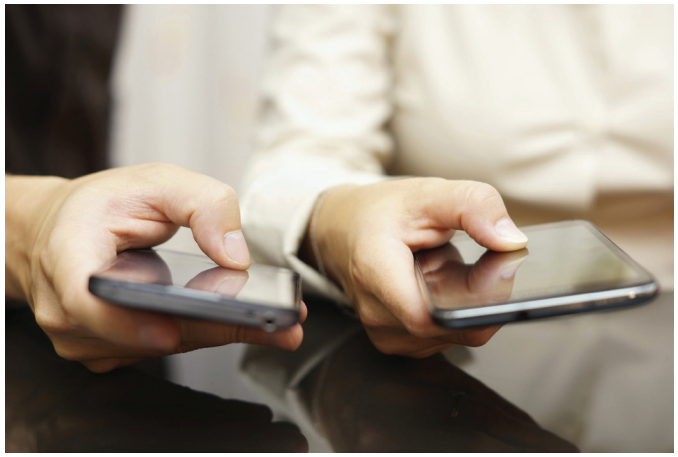
Blurred lines: How FinTech is shaping Financial Services

Global FinTech Report
March 2016



20%

More than 20% of FS business is at risk to FinTechs by 2020

57%

are unsure about or unlikely to respond to blockchain technology

pwc

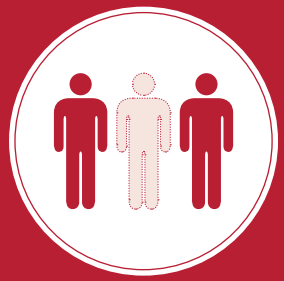
pwc.com/fintechreport

Contents

Key messages

FinTech is shaping FS from the outside in

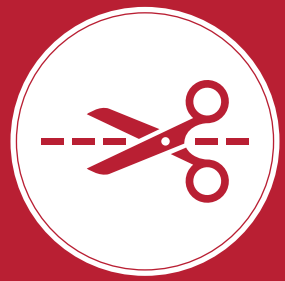
Where traditional financial institutions have failed, FinTechs are succeeding



Disintermediation: FinTech's most powerful weapon

Time to get off the bench: over 20% of FS business at risk to FinTechs

Blockchain: an untapped technology is rewriting the FS rulebook



Heading for bargain basement FS? FinTech is slashing costs

The free lunch is over: FS must leverage the FinTech ecosystem

Introduction

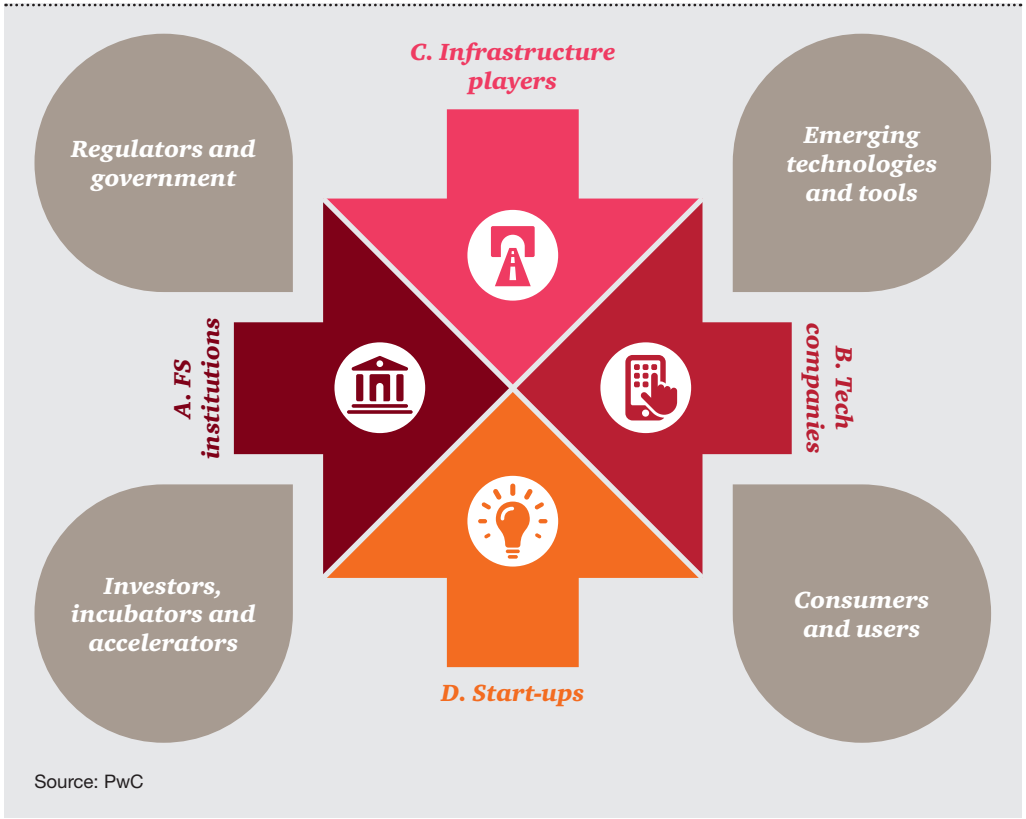
It is difficult to imagine a world without the internet or mobile devices. They have become core elements of our lifestyle and have brought a high degree of disruption to virtually every area of business. The financial services (FS) industry is no exception; the digital revolution is transforming the way customers access financial products and services. Although the sector has experienced a degree of change in recent years, the constant penetration of technology-driven applications in nearly every segment of FS is something new. At the intersection of finance and technology lies a phenomenon that has been accelerating the pace of change at a remarkable rate and is reshaping the industry's status quo – it is called FinTech.

What is FinTech?

FinTech is a dynamic segment at the intersection of the financial services and technology sectors where technology-focused start-ups and new market entrants innovate the products and services currently provided by the traditional financial services industry. As such, FinTech is gaining significant momentum and causing disruption to the traditional value chain. In fact, funding of FinTech start-ups more than doubled in 2015 reaching $12.2bn, up from $5.6bn in 2014 based on the companies included on our DeNovo platform. Cutting-edge FinTech companies and new market activities are redrawing the competitive landscape, blurring the lines that define players in the FS sector (see Figure 1).

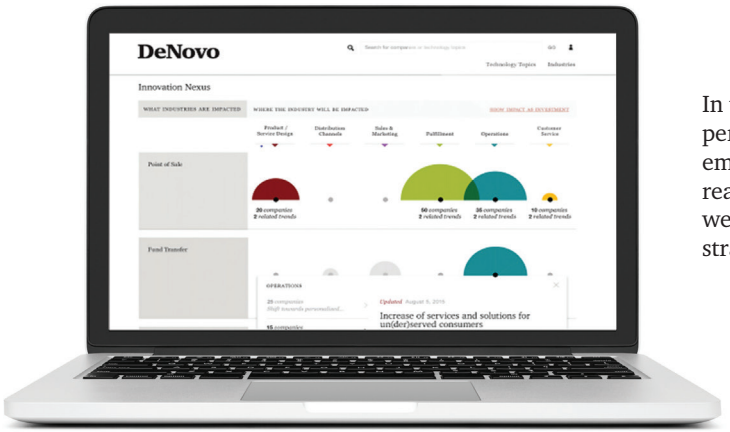
FinTech is shaping FS from the outside in

Figure 1: FinTech is a complex ecosystem



Source: PwC

FinTech is a dynamic segment at the intersection of the financial services and technology sectors where technology-focused start-ups and new market entrants innovate the products and services currently provided by the traditional financial services industry.



Our objectives and approach

This report assesses the rise of new technologies in the FS sector, the potential impact of FinTech on market players and their attitudes to the latest technological developments. Additionally, it offers strategic responses to this ever-changing environment.

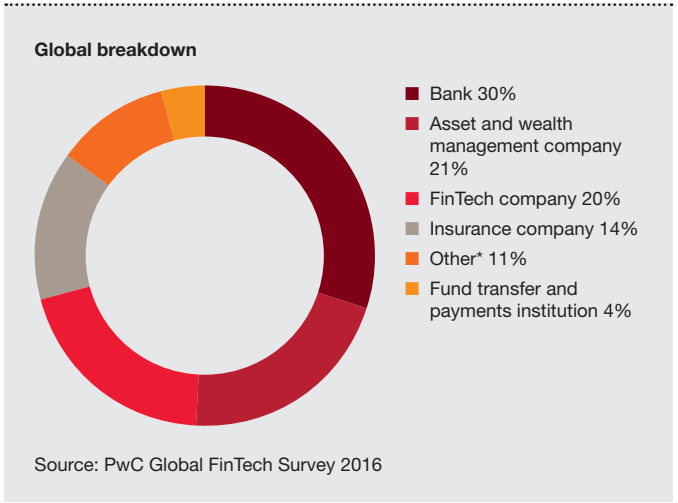
Our analysis is based on the following:

1) Primary data derived from the results of a global survey that includes feedback from a broad range of players from the world's top financial institutions. For this study, we surveyed 544 respondents, principally Chief Executive Officers (CEOs), Heads of Innovation, Chief Information Officers (CIOs) and top-tier managers involved in digital and technological transformation. Our survey was distributed to leaders in various segments of the FS industry in 46 countries (see Figure 2).[1]

2) Insights and proprietary data from DeNovo, PwC's Strategy& platform composed of a 50-member team of FinTech subject matter specialists, strategists, equity analysts, engineers and technologists with access to over 40,000 public and proprietary data sources.

In the first section, we explore FS market participants' perspectives on disruption. Next, we highlight the main emerging FinTech trends in the various FS industries and the readiness of the market to respond to these trends. Finally, we offer suggestions about how market players should strategically approach FinTech.

Figure 2. Type of survey respondents



*Other includes consultants, national supervisory and international financial institutions.

1 Please refer to the appendix for more information about our survey sample.

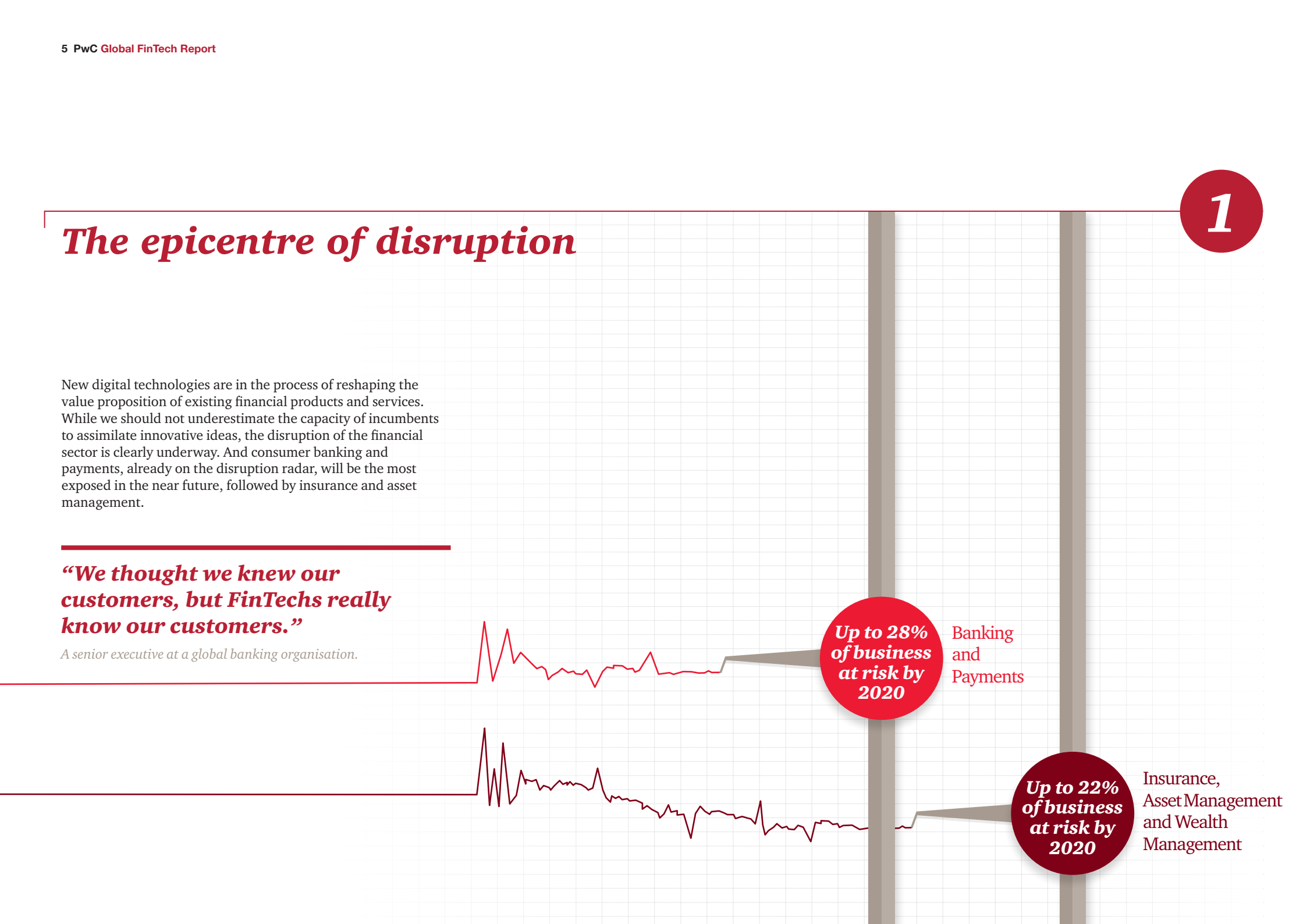
1

The epicentre of disruption

New digital technologies are in the process of reshaping the value proposition of existing financial products and services. While we should not underestimate the capacity of incumbents to assimilate innovative ideas, the disruption of the financial sector is clearly underway. And consumer banking and payments, already on the disruption radar, will be the most exposed in the near future, followed by insurance and asset management.

