

Fintech & The Digital Disruption Of Financial Services

*An industry analysis by the team
from TomorrowToday Global*

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Disclaimer

This white paper was developed by TomorrowToday Global, a strategy insights company that tracks changes in different sectors and industries, with particular emphasis on the future of work. It is based on work commissioned by Richmond Events in June 2016. TomorrowToday Global is not a financial services consultancy and, as such, this White Paper seeks to understand the implications and importance of FinTech and the digital customer within the broader context of our changing world, and does not intend to provide advice or specific services to the financial services industry.

The research methodology used to write this paper was an environmental scan of the FinTech landscape, specifically using information available in the public domain. The sources are documented at the end of the paper. This is neither an academic paper nor one prepared for peer review. The desk research was followed by interviews and feedback on an executive summary of our findings conducted with select senior banking executives from around the world.

While this paper has not specifically crafted any scenarios for the future of banking and the digital customer, it may be a useful point of departure for the crafting of appropriate and relevant scenarios.

Whilst every effort has been made to verify the accuracy of the information contained in this report, neither TomorrowToday Global nor any associated or referenced company, can accept any responsibility or liability for reliance by any person on this report or any of the information, opinions or conclusions set out in the report.

We welcome and encourage feedback on any and all aspects of this report.

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The background is a complex, layered composition. It features a world map in the upper right, overlaid with a grid and a line graph. A network diagram with interconnected nodes is visible in the lower right. The overall color palette is dominated by blues, purples, and greens, with a gradient effect across the image.

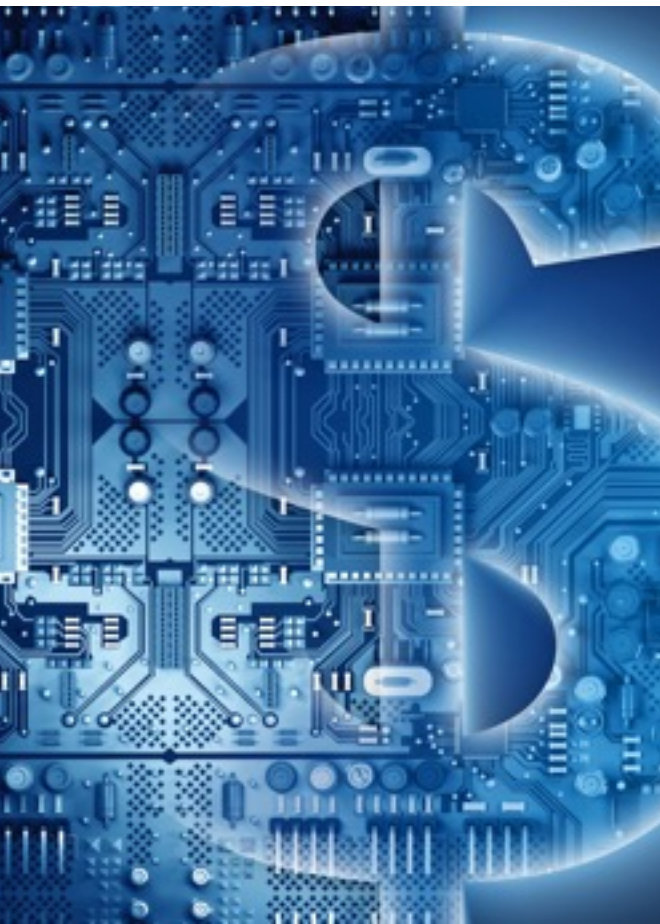
Executive Summary

Financial Technology (FinTech) is currently the most significant focus area for global Venture Capital (VC) investments and crowdfunded startups. According to KPMG's "The Pulse of FinTech" report, funding of FinTech reached a record high in 2015 totaling \$19 billion. This was more than double 2014's investment. At the start of 2016 over 30 FinTech startups existed, valued at \$1 billion or more (the so-called "Unicorns"). Most established global financial institutions are actively engaging with FinTech in one way or another.

The purpose of this paper is to identify the most important ways in which FinTech (and related disciplines, such as InsureTech) will disrupt established financial service organisations, catalogue some of the approaches banks and other financial institutions are taking to respond to the threats and opportunities offered by FinTech, and make some predictions about how things might play out in the next 3 to 5 years. Particular focus is on the context of the digital customer.

Key Point Summary

FinTech raises several issues and challenges for bankers and other financial sectors being impacted by it.



