artificial intelligence/machine learning. In general, the more experience they have with technology, the less optimistic banks are about its maturity. This is due to the difference between hype and real-life benefits/challenges.



Source: NBB analysis based on the replies to the structured fintech questionnaire

Incumbent banks were also asked to identify new risks or risks that are amplified because of fintech-related evolutions. Not surprisingly cyber risks are identified as the most important risks. Also, disintermediation and strategic & profitability risks are expected to increase due to the loss of the relationship with the customer, increased price transparency, pressure on margins and necessary investment expenditure. Finally, legal and reputational risks are also expected to increase due to the lack of clear legal frameworks, for example for smart contracts, and increased collaboration with external parties who are not necessarily accustomed to the regulated environment in which banks operate.

Figure 4: New or amplified risks

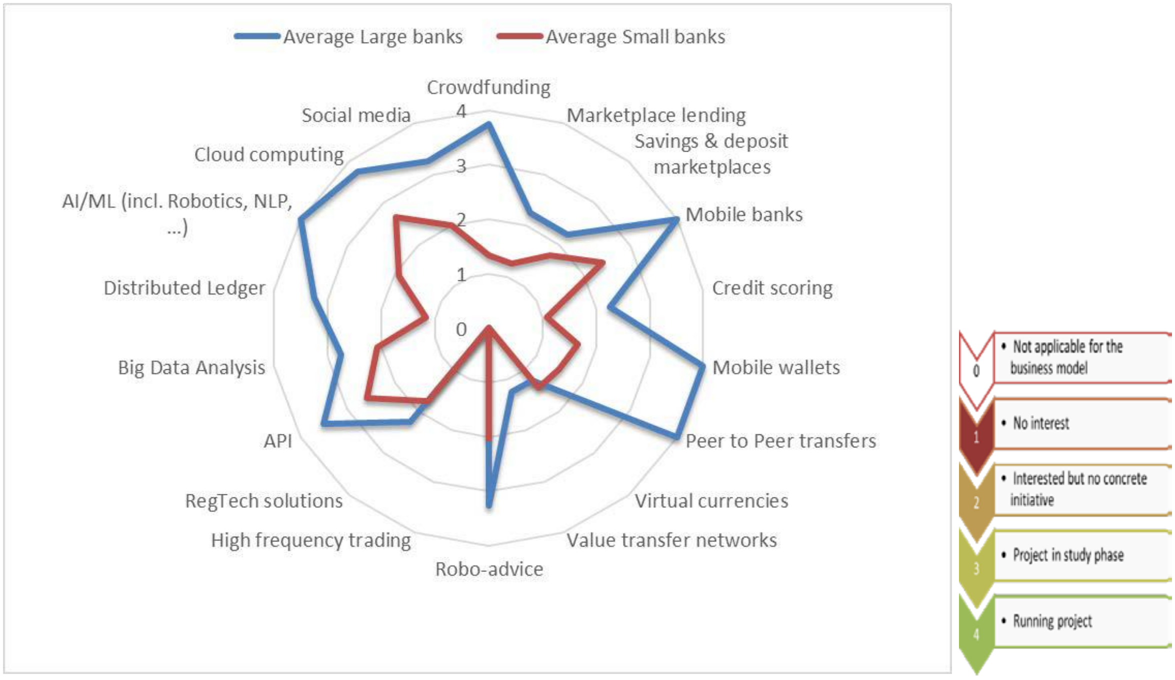


Source: NBB analysis based on the replies to the structured fintech questionnaire

MATURITY OF THE BELGIAN BANKING SECTOR

Apart from collecting the views of the Belgian banking sector on fintech-related scenarios, business models and technologies, the actual approach of banks towards these business models and technologies[4] was also analysed.

Figure 5: Analysis of average maturity of Belgian banks with regard to new business models and new supporting technologies



Source: NBB analysis based on the replies to the structured fintech questionnaire

On average, large banks tend to have more developed approaches towards the new business models and supporting technologies, although there are significant differences in approach and maturity between banks. Areas where a clear reaction by the incumbents is observed are:

- mobile banks: most banks have either developed their own mobile bank brand or are focusing on developing their mobile application(s) to replicate the user interfaces and user experiences from new mobile banks. Analysis focused on the number and appreciation of users[5] indicates that some Belgian banks are clearly more successful than others.
- mobile wallets & peer-to-peer transfers: especially large banks have started to react by offering cross-institutional and institution-specific solutions to customers.