"We thought we knew our customers, but FinTechs really know our customers."

A senior executive at a global banking organisation.



1.1 Disruption targets mostly consumer banking and payments

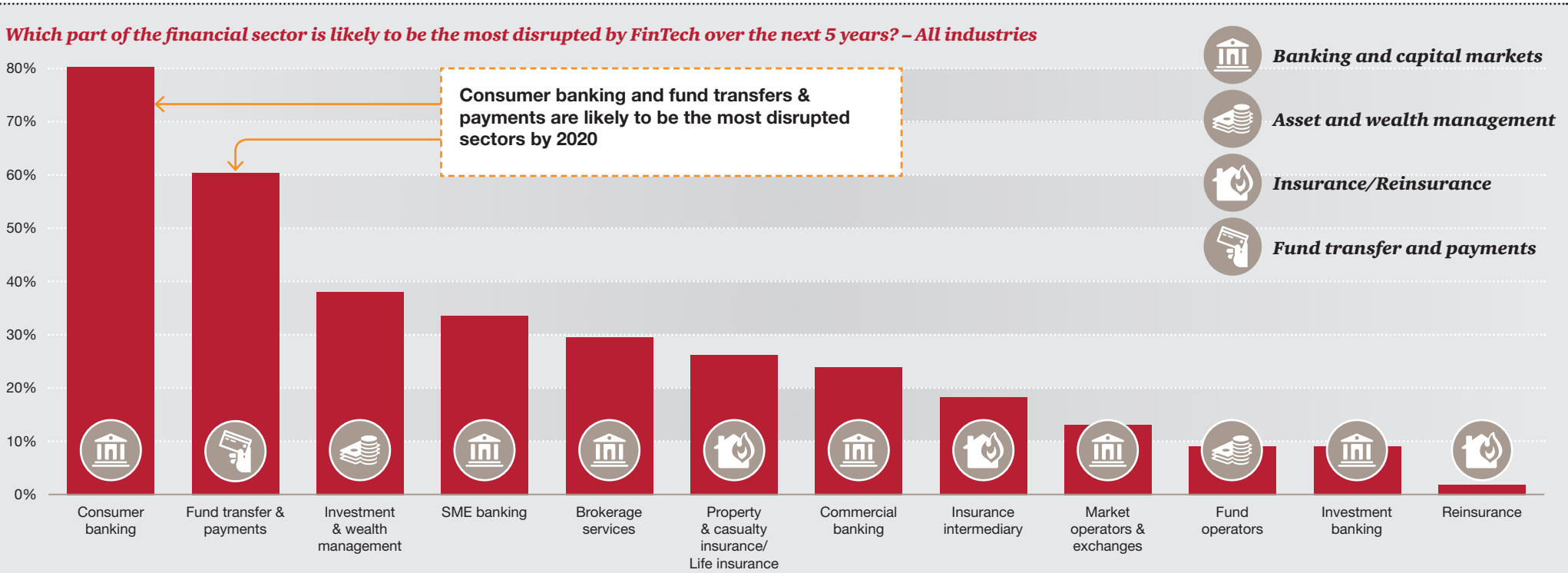
In keeping with changes already underway, the majority of our survey participants see consumer banking and fund transfer and payments as the sectors most likely to be disrupted over the next five years (see Figure 3).

In consumer and commercial lending, for example, the emergence of online platforms allows individuals and businesses to lend and borrow between each other. Lending innovation also manifests itself in alternative credit models, use of non-traditional data sources and powerful data analytics to price risks, rapid customer-centric lending processes, and lower operating costs.

In recent years, the payments industry has also experienced a high level of disruption with the surge of new technology-driven payments processes, new digital applications that facilitate easier payments, alternative processing networks and the increased use of electronic devices to transfer money between accounts.

Disintermediation: FinTech's most powerful weapon

Figure 3: Areas of disruption



Source: PwC Global FinTech Survey 2016

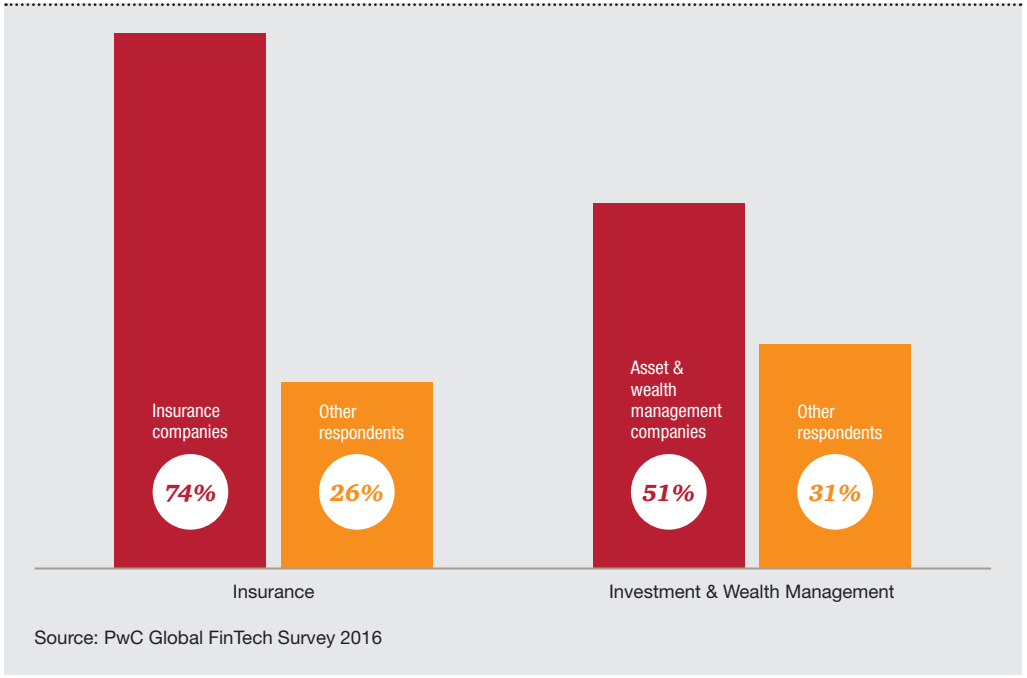
1.2 Asset management and insurance are also on the disruption radar

Although a high level of disruption triggered by FinTech is already beginning to reshape the nature of lending and payment practices, a second wave of disruption is making inroads in the asset management and insurance sectors. Our survey found that this perception is confirmed by insiders. Nearly half of insurers and asset and wealth managers consider their respective industries to be the most disrupted. When asked which part of the FS sector is the most likely to be disrupted by FinTech over the next 5 years, 74% of insurance companies identified their own industry, while only 26% of players from other sectors agreed; 51% of asset managers said their industry will be disrupted, while only 31% of other players agreed. However, there seems to be a perception gap here; professionals from other industries do not see the same level of disruption in these areas. The fact that only insiders are aware of this situation, while outsiders don't perceive it could indicate that the disruption is in its very early stages (see Figure 4). Even so, venture capitalists are looking very closely at start-ups dedicated to reinventing the way we invest money and buy insurance. Annual investments in InsurTech start-ups has increased fivefold over the past three years, with cumulative funding of InsurTechs reaching $3.4bn since 2010, based on companies followed in our DeNovo platform.

The pace of change in the global insurance industry is accelerating more quickly than could have been envisaged. The industry is at a pivotal juncture as it grapples with changing customer behaviour, new technologies and new distribution and business models.

The investment industry is also being pulled into the vortex of vast technological developments. The emergence of data analytics in the investment space has enabled firms to hone in on investors and deliver tailored products and automated investing. Additionally, innovations in lending and equity crowdfunding are providing access to asset classes formerly unavailable to individual investors, such as commercial real estate.

Figure 4: Areas of Disruption – Incumbents' views vs. outsiders' opinions



Source: PwC Global FinTech Survey 2016

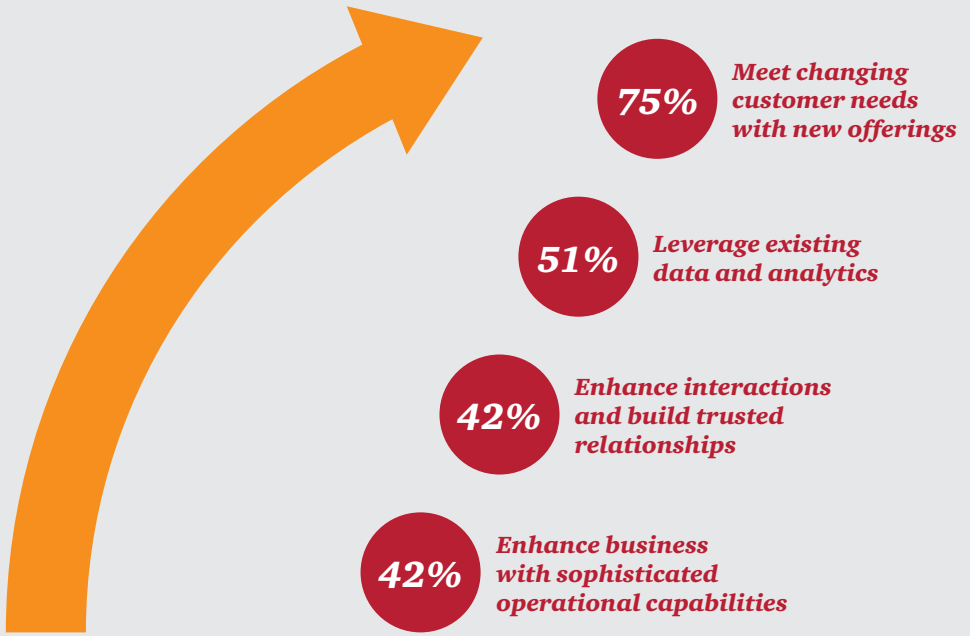
1.3 Customer centricity is fuelling disruption

As clients are becoming accustomed to the digital experience offered by companies such as Google, Amazon, Facebook and Apple, they expect the same level of customer experience from their financial services providers. FinTech is riding the waves of disruption with solutions that can better address customer needs by offering enhanced accessibility, convenience and tailored products. In this context, the pursuit of customer centricity has become a main priority and it will help to meet the needs of digital native clientele.

Over the next decade, the average FS consumer profile will change dramatically as the Baby Boomer generation ages and Generations X and Y assume more significant roles in the global economy. The latter group, also known as "Millennials" (those born between 1980 and 2000), is bringing radical shifts to client demographics, behaviours and expectations. Its preference for a state-of-the-art customer experience, speed and convenience will further accelerate the adoption of FinTech solutions. Millennials seem to be bringing a higher degree of customer centricity to the entire financial system, a shift that is being crystallised in the DNA of FinTech companies. While 53% of financial institutions believe that they are fully customer-centric, this share exceeds 80% for FinTech respondents. In this respect, 75% of our respondents confirmed that the most important impact FinTech will have on their businesses is an increased focus on the customer (see Figure 5).

Where traditional Financial Institutions have failed, FinTechs are succeeding

Figure 5: Business challenges

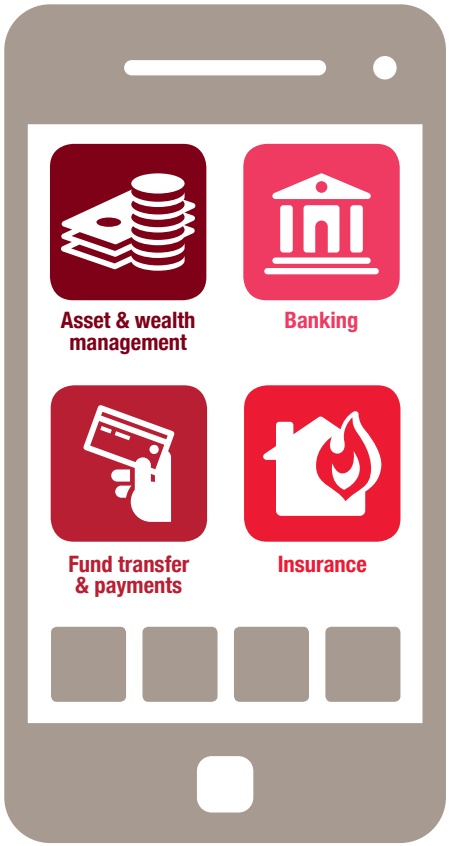


Source: PwC Global FinTech Survey 2016

2 Emerging FinTech trends on the radar

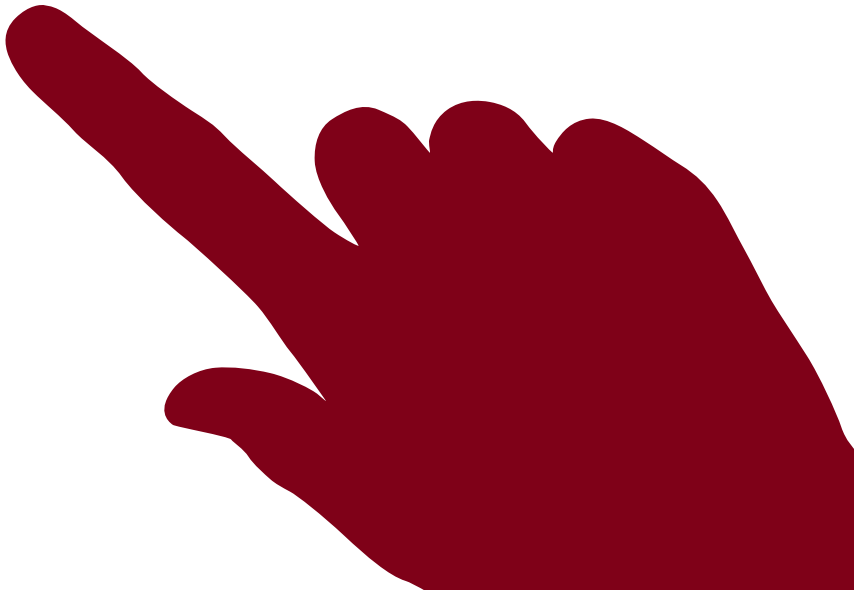
The methodology is based on DeNovo's insights of emerging FinTech trends for each financial segment (see Summaries of trends in the Appendix). Industry leaders assessed which trends in their segment will be important for their business over the next five years and indicated their likelihood to respond to each of them. The trends in the upper right quadrant of the chart reflect those that Financial institutions are prioritising for each FS sector.