One

FinTech is not new - it is the next iteration of a continuing cycle within the sector. Some stakeholders are responding to it as a new disruption that has come "out of the blue".

The problem for incumbents in the banking industry entertaining this perspective is that it is indicative of a low innovation legacy within those organisations, and the fostering of a strategic culture that has been / is ignorant of changes in the broader macro context.

TWO

FinTech is broader than just cryptocurrencies and the associated Blockchain technology. Cryptocurrencies (led by Bitcoin) has resulted in a knee-jerk response, with the sudden realisation that Blockchain is doing things traditionally charged for by banks - and doing it more efficiently, for free. The expanded uses for Blockchain's Distributed Ledger technology include recording transactions and contracts of all types, from government tenders to weddings.

While Blockchain may be useful, many more disruptors in the sector require consideration too: Robo Advisors, Marketplace lenders (Peer to Peer), Crowd Funding, etc. Too many banks have a very limited view of the FinTech playing field.

Three

Banking has traditionally innovated around product. FinTech is not coming from this perspective, but rather is an innovation around channel and business model. Stakeholders in financial services and banking are viewing FinTech as a financial innovation platform - this perspective is fundamentally flawed.

FinTech is not a banking innovation - it is a technology innovation directed at Financial Services (consider the non-financial uses being found for Blockchain). Accountants, actuaries, and other traditional financial services skill-sets cannot fully understand the implications of FinTech, how best to respond to FinTech, or how to develop in-house FinTech solutions. We need to bring broader digital technology skills into the conversation. Not many banks have these skills available in-house.

Four

FinTech will not take all clients from traditional organisations, **only the cheapest and most profitable ones.**

At the moment FinTech is less encumbered by regulation and associated hurdles. The products and options FinTech players are bringing to market, and ones they're still developing, skirt the edges of financial services' governance, and will compete with incumbent stakeholders as if they had one hand tied behind their back and their shoe laces tied together.

But FinTech also uses processes that banks are not skilled at, specifically related to interrogation of big data in order to drill down to markets of one. More than a cliché for FinTech, this has become a reality, and FinTech startups will be very selective in poaching only the best clients from banks. Without loss leader or cross subsidisation strategies, FinTech are likely to leave banks with hugely unprofitable books.

FinTech is both nimbler and more effective. FinTech is creating new channels and achieving the same results without using the traditional transactions. Regulation has yet to be designed or conceived for technology that doesn't respect "the way things are supposed to be done". In many ways, FinTech stands outside of current regulations and markets, which gives them a great advantage.



Five

FinTech is making much more noise than its market share warrants. FinTech is still a bit-player in the banking scene. The extent of airtime and exposure it incites should however concern existing stakeholders.

The disproportionate market profile may be indicative of a market hungry for alternatives and largely dissatisfied with the current industry engagement.

As these bit-players consolidate and achieve scale, they will become more significant concerns. This is probably 18-24 months away.



Six

FinTech innovations are currently being viewed in silos. The real disruption will come when multiple FinTech powered services are offered on one platform or from one source.

Using API's and other digital enablers, it will be possible to create a seamless single point of contact for the customer, but drawing on a network of disparate individual services in the back end. This is yet another indication that the true disruption in FinTech relates to channels of offering rather than the specific way in which products are designed.

This indicates that FinTech is not currently seeing itself as a systemic disruptor - it is in fact competing in similar silos to the way banks are acting. When they do see the broader systemic reality, the real power of the revolution will reach its first major tipping point. The banks have a major opportunity to partner with a range of FinTech startups, offering them this single brand, which will only work if the banks don't stifle the style of the FinTech following acquisition or partnering.

Seven

The industry is looking at FinTech and digital disruption too simply. FinTech is one component of a broader change in the way society is doing everything. Banking needs to raise its head and look beyond FinTech and consider what FinTech is “symptomatic of”.

Virtual and Augmented reality, drones, “self-everything” technology (cars, payments, houses), wellness & longevity, “digital native” young people, wearables and implantables, etc: the digital world is changing how we do EVERYTHING and *the future of banking is not only linked to responding to FinTech, but rather to an effective repositioning in a Digital-Everything world.*

Today’s young people are not merely younger versions of us, they are significantly different, and will demand different things from their banks and financial partners.

Eight

The purpose of banking is to assist the reallocation of value in a system; moving excess value held by one group of individuals to another group who are seeking value. The transaction associated with this transfer is: return for the giver, cost for the receiver. Banking is about identifying and then partnering these people.