Initiatives relating to savings & deposit marketplaces are generally limited, which is surprising, as they are perceived as a threat by banks (see figure 2). Similarly, for credit scoring and regtech solutions, which are perceived as an area of opportunity by banks (see figure 2), only a few concrete initiatives have been taken by incumbent banks.

As regards the new supporting technologies, the actual use cases already deployed are rather limited, except for APIs (related to PSD II) and cloud computing. Although the technology looks promising, actual use cases for distributed ledger technologies are still relatively limited in number and in scope. Similarly, use cases on artificial intelligence/machine learning are mainly related to chatbots and robotics applications.

4 To assess the actual approach of banks, scorecards were used to score each participating bank based on its approach in terms of organisation, experience, strategy and its concrete plans and actual use cases related to new business models and new technologies

5 By comparing, amongst other, the scores of users in the Appstore and Google Play

The survey results indicate that Belgian banks have a relatively positive outlook on the way the financial sector will evolve and how they will manage to survive in this evolving world. However, based on the analysis of the strategy, concrete initiatives and actual use cases of the participating banks in the survey, **several banks appear to have no clear and actionable strategy in their approach to fintech and digitalisation and are therefore at risk of being left behind.**

However, it is essential that banks remain continuously alert so that they can **adapt their strategy and business models on a continuous basis, in order to remain relevant and competitive**. Opportunities and threats from fintech are here to stay and are also evolving on a continuous basis. Over the past few years, fintech startups have moved in some cases from being potential partners to real competitors to banks and vice versa. Currently, Bigtechs are also adding to the list of potential threats. This is merely an illustration of the continuous challenge that lies ahead in determining a strategy. Institutions that fail to meet this challenge will be at risk of losing their market share and profit margin to new entrants or existing institutions which are able to use innovation more efficiently and deliver less expensive services and/or services that better meet customer expectations.

PART 2: OBSERVATIONS AND BEST PRACTICES REGARDING THE FINTECH STRATEGY OF BANKS

From the insights gained through the survey and through the participation of the NBB in international fora, where global practices and regulation regarding fintech are discussed, several best practices were identified, which will serve as a reference point for assessing banks' organisation and strategy regarding fintech and digitalisation. The best practices are targeted primarily at banks and fintech companies that may at some point apply for a banking licence[6].

Banks and fintech companies applying for a banking licence should benchmark themselves against these best practices to see whether it would be useful to implement them within their organisation, if not already done so.

GOVERNANCE AND ORGANISATION

First of all, banks should develop and implement an innovation strategy, through which the management guides the organisation towards innovation and digitalisation. It is important to define such a strategy in a clear and comprehensive manner, as fintech may provide important opportunities to improve the services offered to customers and reduce the cost of operations.

Hence, banks that successfully implement such solutions will be in a better position to withstand competitive pressures, whereas banks that fail this challenge are prone to being left with a no longer competitive business model. An important success factor in any innovation strategy, is the governance framework. While different approaches may be suitable depending on the type, size and structure of the bank, some key elements should be considered to enable institutions to react to innovations, implement them and support them. A key element of such a strategy will therefore be the assessment of how different business lines may be affected by fintech and how the bank will deal with this potential threat and/or opportunity. It is worth noting that failing to monitor fintech developments and failing to formulate a strategy (that is not entirely passive) were highlighted as considerable risks to the sustainability of banks' business models, not just in the NBB's own survey but also in publications by for example the EBA[7]. Management should furthermore define a set of key performance indicators that allows them to gauge the success of their digital strategy.

Considering the pivotal role for the Board of Directors, and the often technically challenging matters they have to decide on, banks may consider attracting board members with expertise in IT, the implementation of innovation and/or change management, in order to increase the collective suitability of the board. It may also be useful to establish an advisory panel that provides guidance and assists the board on technical matters.

Furthermore, it is important to have a clearly identifiable innovation function within the governance structure of a bank. To signal a clear tone from the top and ensure representation, banks could consider nominating an executive member of the board as Head of Innovation. Should they choose not to do so, other ways to ensure sufficient support should be considered, such as the sponsorship of the innovation officer or innovation committee by a board member. In any case, there should be sufficient interaction between the innovation function and the board, directly or indirectly through a delegated committee.

One consideration to be made regarding the governance of the innovation function would be whether the function is kept centralised, for example at group level, or is instead dispersed across entities, business lines or geographies. While different options may reflect different needs or strategic choices, it is in any case essential to involve staff from different backgrounds and functions that are of relevance to the project under consideration or implementation. Even projects mostly of interest to a particular business line, department or even team, benefit from the early involvement of for example IT and compliance, and the ideal composition of skillsets will likely be different for each project.