For each segment, a bubble chart benchmarks the trends according to three indicators. The vertical axis of the graph displays the level of importance. On the horizontal axis, the likelihood to respond to these trends (e.g. allocate resources, invest) is given, and the size of the bubbles is proportional to the number of related FinTech companies associated with the trend (see Figures 6, 7, 8 and 9).



To help industry players navigate the changes in the banking, fund transfer and payments, insurance, and asset and wealth management sectors, we have identified the main emerging trends that will be most significant in the next five years in each area of the FS industry.

Overall, the key trends will enhance customer experience, self-directed services, sophisticated data analytics and cybersecurity. However, the focus will differ from one FS segment to another.



2.1 Banks are going for a renewed digital customer experience

Banks are moving towards non-physical channels by implementing operational solutions and developing new methods to reach, engage and retain customers.

As they pursue a renewed digital customer experience, many are engaging in FinTech to provide customer experiences on a par with large tech companies and innovative start-ups.

Simplified operations to improve customer experience

The trends that financial institutions are prioritising in the banking industry are closely linked (see Figure 6). Solutions that banks can easily integrate to improve and simplify operations are rated highest in terms of level of importance, whereas the move towards non-physical or virtual channels is ranked highest in terms of likelihood to respond.

Banks are adopting new solutions to improve and simplify operations, which fosters a move away from physical channels and towards digital/mobile delivery. Open development and software-as-a-service (SaaS) solutions have been central to giving banks the ability to streamline operational capabilities. The incorporation of application program interfaces (APIs) enables third parties to develop value-added solutions and features that can easily be integrated with bank platforms; and SaaS solutions assist banks in offering customers a wider array of options – which are constantly upgraded, without banks having to invest in the requisite research, design and development of new technologies.

Figure 6: Trends in the banking industry ranked by importance and likelihood to respond

How important are these trends for your industry and how likely are you to respond to them? (e.g. allocate resources, invest)

The size of the bubbles is proportional to the number of related FinTech companies as assessed by the DeNovo platform

Source: PwC Global FinTech Survey 2016 and DeNovo – see in Appendix the definitions of the above-mentioned trends.

The move towards virtual banking solutions is being driven, in large part, by consumer expectations. While some segments still prefer human interactions in certain parts of the process, a viable digital approach is now mandatory for lenders wishing to compete across all consumer segments.[2] Online banks rely on transparency, service quality and unlimited global access to attract Millennials, who are willing to access multiple service channels. In addition, new players in the banking market offer ease of use in product design and prioritise 24/7 customer service, often provided through non-traditional methods such as social media.

So what? – Put the customer at the centre of operations

Traditional banks may already have many of the streamlined and digital/mobile-first capabilities, but they should look to integrate their multiple digital channels into an omni-channel customer experience and leverage their existing customer relationships and scale. Banks can organise around customers, rather than a single product or channel, and refine their approach to provide holistic solutions by tailoring their offerings to customer expectations. These efforts can also be supported by using newfound digital channels to collect data from customers to help them better predict their needs, offer compelling value propositions, and generate new revenue streams.

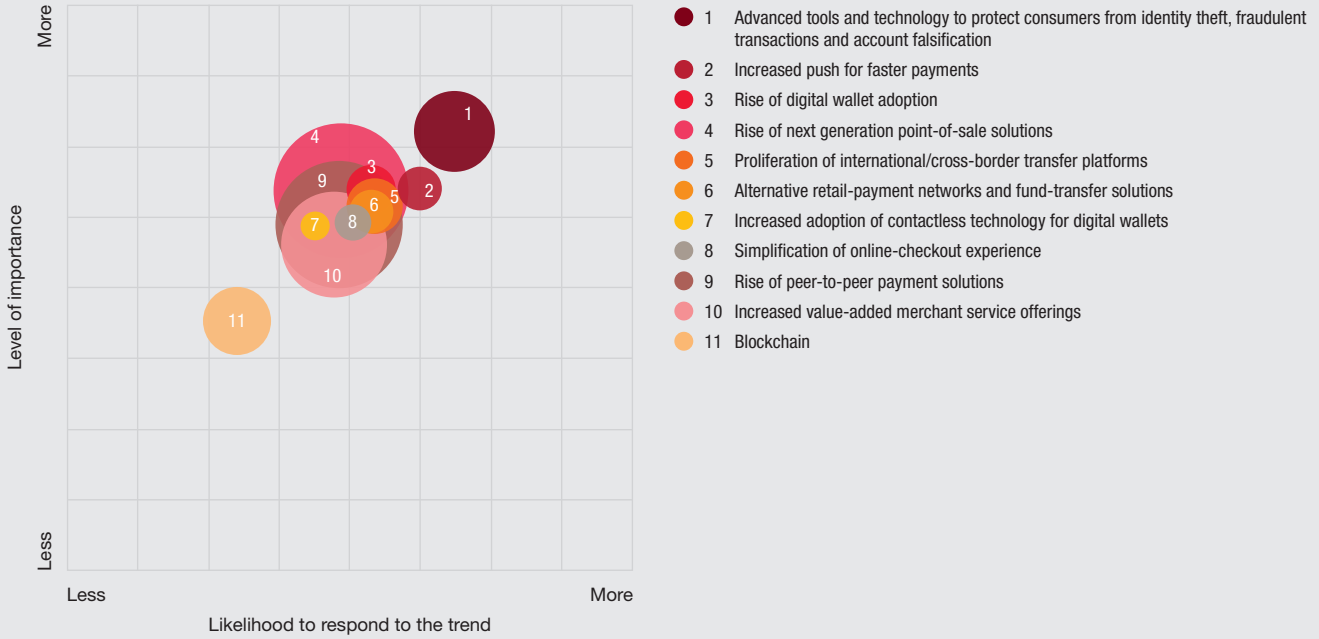
2.2 Fund transfer and payments priorities are security and increased ease of payment

Our survey shows that the major trends for fund transfer and payments companies are related to both increased ease and security of payments (see Figure 7).

Figure 7: Trends in the fund transfer and payments industry ranked by importance and likelihood to respond

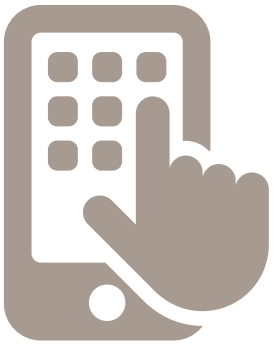
How important are these trends for your industry and how likely are you to respond to them? (e.g. allocate resources, invest)

The size of the bubbles is proportional to the number of related FinTech companies as assessed by the DeNovo platform



Source: PwC Global FinTech Survey 2016 and DeNovo – see in Appendix the definitions of the above-mentioned trends.

2 PwC, Consumer lending: understanding today's empowered borrowers, 2015



Mobile smartphone adoption is one of the drivers of changing payments patterns. Today's mobile-first consumers expect immediacy, convenience and security to be integral to payments.

Safe and fast payments are emerging trends

Mobile smartphone adoption is one of the drivers of changing payments patterns. Today's mobile-first consumers expect immediacy, convenience and security to be integral to payments. In our culture of on-demand streaming of digital products and services, archaic payment solutions that take days rather than seconds for settlement are considered unacceptable, motivating both incumbents and newcomers to develop solutions that enable transfer of funds globally in real-time. End users also expect a consistent omni-channel experience in banking and payments, making digital wallets key to streamlining the user experience and enabling reduced friction at the checkout. Finally, end users expect all of this to be safe. Security and privacy are paramount to galvanising support for nascent forms of digital transactions, and solutions that leverage biometrics for fast and robust authentication coupled with obfuscation technologies, such as tokenisation, are critical components in creating an environment of trust for new payment paradigms.

So what? – Speed up, but in a secure way

Speed, security and digitisation will be growing trends for the payments ecosystem. In an environment where traditional loyalty to financial institutions is being diminished and barriers to entry from third parties are lowered, the competitive landscape is fluid and potentially changeable, as newcomers like Apple Pay, Venmo and Dwolla have demonstrated. Incumbents that are slow to adapt to change could well find themselves losing market share to companies that may not have a traditional payments pedigree, but that have a critical mass of users and the network connectivity to enable payment experiences that are considered at least equivalent to the status quo. While most of these solutions "ride the rails" of traditional banking, in doing so they risk losing control of the customer experience and ceding ground to innovators, or "steers", who conduct transactions as they see fit.

2.3 Asset and wealth management shifts from technology-enabled human advice to human-supported technology-driven advice

Figure 8 clearly demonstrates that the main trend the asset and wealth management industry is focusing on at present is the increased sophistication of data analytics to better identify and quantify risk.

More sophisticated data analytics as a gateway for emerging trends

The proliferation of data, along with new methods to capture it and the declining cost of doing so, is reshaping the investment landscape. New uses of data analytics span the spectrum from institutional trading and risk management to small notional retail wealth management. The increased sophistication of data analytics is reducing the asymmetry of information between small- and large-scale financial institutions and investors, with the latter taking advantage of automated FS solutions. Sophisticated analytics also uses advanced trading and risk management approaches such as behavioural and predictive algorithms, enabling the analysis of all transactions in real time. Wealth managers are increasingly using analytics solutions at every stage of the customer relationship to increase client retention and reduce operational costs. By incorporating broader and multi-source data sets, they are forming a more holistic view of customers to better anticipate and satisfy their needs.

Given that wealth managers have an upcoming multi-trillion-dollar opportunity in the transfer of wealth from Baby Boomers to Millennials, the incorporation of automated advisory capabilities – either in whole or in part – will be a prerequisite. This fundamental change in the financial advisor's role empowers customers and can directly inform their financial decision-making process.

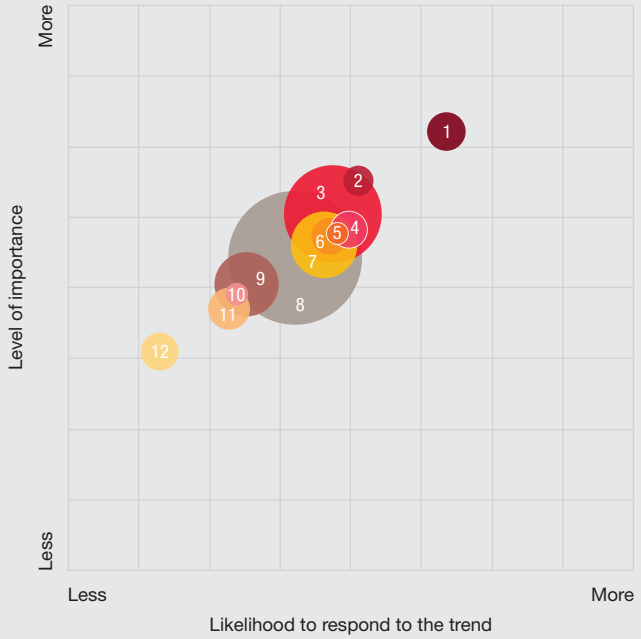
So what? – Withstand the pressure of automation

Automated investment advice (i.e. robo-advisors) poses a significant competitive threat to operators in the execution-only and self-directed investment market as well as to traditional financial advisors. Such robot and automatic advisory capabilities will put pressure on traditional advisory services and fees and will transform the delivery of advice. Many self-directed firms have responded with in-house and proprietary solutions, and advisors are likely to adapt with hybrid high-tech/high-touch models. A secondary by-product of automated customer analysis is the lower cost of customer onboarding, conversion and funding rates. This change in the financial advisory model has created a challenge for wealth managers, who have struggled for years to figure out how to create profitable relationships with clients in possession of fewer total assets. Robo-advisors provide a viable solution for this segment and, if positioned correctly as part of a full service offering, can serve as a segue to full service advice for clients with specific needs or higher touch.

Figure 8: Trends in the asset and wealth management industry ranked by importance and likelihood to respond

How important are these trends for your industry and how likely are you to respond to them? (e.g. allocate resources, invest)

The size of the bubbles is proportional to the number of related FinTech companies as assessed by the DeNovo platform



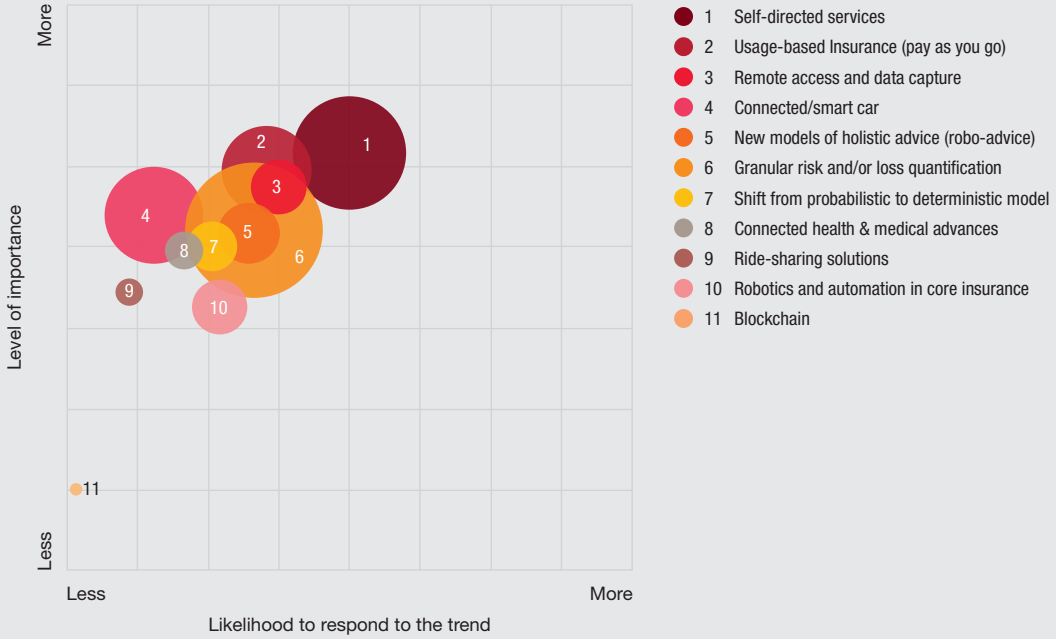
1 Increased sophistication of data analytics to better identify and quantify risk
2 Automation of asset allocation and how wealth is managed
3 Shift from technology-enabled human relationships to digital experiences with human support
4 Application of leading technology to enable investments in new markets
5 Omnichannel interaction and distribution models help standardise customer experience across all points of contact
6 Increasing number of service offerings that enable innovation to get to market and scale faster
7 Rise of alternative distribution and marketing channels for awareness and lead generation
8 Design and distribution of new products and services for traditionally unprofitable customers
9 Innovation in brokerage services enabling better investment decision support
10 Rise of end user-created custom investment solutions
11 Increased use of community intelligence networks to enable better investment decisions
12 Blockchain

Source: PwC Global FinTech Survey 2016 and DeNovo – see in Appendix the definitions of the above-mentioned trends.