The bank is the middleman who takes a transaction fee for facilitating this exchange of value. The ‘Uberisation’ of the world means the erosion of the role of the middle man from the process due to redundancy. One of the consequences of the rise of Digital as a worldview is that services traditionally offered by brokers or intermediaries are falling by the way.

Financial Services are being disintermediated. Branches, middleman services, transaction brokers, notarised or conveyancing services, amongst others, are more efficiently and effectively conducted using digital platforms. The human component needs to be identified in those areas, and these should form the basis of new service offerings.

As an associated thought, most banks rely significantly on paper for recording transactions. In a digital world, this will become increasingly outdated. We believe banks will need to become completely paperless within the next decade.

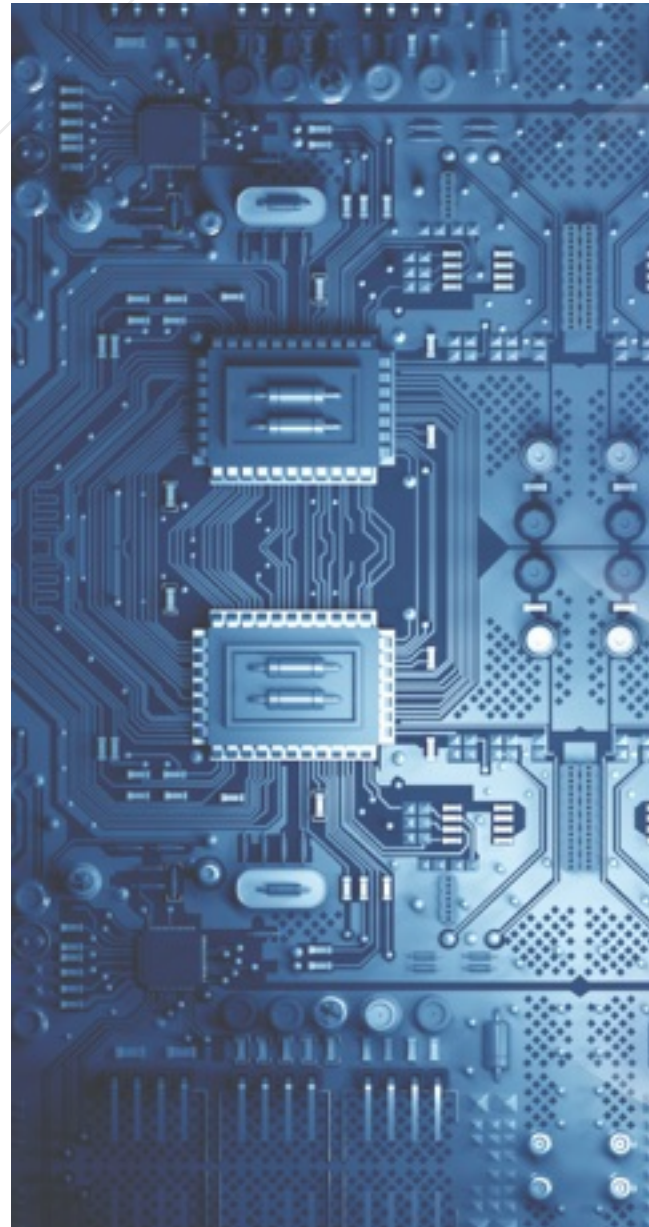


Nine

Artificial Intelligence, Deep Learning and Machine Learning are fundamentally challenging human intelligence. For example, visual physical identification checks are actually the weakest form of security available to banks, but they persist with them.

Technology conducts identification exponentially more efficiently and accurately. In fact, computers outperform humans at almost everything banks do. AlphaGo's recent victory over the world Go champion, and the manner in which it won the tournament, indicates a sea change in the value offered by non-human intelligences.

New ways of interrogating data, and the customer the data represents, will allow FinTech players to begin to offer truly unique, customised products to every client. Using the efficiencies of their channels over current players, married with personalised products, Artificial Intelligence will identify, ratify and design instantly. **This should keep the current executive management of Financial Services organisations awake at night.**



Ten

Millennials are the most indebted generation ever, at the same stage of life. This positions them as the demographic most in need of financial services. FinTech is allowing smart non-banking companies to use fresh algorithms and perspectives to cherry pick prime Millennial clients. These clients are afforded access to debt consolidation, student debt restructuring and first time home loans, all at better rates than banks can offer because they have been segmented using different criteria. The higher risk, less profitable individuals are happily being left for traditional banks to service using their usual tools and processes.