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6 Companies that wish to apply for a banking licence are advised to consult the ECB's guide to assessments of licence applications and the ECB's guide to assessments of fintech credit institution licence applications. Both documents can be found on the ECB website at https://www.bankingsupervision.europa.eu/press/pr/date/2018/html/ssm.pr180323.en.html

7 EBA report of 3 July 2018 on the impact of fintech on incumbent credit institutions' business models

Besides enabling staff to propose and implement innovations, through the measures discussed above, banks should also maintain an innovation-friendly culture by encouraging all staff to actively propose ideas and making efforts to familiarise staff with new technologies.

Which brings us to the importance of a complementary human resources strategy. At the current pace of innovation, it can be particularly challenging to sufficiently train all staff so that they can operate, use but also sufficiently understand new technologies, but banks may find that certain specialised profiles, important for the success of the innovation strategy, are difficult to attract and maintain. Human resources management should therefore be a key part of the innovation strategy of banks, as banks will have to reflect on the suitability of the resources for all functions, not in the least internal control functions, to effectively fulfil their roles given the changing required skillsets.

INTERNAL CONTROL FUNCTIONS

When defining and subsequently implementing an innovation strategy, a strong involvement of the independent control functions of a bank is essential. Banks need to involve the risk and compliance function in an early stage in the development of new products and services whilst maintaining their independence.

Given the fact that banks are increasingly partnering up with fintech companies, some of which are start-ups with limited knowledge of regulation and compliance rules, banks should have a clearly defined policy in terms of the criteria for setting up partnerships, how they will monitor and manage the operational, compliance and reputational risks involved, and what type and granularity of information will be shared with their partners. The latter is of paramount importance when banks collaborate with Bigtechs that might become direct competitors in the future.

IT SYSTEMS

A major area of attention in the innovation strategy of banks should be the IT infrastructure, as many fintech applications heavily rely on modern, performant systems. In general, banks struggle with their current, legacy IT systems that are not fully ready to support or are difficult to integrate with innovative applications. A successful strategy should encompass an evaluation of the current capabilities and include a plan to bring the infrastructure, systems and architecture in line with the strategic ambitions. Banks could consider the use of cloud computing or prepare their systems and software environment for potential future use of cloud computing.

Furthermore, due to the increased reliance on personal data and the increased connectivity of banking systems, along with customers' expectation of instant and uninterrupted access to services, cyber security and resilience should be a key attention point in the innovation strategy of banks.

DATA MANAGEMENT

While generally important in any institution, fintech puts further emphasis on proper data management and data quality, as many fintech applications, such as artificial intelligence and machine learning, but also APIs and distributed ledger technology, rely heavily on not just correct data, but also on swift, broad and continuous access.

RISKS OF USING FINTECH

While staying behind and ignoring fintech is a real risk for banks, they should still tread carefully when implementing fintech or, of course, any change. Banks should fully take into account the EBA's 2018 "report on the prudential risks and opportunities arising for institutions from fintech"[8] when considering, implementing or using fintech technologies, in the sense that they should take the necessary precautions to avoid, mitigate or reduce certain risks.

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8 EBA report on the prudential risks and opportunities arising for institutions from fintech. https://www.eba.europa.eu/-/eba-assesses-risks-and-opportunities-from-fintech-and-its-impact-on- incumbents-business-models

The following areas of concern require particular attention

1. Many fintech applications rely, to varying degrees, on outsourcing to third party service providers (including cloud service providers). Institutions should take carefully into consideration the applicable laws and circulars that apply to them when outsourcing. Some noteworthy elements are the retention of responsibility, the security of data, and the requirement to audit and exercise an adequate amount of control on processes as well as on the risks associated with sub-outsourcing.
2. When using biometric authentication applications, institutions should take into consideration the risks of using this form of authentication as a single factor of authentication and provide adequate security features for the level of access granted.
3. When using artificial intelligence, machine learning or any other form of data analytics, institutions should take into account the risks of faulty modelling or the use of sensitive data. They should also be aware how such models could shape or bias their strategy or decision- making processes.
4. When using artificial intelligence or machine learning, institutions should be aware of and manage the risks associated with the opacity of certain models and/or algorithms. Models which cannot be validated and explained, may not correspond with regulatory expectations.
5. When using distributed-ledger technology or blockchain technology, institutions should be aware of the legal value of smart contracts or the information contained in the distributed ledger, the possible governance complications and the security or resilience threats that may exist at different nodes in the network.