Figure 9: Trends in the insurance industry ranked by importance and likelihood to respond

How important are these trends for your industry and how likely are you to respond to them? (e.g. allocate resources, invest)

The size of the bubbles is proportional to the number of related FinTech companies as assessed by the DeNovo platform



1 Self-directed services
2 Usage-based Insurance (pay as you go)
3 Remote access and data capture
4 Connected/smart car
5 New models of holistic advice (robo-advice)
6 Granular risk and/or loss quantification
7 Shift from probabilistic to deterministic model
8 Connected health & medical advances
9 Ride-sharing solutions
10 Robotics and automation in core insurance
11 Blockchain

Source: PwC Global FinTech Survey 2016 and DeNovo – see in Appendix the definitions of the above-mentioned trends.

2.4 Insurers leverage data and analytics to bring personalised value propositions while proactively managing risk

The insurance sector sees usage-based risk models and new methods for capturing risk-related data as key trends, while the shift to more self-directed services remains a top priority in order to efficiently meet existing customer expectations.

Increasing self-directed services for insurance clients

Our survey shows that self-directed services are the most important trend and the one to which the market is by far most likely to respond. As is the case in other industry segments, insurance companies are investing in the design and implementation of more self-directed services for both customer acquisition and customer servicing. This allows companies to improve their operational efficiency while enabling online/mobile channels demanded by emerging segments such as Millennials. There have been interesting cases where customer-centric designs create compelling user experiences (e.g. quotes obtained by sending a quick picture of the driving licence and the car vehicle identification number (VIN)), and where new solutions bring the opportunity to mobilise core processes in a matter of hours (e.g. provide access to services by using "robots" to create a mobile layer on top of legacy systems) or augment current key processes (e.g. FNOL[3] notification, which includes differentiated mobile experiences).

Usage-based insurance is becoming more relevant

Current trends also show an increasing interest in finding new underwriting approaches based on the generation of deep risk insights. In this respect, usage-based models – rated the second most important trend by survey participants (see Figure 9) – are becoming more relevant even as initial challenges such as data privacy are being overcome. Auto insurance pay-as-you-drive is now the most popular usage-based insurance (UBI), and the current focus is shifting from underwriting to the customer. Initially, incumbents viewed UBI as an opportunity to underwrite risk in a more granular way by using new driving/behavioural variables, but new players see UBI as an opportunity to meet new customers' needs (e.g. low mileage or sporadic drivers).

Data capture and analytics as an emerging trend

Remote access and data capture was ranked third by the survey respondents according to the level of importance (see Figure 9). Deep risk (and loss) insights can be generated from new data sources that can be accessed remotely and in real-time if needed. This ability to capture huge amounts of data must be coupled with the ability to analyse it to generate the required insights. This trend also includes the impact of the Internet of Things (IoT); for example, (1) drones offer the ability to access remote areas and assess loss by running advanced imagery analytics, and (2) integrated IoT platforms solutions include various types of sensors, such as telematics, wearables and those found in industrial sites, connected homes or any other facilities/equipment.

So what? – Differentiate, personalise and leverage new data sources

Customers with new expectations and the need to build trusted relationships are forcing incumbents to seek value propositions where experience, transaction efficiency and transparency are key elements. As self-directed solutions emerge among competitors, the ability to differentiate will be a challenge.

Similarly, usage-based models are emerging in response to customer demands for personalised insurance solutions. The ability to access and capture remote risk data will help to develop a more granular view of the risk, thus enabling personalisation. The telematics-based solution that enables pay-as-you-drive is one of the first models to emerge and is gaining momentum; new approaches are also emerging in the life insurance market where the use of wearables to monitor the healthiness of lifestyles can bring rewards and/or premium discounts among other benefits.

Leveraging new data sources to obtain a more granular view of the risk will not only offer a key competitive advantage in a market where risk selection and pricing strategies can be augmented, but will also allow incumbents to explore unpenetrated segments. In this line, new players that have generated deep risk insights are also expected to enter these unpenetrated segments of the market; for example, life insurance for individuals with specific diseases.

Finally, we believe that, in addition to social changes, the driving force behind innovation in insurance can largely be attributed to technological advances outside the insurance sector that will bring new opportunities to understand and manage the risk (e.g. telematics, wearables, connected homes, industrial sensors, medical advances, etc.), but will also have a direct impact on some of the foundations (e.g. ADAS[4] and autonomous cars).

The telematics-based solution that enables pay-as-you-drive is one of the first models to emerge and is gaining momentum.

4 Advanced Driver Assistance Systems

2.5 Blockchain: an untapped technology is rewriting the FS rulebook

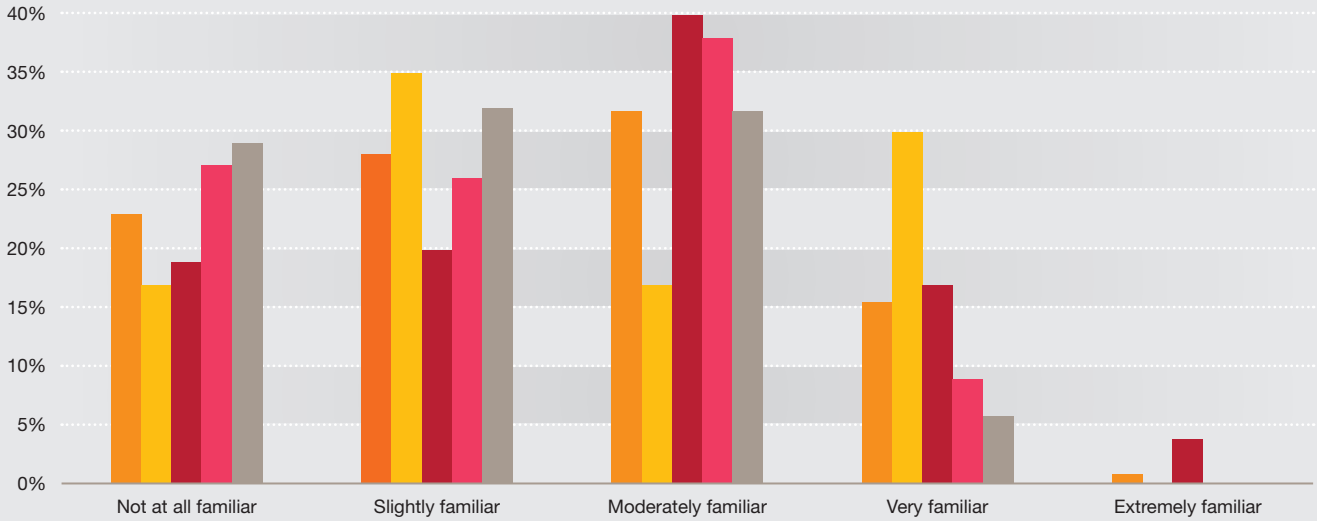
Blockchain is a new technology that combines a number of mathematical, cryptographic and economic principles in order to maintain a database between multiple participants without the need for any third party validator or reconciliation. In simple terms, it is a secure and distributed ledger. Our insight is that blockchain represents the next evolutionary jump in business process optimisation technology. Just as Enterprise Resource Planning (ERP) software allowed functions and entities within a business to optimise business processes by sharing data and logic within the enterprise, blockchain will allow entire industries to optimise business processes further by sharing data between businesses that have different or competing economic objectives. That said, although the technology shows a lot of promise, several challenges and barriers to adoption remain. Further, a deep understanding of blockchain and its commercial implications requires knowledge that intersects various disparate fields and this leads to some uncertainty regarding its potential applications.

Uncertain responses to the promises of blockchain

Compared to the other trends, blockchain ranks lower on the agendas of survey participants. While a majority of respondents (56%) recognise its importance, 57% say they are unsure or unlikely to respond to this trend. This may be explained by the low level of familiarity with this new technology: 83% of respondents are at best "moderately" familiar with it and only very few consider themselves to be experts (see Figure 10). This lack of understanding may lead market participants to underestimate the potential impact of blockchain on their activities.

Figure 10: Familiarity with blockchain

Please describe the extent to which you are familiar with blockchain technology



Extremely familiar: I feel as if I am expert on blockchain technology and how it works.

Very familiar: I feel as if I have fairly complete knowledge of blockchain technology and how it works.

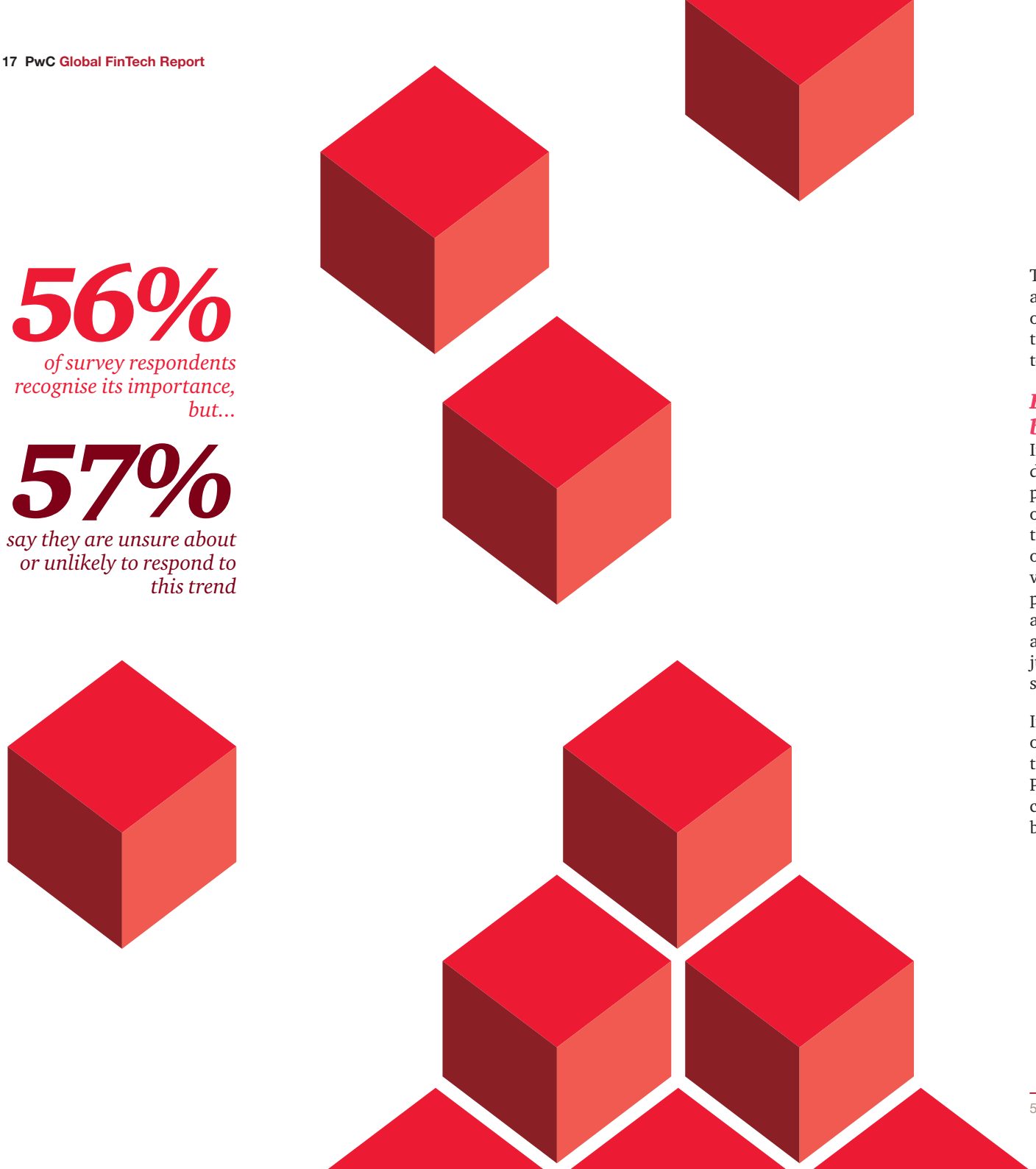
Moderately familiar: I have read or heard about blockchain technology in the news and have researched it to some degree.

Slightly familiar: I have read or heard about blockchain technology in the news.

Not at all familiar: I do not know about blockchain technology at all.

Source: PwC Global FinTech Survey 2016

Average all industries | Fund transfer & payments | Banks | AM & WM | Insurance



56%

of survey respondents recognise its importance, but...

57%

say they are unsure about or unlikely to respond to this trend

The greatest level of familiarity with blockchain can be seen among the fund transfer and payments institutions, with 30% of respondents being very familiar with blockchain (meaning they are relatively confident about their knowledge of how the technology works).