Executive Summary



Timeline - the next 3 years are key



According to an Ernst & Young survey, the top reason for using FinTech is the ease of setting up an account. The corresponding top reason *not* to use FinTech was unawareness. Both indicate the lack of maturity currently in the FinTech market. Many more (and arguably better) reasons for using FinTech exist than ease of access, but at the moment FinTech is effectively lacking in getting its messages to market.

These immaturity dynamics are the most significant indicators of the current role or impact of FinTech on the banking and Financial Services sectors. But, when we look to near future the picture is starkly different.

Banking is going to change because our society is changing. The shift isn't immediate, though it is imminent. We anticipate a window of 18-24 months for incumbents to "wake up" and begin to shift in anticipation of the new banking epoch. This window will slam shut (or smash open - if we consider the new players entering the market) within 24-36 months.

Within that time, there will also be major shake-ups within the FinTech startup market. Some of today's "Unicorns" will fail, and some unexpected new competitors will emerge. It is still a very fluid environment with no clear winners or losers emerging.

Certainly, within 3 years' global financial services will have changed forever



The Near Future of Banking

What will the new-look banking industry look like? Allowing for new innovations within this 36-month window, using a projection of current FinTech and Digital products, we expect the best-case potential customer experience to include:

- No account number: Services will be aligned with global unique identifiers like passport numbers. All service providers will use the same identifiers.
- Customers will engage service providers on-demand through single channel interfaces that are brand agnostic, much like a current search engine.
- Using AI on the customer's publicly available information, including location, service providers will pitch customised solutions on-the-fly and just-in-time.
- Blockchain type distributed ledgers will capture the entire digital interaction, and the conversation will be a legally binding contract on acceptance of the final offer. Banking will be entirely paperless, with no physicality e.g. branches associated with the transaction.
- Money itself will change, as people become more comfortable moving from physical currency to online transactions. PayPal, Apple Pay and Google Wallet will be early winners, but cryptocurrencies will soon take over.
- Millennials' high levels of indebtedness will extend into mid-life. The nature of their debt will change as they use FinTech, not banks, to access it. Gen Y, because of their exposure to the global financial crisis of the early 2000's during their 'value defining years', will be more cautious of the levels of debt they pick up. Gen Z will, however, only use FinTech type services to engage debt. They will be better quality clients, but will be looking in places that banks, as they are currently positioned, will not be able to reach. Peer to peer lending and borrowing will become this generation's defining feature of worldview.



FinTech and the Future of Banking

FinTech And The Future Of Banking

Barclays' former CEO, Antony Jenkins, was widely quoted at the beginning of 2016 when he said banking was "facing it's Uber moment". We agree, however unlike the taxi industry, banking has a clearer picture of the future and no single dominant disruptor - like Uber - is currently in play. So banks have the opportunity to get ahead of the inevitable change that is coming.

Having said that, we believe that most banks are not looking at Financial Technology (FinTech) through the correct lenses or with a broad enough perspective. We anticipate a steady erosion of the traditional financial market. Some entrenched players will stay by force of will, and will retain

traditional low margin clients - possibly in bulk, but will lose their best and most profitable clients.

Industry consolidation will occur as those who haven't adjusted fall by the wayside.

This paper focuses on FinTech's impact on Banking, however its imminent presence in the Insurance and Assurance markets means FinTech will finally crack the BankAssurance value proposition. Banking, wealth management and risk management will converge and, from a customer's perspective, be seamless elements of the same parts of their financial lives.



FinTech Context

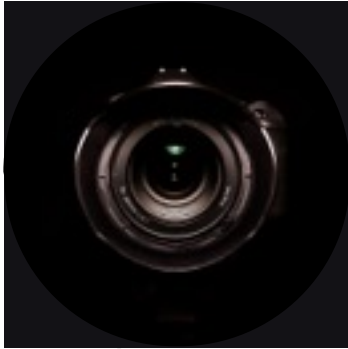
The current FinTech revolution is not the first of its kind in financial services. Several predecessors corresponded with a global change in the social structure brought about by changes in technology. Recognising this pattern of technology-driven societal change as a key driver provides important context in recognising where to focus our attention to best anticipate how today's FinTech revolution will unfold.

The *Agricultural Revolution* changed society with the domestication of animals with money (and banking) resultant from the demise of the barter society.

The *Industrial Revolution* changed the world with the steam engine, changing too our transactional reality through the introduction of paper money and limited liability for organisations.

Similarly, the rise of the *Technology Age*, saw computers as the technology game changer and credit cards as the financial services / banking revolution. This prompted the shift from representational forms of money (coins, notes, paper) to a more abstract version of money (a credit card), paving the way for today's multiple new value transactional platforms.

The *Digital Economy* is now moving us into a new society orientated around the internet, social technologies, and increasing levels of omnipresent automation. The FinTech disruption is the corresponding change in the way we bank and manage financial transactions.



CONTEXT

As in previous revolutions, today sees technology advances driving change in the way we work, communicate, engage with each other and measure value. Three key areas of financing were always impacted: new ways of transacting, new financial products and new channels.

The Digital FinTech revolution is no different, offering opportunity to reposition for success in a changed future. Each of these three aspects of the revolution is important. The problem for many banks is they often focus attention on one aspect - product, failing to see the disruptions in broader society. These aspects will be investigated below.

The next evolution is when the Internet of bots takes over from the Internet of Things. In the future, M2M - machine to machine - transactions will have the

ability to identify and transact value between any two elements that are safely recorded and to which worth is associated. These areas of value may be as unusual as our memories stored on Facebook or a marriage (this has already happened on the blockchain). The shift may be that these valuable items (with no current measurable financial worth) will be transacted across networks and environments currently reserved for artefacts of purely financial value.

The shift will see the trust and depositing of valuable virtual items with providers traditionally having dealt in money and tangible valuables. In a world of computer code, blockchain records and transactions, "valuables" will be fluid and redefined elements in the life of the digital customer.

Growth in the FinTech Market



The current growth of the FinTech market has been nothing less than astounding. Globally, at the end of 2015, 42 FinTech companies existed, with an individual valuation of more than \$1bn (“unicorns”), 7 of which are worth more than \$5bn each. The combined value of all 42 FinTech unicorns was \$150bn. At the time of writing in 2016, PayPal was the most valuable FinTech company with a market capitalisation of over \$50bn (a greater valuation than the next 10 FinTech unicorns together). This excludes companies like Apple, Google, Amazon and Alibaba that also offer alternative forms of financing and payment options.

According to the annual *FinTech 100 report*, published by KPMG and H2 Ventures, global FinTech financing has risen seven-fold over the past three years, to reach an estimated \$20 billion at the end of 2015. A similar survey by Accenture suggests a figure closer to \$23 billion. First-quarter global FinTech investment in 2016 grew 67% year-over-year to \$5.3 billion. This growth far outstrips earlier expectations surrounding the FinTech market size.

According to Accenture’s report, in Europe, overall FinTech investment increased by 120% between 2014 and 2015, and the number of deals increased by 51%. Investment in German FinTech ventures grew an astounding 843% in that period.

In Asia-Pacific, FinTech investment more than quadrupled in 2015 to \$4.3 billion, with China (\$1.97 billion) and India (\$1.65 billion) dominating. In the first three months of 2016, APAC investments increased by 517% compared to the same period last year – \$445 million to \$2.7 billion – driven almost entirely by Chinese FinTech investments.

North American FinTech continues to dominate, though, with investment growing 44% to \$14.8 billion in 2015. The USA saw 667 FinTech deals in 2015. Globally in 2015, there were 94 FinTech deals larger than \$50 million, as big ticket deals increased.

Disruptive vs. Collaborative Approaches

According to the Accenture report, two clearly identifiable approaches are being taken by FinTech companies and banks alike. **Collaborative FinTech ventures** – those primarily targeting financial institutions as customers – seem to be gaining ground over **Disruptive ventures** – those that enter the market to compete against those institutions. The Economist Intelligence Unit agrees that the most likely scenario for success in the next five years involves symbiosis. Many of the banks surveyed for this report agree, either partnering with FinTech companies or buying them in completely.

Michael Jordaan, former First National Bank CEO (South Africa) says, traditional banks can be quite good at incremental innovation, but generally fail at radical innovation, especially if such radical innovations threaten existing profit streams. He believes that the acquisition of FinTech companies by large banks has proven to have market traction. Dirk Klee, COO of UBS Wealth (Switzerland) sees things differently, preferring to partner with external FinTech startups. Both agree, though, that engagement is the key. Banks cannot do this with existing resources.