How the financial sector can benefit from blockchain

In our view, blockchain technology may result in a radically different competitive future in the FS industry, where current profit pools are disrupted and redistributed toward the owners of new, highly efficient blockchain platforms.[5] Not only could there be huge cost savings through its use in back-office operations but also large gains in transparency that could be very positive from an audit and regulatory point of view. One particular hot topic is that of 'smart contracts' – contracts that are translated into computer programs and, as such, have the ability to be self-executing and self-maintaining. This area is just starting to be explored, but its potential for automating and speeding up manual and costly processes is huge.

Innovation from start-ups in this space is frenetic, with the pace of change so rapid that by the time print materials go to press they could already be out of date. To put this in perspective, PwC's Global Blockchain Team has identified more than 700 companies entering this arena. Among them, 150 are worthy to be tracked and 25 will likely emerge as leaders.

5 PwC, What's next for blockchain in 2016?

The use cases are coming thick and fast but usually centre on increasing efficiency by removing the need for reconciliation between parties, speeding up the settlement of trades or completely revamping existing processes, including:

- Enhancing efficiency in loan origination and servicing;
- Improving clearing house functions used by banks;
- Facilitating access to securities. For example, a bond that could automatically pay the coupons to bondholders, and any additional provisions could be executed when the conditions are met, without any need for human maintenance;
- The application of smart contracts in relation to the Internet of Things (IoT). Imagine a car insurance that is embedded in the car itself and changes the premium paid based on the driving habits of the owner. The car contract could also contact the nearest garages that have a contract with the insurance company in the event of an accident or a request for towing. All of this could happen with very limited human interaction.

So what? – An area worth exploring

When faced with disruptive technologies, the most effective companies thrive by incorporating them into the way they do business. Distributed ledger technologies offer FS institutions a once-in-a-generation opportunity to transform the industry to their benefit, or not.

However, as seen in the survey responses, the knowledge of and likelihood to react to the developments in blockchain technology are relatively low. We believe that lack of understanding of the technology and its potential for disruption poses significant risks to the existing profit pools and business models. Therefore, we recommend a pro-active approach to identify and respond to the various threats and opportunities that this transformative technology presents. A number of start-ups in the field, such as R3CEV, Digital Asset Holdings and Blockstream are actively working to create entirely new business models that would lead to accelerated ‘Creative Destruction’ in the industry. The ability to collaborate on both the strategic and business levels with a few key partners, in our view, could become a key competitive advantage in the coming years.

3 An industry under siege

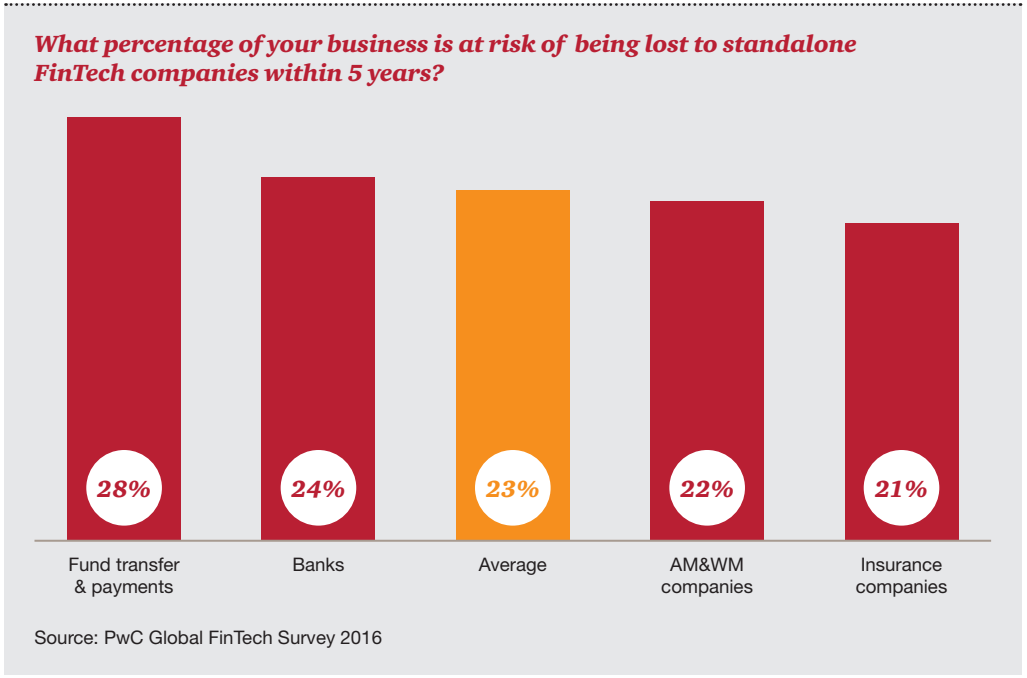
Typically, disruption hits a tipping point at which just under 50% of the incumbent revenue is lost in about a five-year timeframe. Recent disruptions that provide valuable insight include streaming video's impact on the video rental market. When broadband in the home reached ubiquity and video compression technology matured, low cost streaming devices were developed and, within four years, the video rental business was completely transformed. The same pattern can be seen in the internet direct insurance model for car insurance. At present, 50% of the revenue from the traditional agent-based distribution model has been moved to direct insurance providers.

3.1 Business at risk will exceed 20% by 2020

According to our survey, the vast majority (83%) of respondents from traditional FIs believe that part of their business is at risk of being lost to standalone FinTech companies; it reaches 95% in the case of banks. In addition, incumbents believe that 23% of their business could be at risk due to the further development of FinTech, though FinTech companies anticipate that they may be able to acquire 33% of the incumbents' business. In this regard, the banking and payments industries are feeling more pressure from FinTech companies. Fund transfer and payments industry respondents believe they could lose up to 28% of their market share, while bankers estimate they are likely to lose 24% (see Figure 11).

Time to get off the bench: Over 20% of FS business at risk to FinTechs

Figure 11: Incumbents' views of estimated share of business at risk to standalone FinTech



Source: PwC Global FinTech Survey 2016

3.2 A rebalancing of power

FinTech companies are not just bringing concrete solutions to a morphing consumer base, they are also empowering customers by providing new services which can be delivered with the use of technological applications. The rise of "digital finance" allows consumers to connect to information anywhere at any time, and digital services can address their needs in a more convenient way than traditional nine-to-five financial advisors can.

According to our survey, two-thirds (67%) of the companies ranked pressure on margins as the top FinTech-related threat (see Figure 12). One of the key ways in which FinTechs support the margin pressure point through innovation is step function improvements in operating costs. For instance, the movement to cloud-based platforms not only decreases up-front costs, but also reduces ongoing infrastructure costs. This may stem from two main scenarios. First, standalone FinTech companies might snatch business opportunities from incumbents, such as business-to-consumer (B2C) FinTech companies selling their products and services directly to customers and positioning themselves as more dynamic and agile alternatives to traditional players. Secondly, business-to-business (B2B) FinTech companies might empower specific incumbents through strategic partnerships with the intent to provide better services.

"Regulatory and capital barriers to entry in insurance limit the impact of standalone FinTech companies."

Head of Relationship Management in one of the largest asset managers in France

"FinTech will complement banking services, but will not fully replace them."

Head of Innovation at one of the largest banks in Luxembourg

Figure 12: Top threats related to the rise of FinTech

In your opinion, what are the threats related to the rise of FinTech within your industry?

Source: PwC Global FinTech Survey 2016

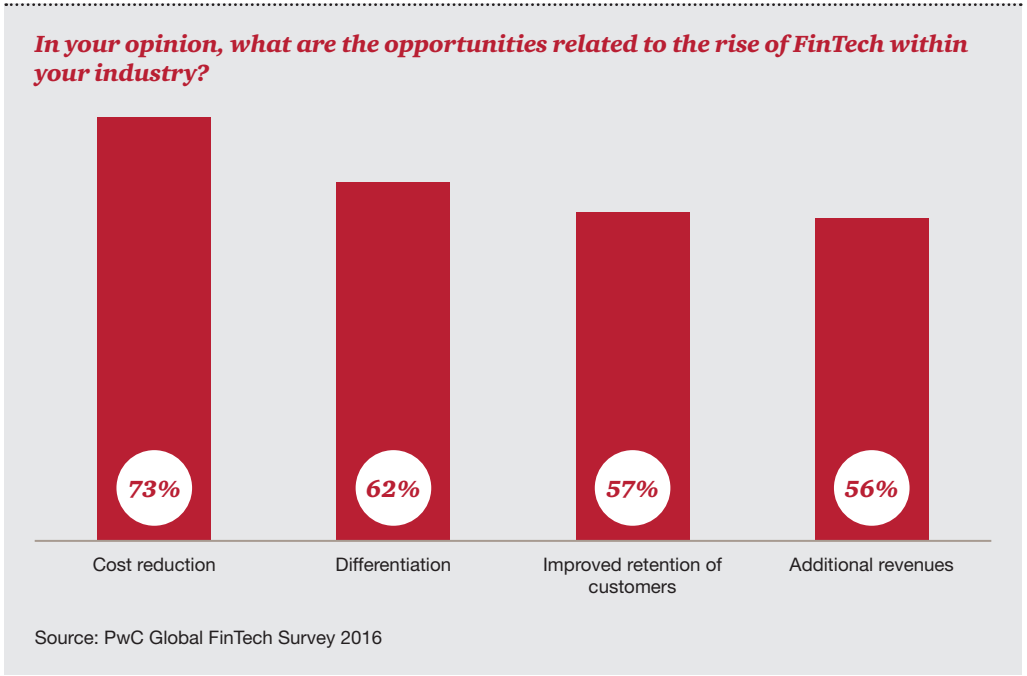
3.3 FinTech, a source of opportunities

FinTech also offers myriad possibilities for the FS industry. B2B FinTech companies create real opportunities for incumbents to improve their traditional offerings. For example, white label robo-advisors can improve the customer experience of an independent financial advisor by providing software that helps clients to better navigate the investment world. In the insurance industry, a telematics technology provider can help insurers to track risks and driving habits together with providing additional services such as pay-as-you-go solutions.

Partnerships with FinTech companies could increase the efficiency of incumbent businesses. Indeed, a large majority of respondents (73%) rated cost reduction as the main opportunity related to the rise of FinTech. In this regard, incumbents could simplify and rationalise their core processes, services and products, and consequently reduce inefficiencies in their operations.

But FinTech is not just about cutting costs. Incumbents partnering with FinTech companies could deliver a differentiated offering, improve customer retention and bring additional revenues. In this regard, 74% of fund transfer and payment institutions consider additional revenues to be an opportunity coming from FinTech. This is already true in the payments industry where FinTech generates additional revenues through faster and easier payments and digital wallet transactions.

Figure 13: Top opportunities related to the rise of FinTech



Source: PwC Global FinTech Survey 2016

Heading for bargain basement FS? FinTech is slashing costs

"We work with start-ups to deliver new innovative solutions to our clients."

Head of Innovation at one of the largest banks in France

4 Offence is the best defence

"Now we recognise that technology may be the key driver of the future."

Head of Marketing in a large insurance company in Switzerland

78%

of CEOs support the integration of FinTech at the top levels of management

FinTech is more than technology. It is a cultural mind-set. Companies hoping to flourish need to shift their thinking to better meet customer needs, constantly track technological developments, aggressively engage with external partners and integrate digitisation into their corporate DNA. To fully leverage the potential of FinTech, FIs should have a top-down approach, embracing new technologies in every aspect of their businesses.

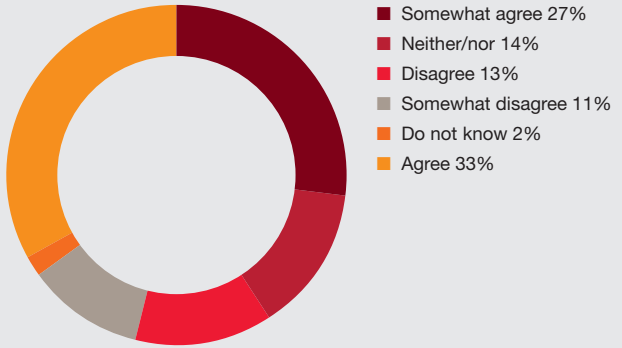
4.1 Putting FinTech at the heart of the strategy

The majority of the respondents (60%) put FinTech at the heart of their strategy (see Figure 14). In particular, a high number of CEOs agree with this approach (78%), supporting the integration of FinTech at the top levels of management. Advances in technology and communication, combined with the acceleration of data growth, empower customers at nearly every level of engagement making FinTech essential at all levels.

Figure 14: FinTech at heart

Please indicate to what extent you agree or disagree with the following statement:

"My organisation has put FinTech at the heart of its strategy."