Funding for collaborative FinTech ventures, which accounted for 38% of all FinTech investment in 2010, grew to 44% of funding in 2015 globally, and to 60% in the USA. Strangely, Europe is a global outlier of this trend, with funding for “disruptors” rising from 62% of all FinTech investments in 2010 to 86% in 2015. Analysts suggest that this reflects a relative immaturity in the European FinTech market, and possibly that US FinTech firms are being built to be bought out, whereas Europeans are building FinTech firms more in the hopes of competing.

Exhibit 6: Collaborative Fintech Investments vs. Competitive Fintech Investments, 2010/15 (\$M)



Note: total excludes Other segment
Source: Accenture analysis on CB Insights data

The Structure of the Bank of the Future

FinTech is doing more than disrupting certain activities of traditional banks, it will potentially disrupt the very way in which banks are structured. It may force banks to search for value in the back end or middle office spaces, rather than in front line products and services.

The structure of the bank of the future will have three layers, and FinTech startups are targeting all three areas:

- Backoffice FinTech components,
- Middle office API's,
- Front office Apps that meet a specific need.

These aren't radical layers and most banks would see themselves structured along similar lines already. The difference is that FinTech disintermediates each of these layers to one degree or another.

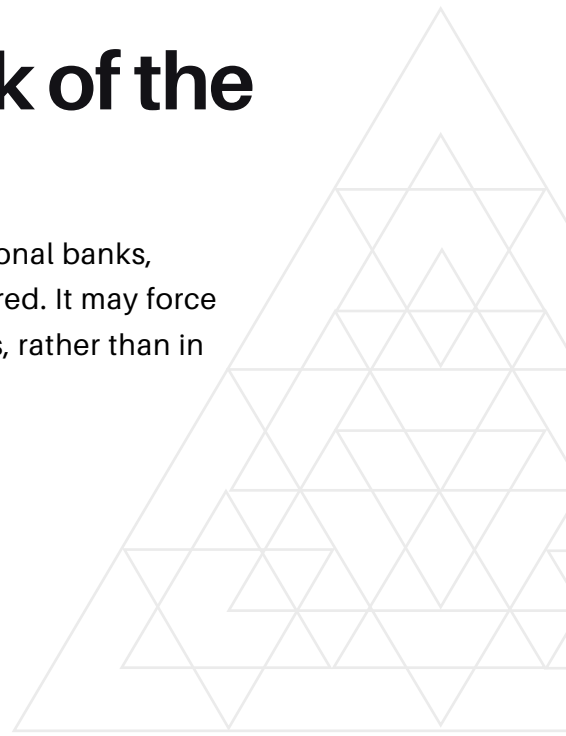
The key layer is the middle layer. An application-programming interface (API) is a set of programming instructions and standards for accessing a (typically Web-based) software application or tool. A company releases its API to the public to enable other software developers to design products powered by its service. APIs will enable FinTech providers to offer their services at the back end to multiple providers and have them packaged or aggregated into a customised client experience on the front end.

The decentralised network structure of the FinTech market sees specialists working smaller parts of the value chain rather than one organisation / bank controlling the end to end process. FinTech companies that might focus on one particular product or channel are

more open to partnering than traditional banks, further extending the API mindset through the industry. The bank experience of the future may not be offered by a bank, rather combining separate back end services into one technology-enabled customer experience.

Marc Bernegger, a Swiss FinTech investor believes that this user / customer orientated reality is far from the present possibilities of the traditional banking sector. He believes that banks currently cooperate under duress and the collaboration needed to make this the money experience of the future is a reality that is tough to achieve. This dynamic is a significant risk to incumbent players, as tech and other companies began to flex their muscle in this space - with a more extensive legacy of pragmatic collaboration.