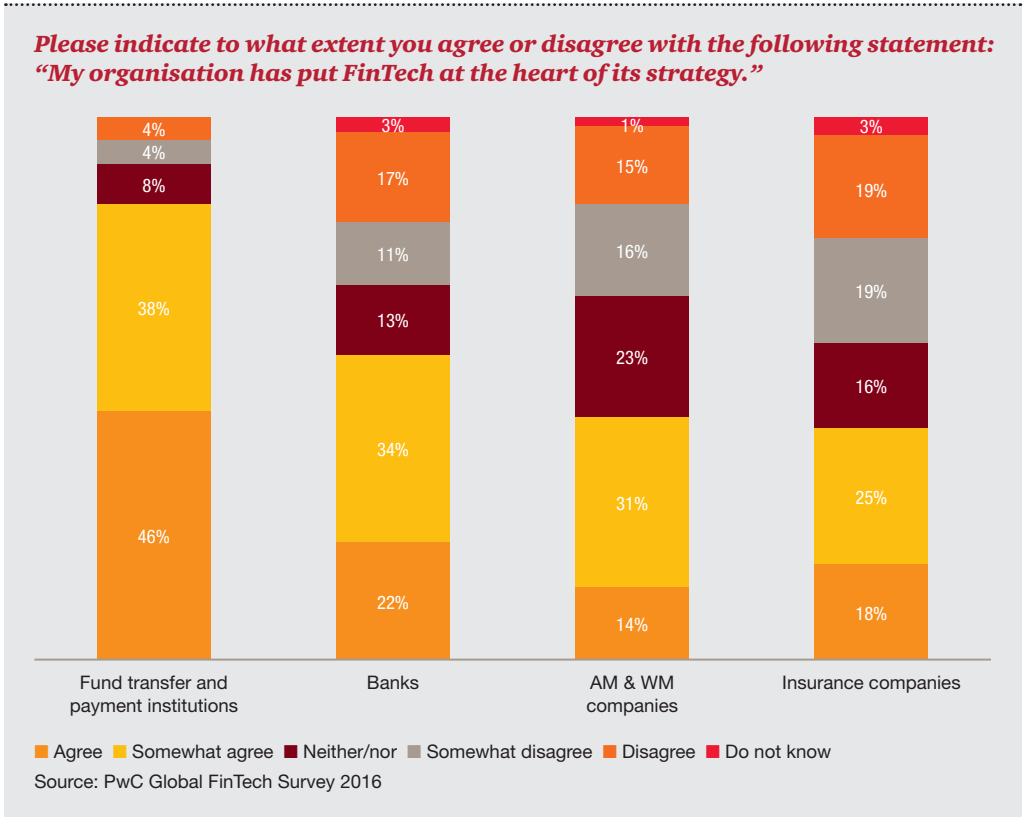


Source: PwC Global FinTech Survey 2016

Our survey supports this notion. Among the respondents that regard themselves as fully customer-centric, 77% put FinTech at the heart of their strategy, while among respondents that see themselves as only slightly customer-centric, only 27% put FinTech at the same level. A smaller but still significant share of respondents disagrees with putting FinTech at the heart of their strategy (13%) (see Figure 14). This might be a business risk in the long run, as firms that do not recognise the impact of FinTech will face fierce competition from new entrants. As rivals become more innovative, incumbents might run the risk of being surpassed in their core business strengths.

The share of respondents from fund transfer and payments organisations that want to put FinTech at the heart of their strategy exceeds 80% (see Figure 15), a high proportion compared to other sectors. At the other extreme are insurance and asset and wealth management companies, where respectively, only 43% and 45% of respondents consider FinTech to be a core element of their strategy.

Figure 15: FinTech at heart – by industry



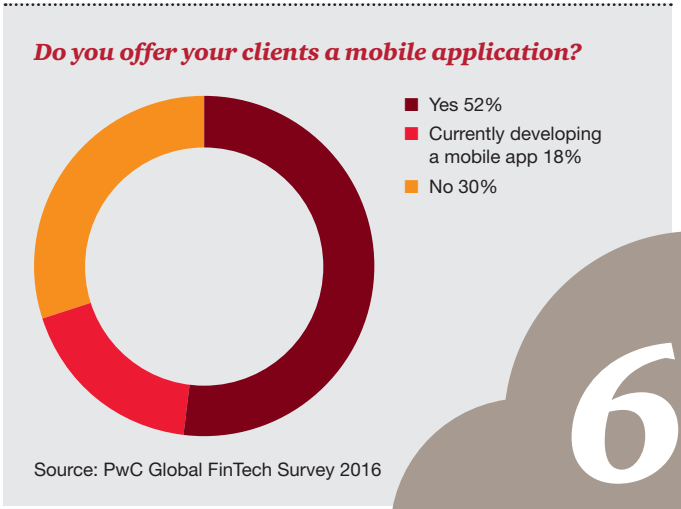
4.2 Adopting a 'mobile-first' approach

Adopting a 'mobile-first' approach is the key to improving customer experience. As Section 2 shows, the biggest trends in FinTech will be related to the multiple ways FS engages with customers.

Traditional providers are increasingly taking a 'mobile-first' approach to reach out to consumers, e.g. designing their products and services with the aim of enhancing customer engagement via mobile. More than half (52%) of the respondents in our survey offer a mobile application to their clients, and 18% are currently developing one (see figure 16). Banks, with a share of 81% offering mobile applications, are increasingly using these channels to deliver compelling value propositions, generate new revenue streams and collect data from customers. According to Bill Gates[6], in the year 2030, two billion new customers will use their mobile phones to save, lend and make payments.

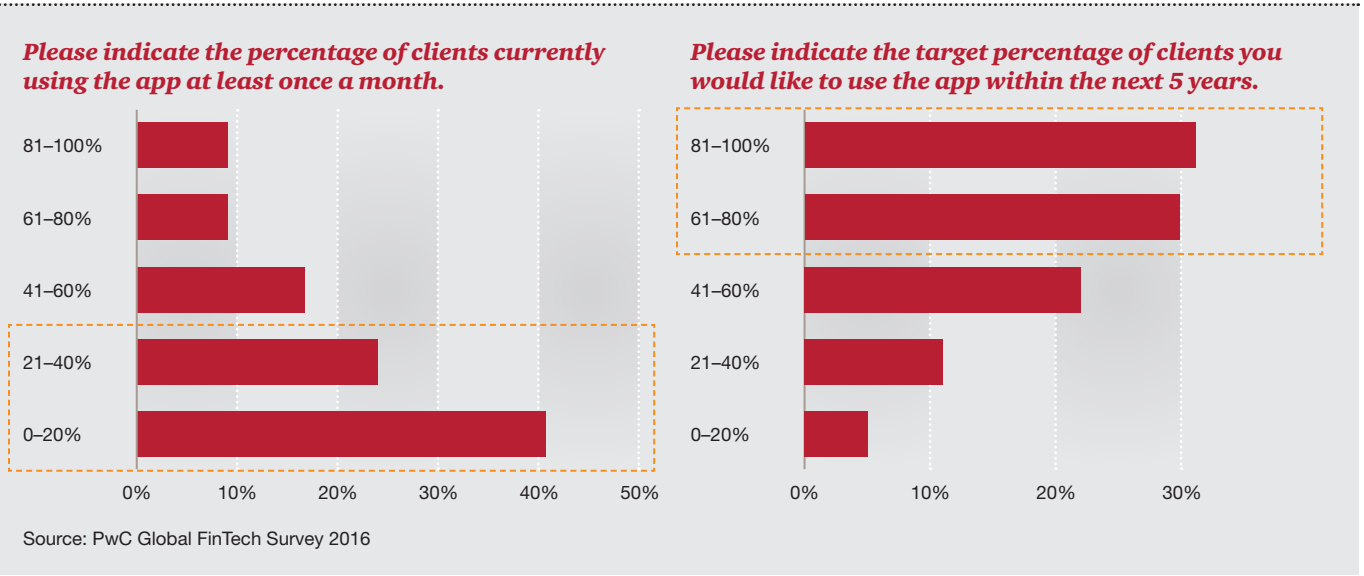
Significant growth in clients using mobile applications is expected by 2020. While currently the majority of respondents (66%) contend that not more than 40% of their clients use their mobile applications, 61% believe that over the next five years, more than 60% of their clients will be using mobile applications at least once a month to access financial services (see Figure 17).

Figure 16: Offer of a mobile application



6 Gates Notes, Annual Letter, 2015

Figure 17: Current and target usage of mobile applications



Source: PwC Global FinTech Survey 2016

4.3 Towards a more collaborative approach

Whether FS organisations adopt digital or mobile strategies, integrating FinTech is essential. According to our survey, the most widespread form of collaboration with FinTech companies is joint partnership (32%) (see Figure 18). Traditional FS organisations are not ready to go all in and invest fully in FinTech. Joint partnership is an easy and flexible way to get involved with a technology firm and harness its capabilities within a safe test environment. By partnering with FinTech companies, incumbents can strengthen their competitive position and bring solutions or products into the market more quickly. Moreover, this is an effective way for both incumbents and FinTech companies to identify challenges and opportunities as well as to gain a deeper understanding of how they complement one another.

Given the speed of technology development, incumbents cannot afford to ignore FinTech. Nevertheless, a significant minority rather than a non-negligible share (25%) of survey respondents do not liaise with FinTech companies at all, which could lead to an underestimation of the potential benefits and threats they can bring. According to The Economist,[7] the majority of bankers (54%) are either ignoring the challenge or talking about disruption without making any changes. FinTech executives confirm this view: 59% of FinTech companies believe that banks are not reacting to the disruption by FinTech.

The free lunch is over: FS must leverage the FinTech ecosystem

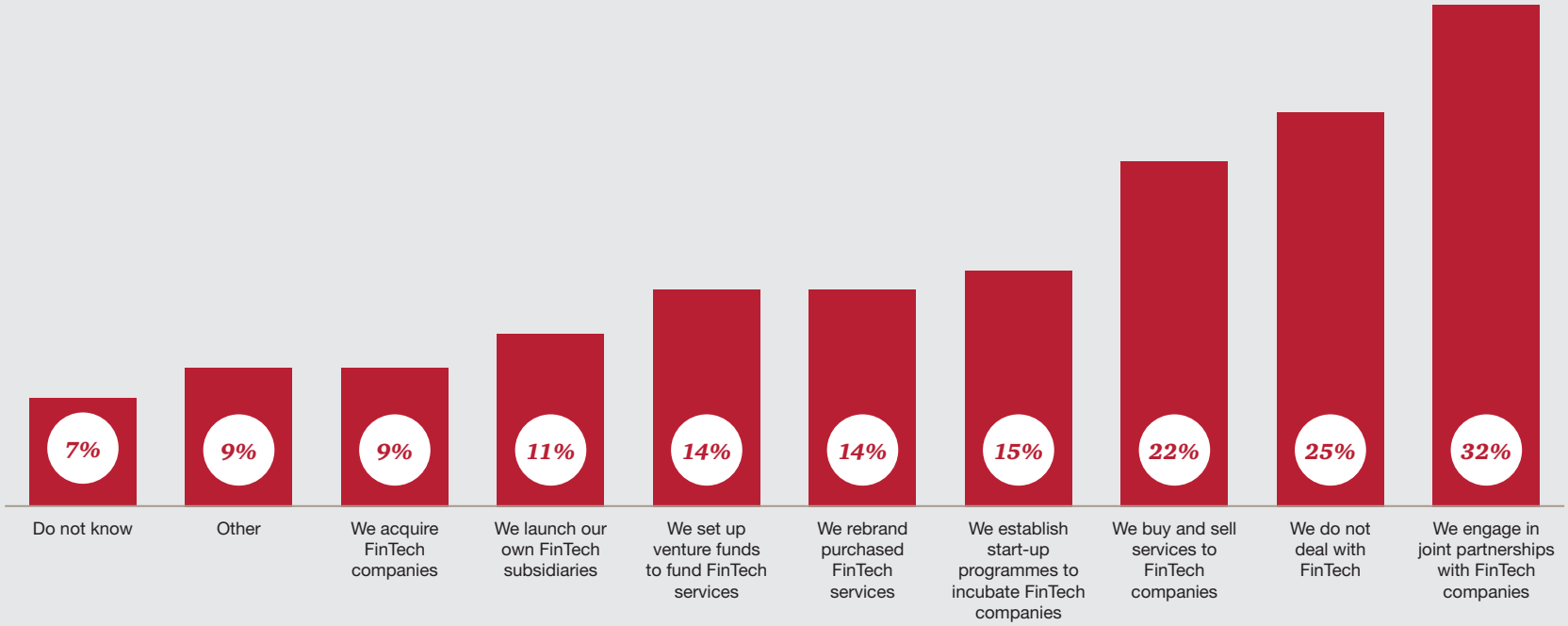
7 The Economist, The disruption of banking, 2015

25%

of firms do not liaise with FinTech companies at all, which could lead to an underestimation of the potential benefits and threats they can bring.

Figure 18: Dealing with FinTech

How are you currently dealing with FinTech companies?



Source: PwC Global FinTech Survey 2016

4.4 Integrating FinTech comes with challenges

A common challenge FinTech companies and incumbents face is regulatory uncertainty (see Figure 19). FinTech represents a challenge to regulators, as there may be a risk of an uneven playing field between the FS and FinTech companies. In fact, 86% of FS CEOs are concerned about the impact of over-regulation on their prospects for growth, making this the biggest threat to growth they face.[8] However, the problems do not correspond to specific regulations, but rather to ambiguity and confusion.[9] Industry players are asking, which regulatory agencies govern FinTech companies? Which rules do FinTech companies have to abide by? And specifically, which FinTech companies have to adhere to which regulations? In particular, small players struggle to navigate a complex, ever-increasing regulatory compliance environment as they strive to define their compliance model. Recent years have brought an increase of regulations in the FS industry, where even long-standing players are struggling to keep up.

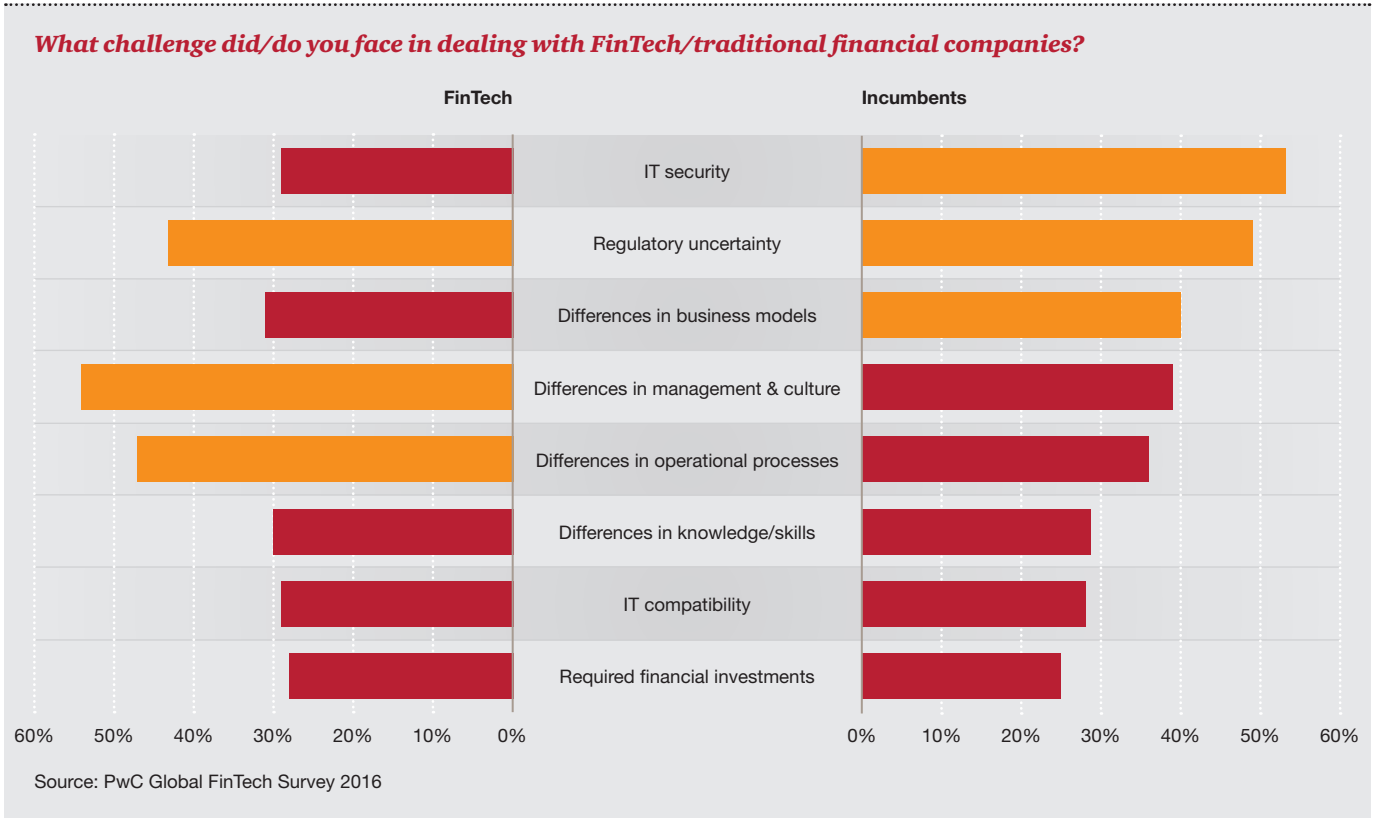
"We are willing to establish a partnership with or to acquire a FinTech company."

Head of M&A at one of the largest banks in Brazil

"Given the volume of FinTech companies, the big challenge is sorting through them to find an appropriate fit."

Head of Innovation at one of the largest asset managers in the US

Figure 19: Challenges for FinTech companies and incumbents



Source: PwC Global FinTech Survey 2016

8 PwC, 19th Annual Global CEO survey, 2016

9 WSJ, Where FinTech is struggling with regulation, 2015

While most FS providers and FinTech companies would agree that the regulatory environment poses serious challenges, there are differences of opinion on which are the most significant. For incumbents, IT security is crucial (see Figure 19). This highlights the genuine constraints traditional FS organisations face regarding the introduction of new technologies into existing systems. On the other hand, fund transfer and payments businesses see their biggest challenges in the differences in operational processes and business models. The complexity of processes and emerging business models, as explained in Section 1, which aim to lead the payments industry into a new era, have the potential to both disrupt and complement traditional fund transfer and payments institutions. Their challenge lies in refining old methods while pioneering new processes to compete in the long run.

Just over half of FinTech companies (54%) believe management and culture act as roadblocks in their dealings with FIs. As FinTech companies are mainly smaller, they are more agile and flexible. And, because most are in the early stages of development, their structures and processes are not set in stone, allowing them to adapt more easily and quickly to challenges.

Surfing the FinTech wave – How to ensure your organisation is ready to take advantage of the FinTech people opportunity

- **Encouraging and incubating innovation:**
  FIs need to re-learn how to innovate and attract talent with the right mix of technical and commercial skills. This involves a mind-set change from traditional leadership-down management to a model that encourages innovation.
- **Adopting a FinTech mind-set:**
  Big corporate structures are not necessarily the best fit for success in the FinTech revolution. Established FIs will need to experiment with new business arrangements (such as partnerships and joint ventures) to gain access to the talent and the innovation needed to pinpoint game-changing products. This involves identifying promising profiles and developing incentives to attract entrepreneurial talent.
- **Creating an agile enterprise:**
  FinTech start-ups operate in a very different way than established FS businesses do. They move quickly, fail fast and are not afraid to take risks. Traditional players need to think about how this agile mind-set dovetails with their current business processes and shareholder requirements. Companies must also be clear about how they incorporate new ways of working specifically with respect to their value proposition, e.g. “trying and failing is much better than not trying at all”. In establishing a new paradigm, firms should ask themselves the following: How do you ensure that your culture encourages a progressive mind-set?
- **Digitising the employee experience:**
  Innovative start-ups attract youthful talent with very different career aspirations than those of the previous generation. This will necessitate a change in the way organisations interact with staff, e.g. by redesigning career paths, offering incentive arrangements, or outsourcing work to freelancers. HR departments will need to adapt to new talent acquisition methods, and can learn a great deal from other industries that have gone through similar changes (e.g. some big-pharmas teaming up with bio-tech firms).
- **Changing the way talent is developed:**
  As new technologies enter the workplace, workers’ skills and experience must evolve accordingly. Current employees need to keep abreast of new skills requirements and develop themselves to remain attractive to employers. Because new programming or digitally related skills cannot be taught formally, it is up to employees to build networks locally and embrace the emerging trends and technologies. Talent management frameworks should encourage and reward this attitude.
- **Fostering an attractive employer brand:**
  Many FinTech start-ups have identified a specific niche or a purpose they are trying to achieve (for instance: global financial inclusion, or reducing the cost of money transfers to access developing markets). Established players need to take a similar approach to attract the right type of applicants and develop employer brands that appeal to aspiring talent. They must also engage with the start-up environment and strive to develop corporate brands that are tech-friendly. Minimising these challenges should be on the agendas of both FinTechs and traditional FIs, as well as governments, regulators and trade associations in order to create the best investment environment, regulatory framework and infrastructure for the development of FinTech within the FS industry.

Conclusion

Disruption of the FS industry is happening and FinTech is the driver. It reshapes the way companies and consumers engage by altering how, when and where FS and products are provided. Success is driven by the ability to improve customer experience and meet changing customer needs.

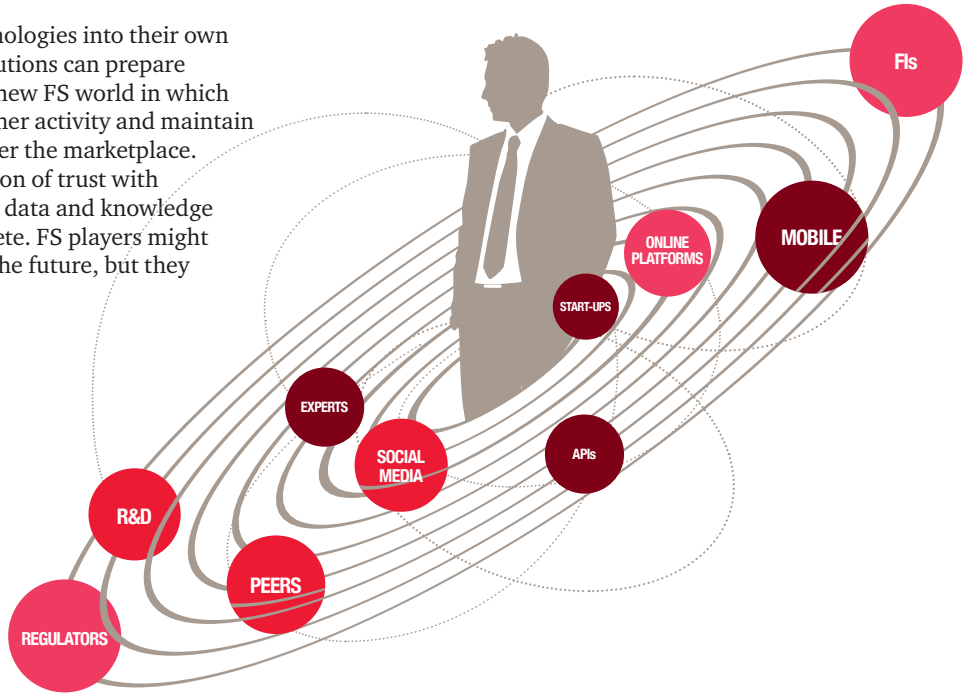
Information on FinTech is somewhat dispersed and obscure, which can make synthesising the data challenging. It is therefore critical to filter the noise around FinTech and focus on the most relevant trends, technologies and start-ups. To help industry players navigate the glut of material, we based our findings on DeNovo insights and the views of survey participants, highlighting key trends that will enhance customer experience, self-directed services, sophisticated data analytics and cyber security.

In response to this rapidly changing environment, incumbent financial institutions have approached FinTech in various ways, such as through joint partnerships or start-up programmes. But whatever strategy an organisation pursues, it cannot afford to ignore FinTech.

The main impact of FinTech will be the surge of new FS business models, which will create challenges for both regulators and market players. FS firms should turn away from trying to control all parts of their value chain and customer experience through traditional business models, and instead move toward the centre of the FinTech ecosystem by leveraging their trusted relationships with customers and their extensive access to client data.

For many traditional financial institutions, this approach will require a fundamental shift in identity and purpose. The new norm will involve turning away from a linear product push approach, to a customer-centric model in which FS providers are facilitators of a service that enables clients to acquire advice and interact with all relevant actors through multiple channels.

By focusing on incorporating new technologies into their own architecture, traditional financial institutions can prepare themselves to play a central role in the new FS world in which they will operate at the centre of customer activity and maintain strong positions even as innovations alter the marketplace. FIs should make the most of their position of trust with customers, brand recognition, access to data and knowledge of the regulatory environment to compete. FS players might not recognise the financial industry in the future, but they will be in the centre of it.

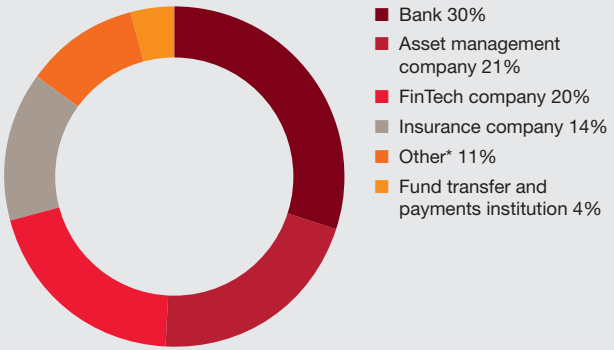


Appendix

Participant profile

Our Global FinTech survey is based on the views of 544 respondents from 46 countries, principally Chief Executive Officers (CEOs), Heads of Innovation, Chief Information Officers (CIOs) and top management involved in digital and technological transformation, distributed among five regions. They are involved in various segments of the FS industry such as: fund transfer and payments, asset and wealth management, banking and insurance, from a majority of large companies, but also small- and medium-sized ones. The survey also encompasses other types of companies, such as consultants, national supervisory and international financial institutions.

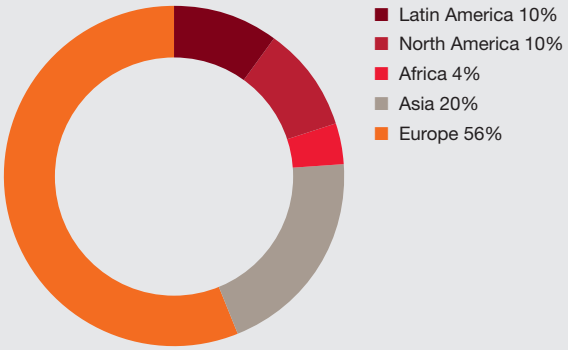
Figure 20: Type of companies



Source: PwC Global FinTech Survey 2016

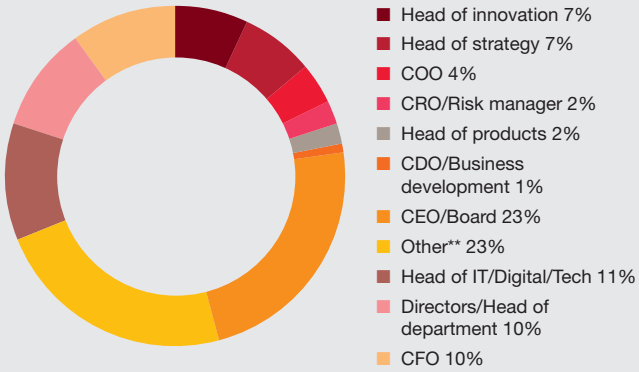
*Other includes consultants, national supervisory and international financial institutions.

Figure 21: Origin of participants



Source: PwC Global FinTech Survey 2016

Figure 22: Type of respondents



Source: PwC Global FinTech Survey 2016

**Other includes portfolio managers and angel investors.

Summaries of the trends

DeNovo's Team is tracking emerging trends in FinTech to explain which start-ups, technologies, trends and new market entrants are relevant to you and, more importantly, why. The trends highlighted below are a snapshot in time of the most relevant ones for each FS segment. For an updated view, please subscribe to the DeNovo platform.