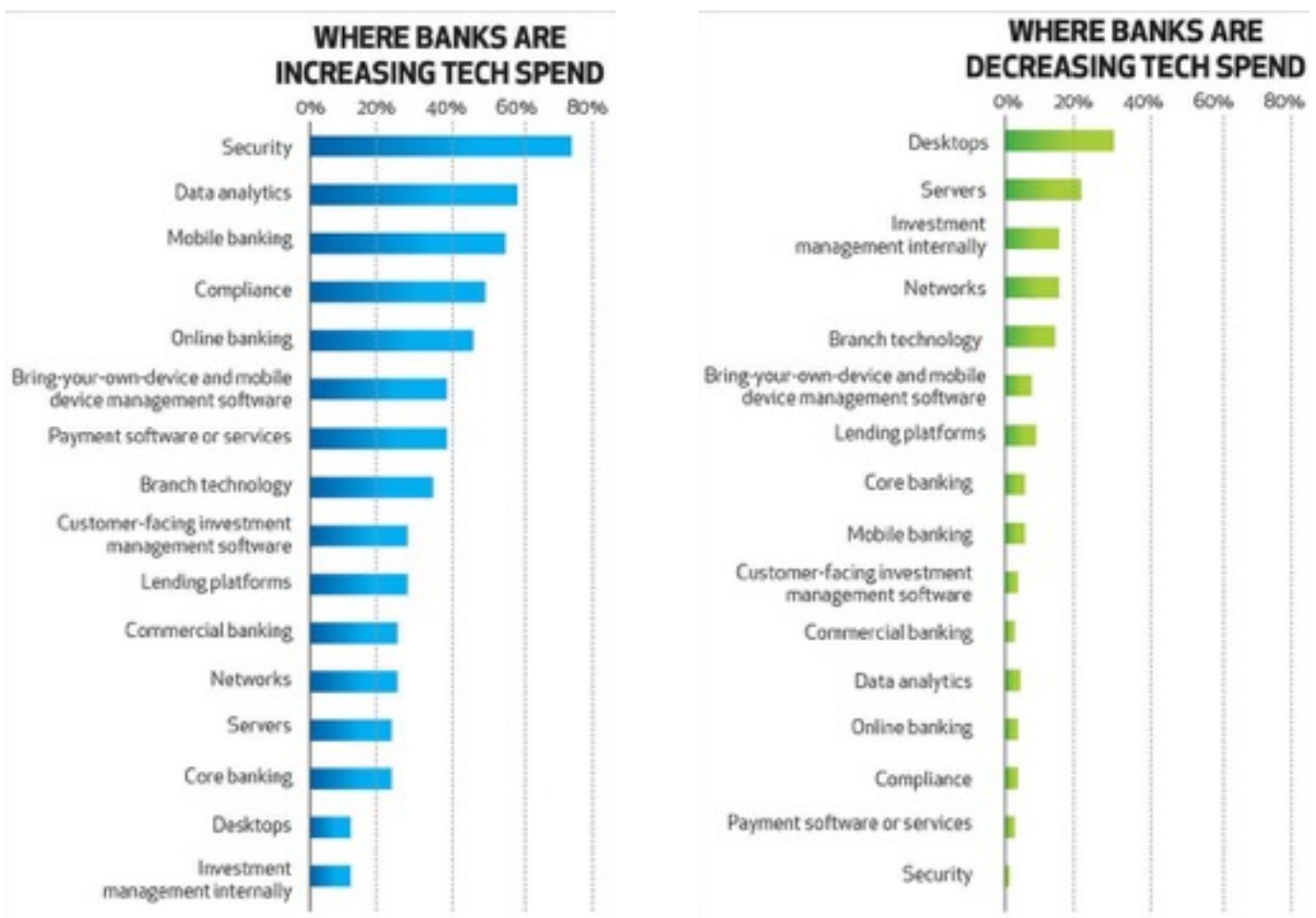
We believe that the real FinTech contribution will be in the middle layer of APIs and integration, and that this has hardly yet begun.



Preparing for the FinTech challenge in 2017 and beyond

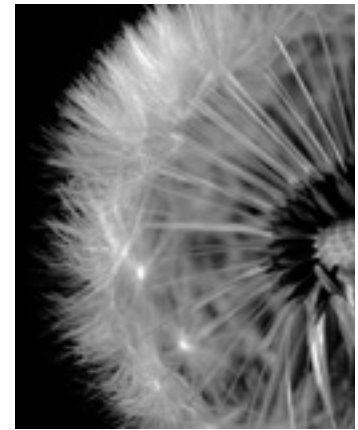
Banks are responding to the changes they're facing in different ways. A poll by the online banking portal, American Banker, asked CIOs from 50 banks about their spend and cut priorities for 2016 and the next few years.

Anticipated increases in spending on security are particularly intense, with most executives forecasting jumps in budget allocations of at least 10%. Besides security, most bank CIOs plan to spend more in 2016 on data analytics and mobile banking.