Summaries of trends for banking

1. The rise of peer-to-peer (P2P) lending	Increased levels of technology have enabled an increase in lending without an intermediary.
2. Services and solutions for underserved consumers	Lower cost of providing services to customers that are currently underbanked, e.g. in rural Africa.
3. The enhancement of credit underwriting/decision making	More granular data enable FS providers to more accurately assess and price risks.
4. Solutions that banks will integrate or incorporate to improve simplify operations	APIs enable third parties to develop value-added applications for company platforms, artificial intelligence is enabling companies to extract greater customer and insights, employees and intelligent machines are integrating to work as a team, banks are expediting the deployment of digital delivery. And there are many more ahead.
5. Sophistication in methods to reach, engage, and retain customers	Engaging customers through gamification techniques in a collaborative environment is leading to better customer experience and reflecting in retention.
6. The emergence of self-service tools	Increase of customer autonomy in performing every service without human interaction. Self-service tools, such as internet banking and apps, are becoming more popular.
7. The move toward non-physical or virtual channels, including mobile channels	Virtual banking utilises online and mobile platforms to integrate and simplify customer banking experience. Virtual banking platforms equip customers with on-demand access to manage bank accounts, pay bills, apply for loans, open new accounts, and perform other banking activities through a single portal. Banks are using these channels to collect data from customers, generate new revenue streams and offer compelling value propositions.
8. The digitalisation of cash- and treasury-management functions	Cash and treasury management includes the administration of external and internal funds, cash flow management, and corporate finance policies and procedures. The digitalisation of cash and treasury management functions utilises online platforms to disrupt the traditional models, creating new revenue streams and value propositions. Cross-border payment transfers for businesses, foreign exchanges and invoice management are a few of the functions that are enabled primarily through the advent of online platforms. For example, organisations are developing new processes to perform international money transfers using mobile wallets and cryptocurrencies to improve speed and safety.
9. The democratisation of banking and personal finance	The democratisation of banking and personal finance describes the shift in which customers take control over their financial health and seek new channels and solutions to assist in this process.
10. The simplification and move toward streamlined product application processes to improve customer experience	The consumer product application process (i.e. loan origination) has been streamlined with the emergence of cloud-based lending solutions and electronic bank account management systems which automate the loan origination process and increase overall transparency in the lending process. The move towards such solutions improves customer experience by reducing the amount of manual work, cutting down time and reducing errors.
11. The rise of crowdfunding/seed funding	New funding options have emerged in mid-market, such as P2P lending and marketplace lending platforms.
12. Blockchain	Use of distributed and decentralised ledger technology in which transactions are recorded in order to improve payments, clearing and settlement, audit or data management of assets. There is also the possibility to create a so-called "smart contract" using blockchain technology. This is essentially a contract that is translated into a computer program and, as such, has the ability to be self-executing and self-maintaining.

Summaries of trends for fund transfer and payments

1. Next generation point-of-sale solutions	Novel tech-based loyalty programs improve customer engagement and enhanced technology at the physical POS, such as the use of QR codes or Near Field Communication (NFC), enhances security of mobile wallets.
2. Increased value-added merchant service offerings	Additional services offered by merchant acquirers and processors including enhanced data analytics, reward and loyalty programs, fraud management, chargeback protection, check processing, refund management and customer relationship management solutions.
3. Peer-to-peer (P2P) payment solutions and digital wallet	FinTech companies are providing an increased number of solutions to facilitate P2P payment solutions. Increasing adoption of digital wallet for the use of e-money, secure storage and cryptocurrencies.
4. Alternative retail-payment networks and fund-transfer solutions	These electronic payment networks are alternatives to traditional networks offered by Visa, MasterCard, Discover and American Express. This includes online payment systems, such as PayPal and Stripe, and loyalty and gift card solutions, such as Starbucks.
5. Proliferation of international/cross-border transfer platforms	Increased number of solutions and points of user interaction that enable faster and cheaper cross-border fund exchange or remittance.
6. Simplification of online-checkout experience	The checkout experience can be directly affected by ease of website navigation, delays in transaction processing, volume of security checks, and limited payment options. New vendors aim to eliminate the multiple inept steps (i.e. shopping cart, card info, etc.) currently required in an online checkout process.
7. Consumer protection from identity theft, fraudulent transactions and account falsification	The use of topological analytics to ensure the authenticity or identify fraudulent transactions.
8. Increased push for faster payments	Companies are focused on the fund transfer and payment space to limit the number of intermediaries for the purpose of faster (to immediate) transfer and/or settlement and with this, a lower fee. This can include direct party transfer, peer-to-peer (P2P) transfer, use of prepaid account to transfer with a mobile phone and no bank account.
9. Contactless technology for digital wallets	Non-cash payment methods, such as credit and debit cards, smartcards, or other devices (e.g. mobile phones), that use radiofrequency identification to secure payments at a physical POS terminal.
10. Blockchain	Use of distributed and decentralised ledger technology in which transactions are recorded in order to improve payments, clearing and settlement, audit or data management of assets. There is also the possibility to create a so-called “smart contract” using blockchain technology. This is essentially a contract that is translated into a computer program and, as such, has the ability to be self-executing and self-maintaining.

Summaries of trends for asset and wealth management

1. Technology to enable investments in new markets	Leverage new technologies to gain competitive edge and accelerate growth in new and emerging markets.
2. Automation of asset allocation and wealth management	Automated advice solutions (e.g. robo-advisers) are changing the asset management landscape in many ways, including asset allocation.
3. Products and services for traditionally unprofitable customers	Alternative distribution models and sophisticated risk quantifying techniques are helping insure previously unexplored/uninsured customer segments.
4. Better identification and quantification of risk	New models and use of broader data sets are being used to more accurately analyse risk.
5. Community intelligence networks leading to better investment decisions	The use of technology and data from social networks in order to improve investment decisions.
6. Innovation to get to market and scale faster	Increased product offerings and/or synergies among existing products increases market differentiation and challenges traditional techniques, most notably in the investment banking industry.
7. Innovation in brokerage services enabling better investment provide advanced decision support	Innovations enabling advanced analytics and improved interface enhance decision support. Enhanced brokerage services that provide new data sources and tools analytics, portfolio and market information to enhance investment decision support.
8. Standardisation of customer experience across all points of contact	Enable similar functionalities for end users across multiple devices to create streamlined user experience.
9. Alternative distribution and marketing channels for awareness and lead generation	An increasing number of companies are leveraging new distribution channels, such as social media and mobile phones, to reach and engage more customers, resulting in a different economic model for new customer acquisition.
10. End user-created investment solutions	Customer-centric investment products are enabling investors to create personalised investment strategies.
11. Shift from technology-enabled human relationships to experiences with human support	Rather than maintaining a human relationship with the support of technology services, clients are now directly using the technology with little to no human digital interaction. Human interaction only comes into play when there is a need for customer service.
12. Blockchain	Use of distributed and decentralised ledger technology in which transactions are recorded in order to improve payments, clearing and settlement, audit or data management of assets. There is also the possibility to create a so-called “smart contract” using blockchain technology. This is essentially a contract that is translated into a computer program and, as such, has the ability to be self-executing and self-maintaining.

Summaries of trends for Insurance

1. Ride-sharing solutions	Rise of new ride and car-sharing business models, or similar sharing economies, that demand new insurance solutions regarding liability and personal injury.
2. Usage-based insurance (pay as you go)	Personalisation of insurance through usage- and behaviour-based models in auto coverage leverages new ways to capture driving data.
3. New models of holistic advice (robo-advice)	New models of holistic advice on insurance/investment needs assisted by automated advisors that leverage advanced analytics and artificial intelligence.
4. Self-directed services	Use of self-service tools to reduce cost of serving customers and improve simplicity, transparency, and speed of fulfilment.
5. Connected health and medical advances	From wearables to genomics to enable P4 Medicine: Predictive, Preventive, Personalized and Participatory.
6. Connected/Smart Car	Solutions for connected cars and increasingly assisted/autonomous driving that impact auto claims frequency and severity.
7. Remote access and data capture	Use of non-traditional data capturing solutions including remote devices, to improve risk and loss assessments.
8. Shift from probabilistic to deterministic model	Real-time data capture and monitoring technology enabling insurers to shift from a probabilistic to a deterministic claims model.
9. Granular risk and/or loss quantification	Advancement in technology helping to quantify risk and/or loss at a granular level.
10. Robotics and automation in core insurance	Increased use of capabilities such as robotics and artificial intelligence to automate core insurance functions.
11. Blockchain	Use of distributed and decentralised ledger technology in which transactions are recorded in order to improve payments, clearing and settlement, audit or data management of assets. There is also the possibility to create a so-called “smart contract” using blockchain technology. This is essentially a contract that is translated into a computer program and, as such, has the ability to be self-executing and self-maintaining.

DeNovo

More than ever, innovation impacts your business. DeNovo empowers decision makers by instantly translating data, information and knowledge into the wisdom to adopt the right business strategies.

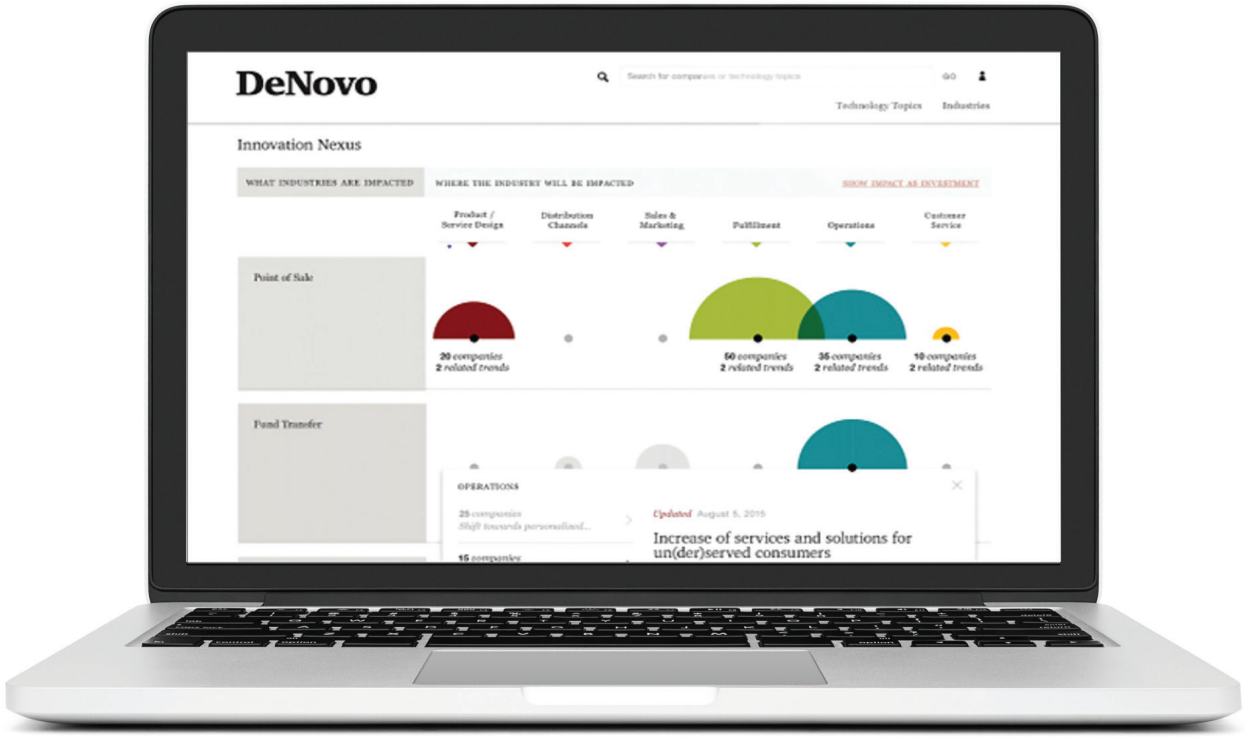
What is DeNovo?

DeNovo represents the next generation of strategy consulting – a new platform powered by Strategy& and PwC that is focused on FinTech. The rapid emergence of disruptive technologies and new business models requires a modern way of delivering strategic advice when and where you need it. Whether you are in the board room or on a phone call with your CEO, DeNovo provides you with answers in real-time. Relevant content and insights are delivered to you via web, mobile and direct interaction with our team of innovation strategists.

DeNovo's Subject Matter Specialists in FinTech lead a dedicated team of over 50 strategists, equity analysts, engineers and technologists. Using both public and proprietary data from over 40,000 sources and leveraging our global network of over 200,000 professionals, we cut through the noise to explain which startups, technologies, trends and new market entrants are relevant to you and, more importantly, why.

Who uses DeNovo?

DeNovo is designed for CEOs, CTOs, Business Unit Heads, Heads of Strategy, and other key decision makers in FS who need a trusted resource to understand the emerging trends that impact their business strategy and what actions to take.



http://www.strategyand.pwc.com/denovo

Contacts

Manoj Kashyap
Global FinTech Leader
PwC US
+1 (415) 498 7460
manoj.k.kashyap@us.pwc.com

Haskell Garfinkel
US FinTech Co-Leader
PwC US
+1 (312) 298 2647
haskell.garfinkel@us.pwc.com

John Shipman
APAC FinTech Leader
PwC Australia
+61 (2) 8266 0198
john.shipman@au.pwc.com

Steve Davies
EMEA FinTech Leader
PwC UK
+44 (0) 131 260 4129
steve.t.davies@uk.pwc.com

Dean Nicolacakis
US FinTech Co-Leader
PwC US
+1 (415) 498 7075
dean.nicolacakis@us.pwc.com

Acknowledgment
We would like to thank Dariush Yazdani, Gregory Weber and the PwC Global research team for their involvement in the development of this report. We would also like to thank Javier Baixas, Barry Benjamin, Jeremy Drane, Menekse Gencer, Roberto Hernandez,Simon Horner-Long, Andrew Jurczynski, Fergus Lemon, Sarah McEneaney, Stephen O'Hearn, Aaron Schwartz, Ajit Tripathi, Jamie Yoder, Bhushan Sethi, Stuart Jones and Áine Bryn and the Global FS Marketing team for their contributions.

pwc.com/fintechreport

For more information about the global Financial Services marketing programme, please contact Áine Bryn on +44 (0) 20 7212 8839 or aine.bryn@uk.pwc.com.