Source: FirstPartner's new 2016 Blockchain Ecosystem Market Map

In open-ended responses, CIOs said the recent string of high-profile data breaches, the "high cost of failure" — including damage to reputations — and regulatory scrutiny were driving attention and spending on security. One said that the rise in digital banking is increasing susceptibility to attacks, and that "data is money and it matters to consumers."



From a future trends perspective, the traditional banking industry appears to regard FinTech as a security risk. The response is to invest in mobile, however there's a significant double down on backing the traditional way of interfacing with clients: branches. We anticipate that the investments in mobile are not looking at ways of raising the priority of that channel, but rather an augmentation of the service delivered by a branch.

The Economist summed it up: "By their own admission, banks see the chief barriers to responding to FinTech as the 'soft issues' — lack of a clear digital strategy, cultures unsuited to rapid change and an inability to attract top technological talent. An oft-cited challenge to banks is their legacy technology systems."

"Would you like to see it one more time. You may have blinked and missed it." - Tim Cook while launching Apple Pay



FinTech in developed vs developing markets

A feature of the FinTech revolution is its occurrence in both developed and developing markets. For example, one of the most highly valued FinTechs in the world was China's peer-to-peer lender, Lufax. One of the fastest growing by subscribers is Africa's mobile phone based payment system, M-Pesa.

In most developed countries, the majority of households have at least one bank account which they use as their central hub for receiving paychecks, making payments and saving money. In under-banked or un-banked regions, primarily in parts of Asia and Africa, many individuals hold their life savings in cash, without bank accounts. Traditional banking is absent and therefore other means of managing and transacting have developed, which has been FinTech's focus in these regions. 43% of Kenya's GDP, for example, now moves via mobile money transfers rather than traditional banking platforms. The difference in banking penetration between developed and developing markets is significant. Developed economies have just short of 90% banking penetration, while developing markets hover closer to 40%.

This allows developing markets to be "leapfrogging", moving from very little banking to disruptive banking without ever establishing traditional models of banking. Many technology observers therefore expect some of the most significant innovations in banking to come from emerging markets. Countries like Brazil, India, China and South Africa, where third and first world exist alongside one another, will provide the ideal breeding ground for this innovation.

The Wall Street Journal identified 10 characteristics of the “bank of 2020”

1

Banks and financial services firms will revolve around customers' choices. For instance, as you develop and start saving money, you will have the instant and personal choice to delegate your money management.

2

The banks of the future will be on smartphones. For example, your phone will keep abreast of current investment opportunities and present them to you on an instantaneous and ongoing basis. Many FinTech offerings will be developed in the developing world, for older feature phones as well (e.g. M-Pesa).

3

Robo-advisers will prevent you making unsound financial choices, in real time. For example, if you attempt to over-trade in company shares, an automated Know Your Customer and Suitability Tool will prevent you from doing so. If you make an impulse buy of, say, a jacket that you don't really need (the tool knows what jackets you already have), it will tell you what you're trading off in terms of future savings for your pension or your children's education.

4

Powerful algorithms will monitor the behaviour of a bank's data to identify external and insider security threats.

5

Banks could become identity brokers, analysing and using the information they know about their clients, and giving that insight over to customers or other vendors for specific products and services.

6

Banks will be replaced by platforms run almost entirely by algorithms and robots - they will essentially become technology companies that mediate information.

7

The bank account of the future will be bank-agnostic: an open ecosystem where all your current and future financial needs are managed. Bank accounts will be like your cell phone number, you retain your number from one bank to another.

8

Blockchain technology will be widely used to distribute, verify and record a wide-range of financial services, making the financial system more decentralized.

9

Social trading will become widespread, with lending, borrowing, and trading on social network platforms. Facebook will lead the way with money transfers, foreign exchange and payment options embedded in the social platform.

10

Decentralized and crowdsourced loans, mortgages, and risk management products will become the norm. Traditional middlemen will be cut out, with institutional investors providing funds to consumers or businesses directly through online platforms.

Goldman Sachs delivered a report in February 2015 where they anticipated the movement of 7% of bank profits in the next 5 years to FinTech systems. It's even more significant when the curve is mapped back to 2008 and the creation of Bitcoin, or even further back, representing a significant disruption in the marketplace. By 2025, this rate of erosion could accelerate and see a stripping of over half of bank profits.

Action is required now

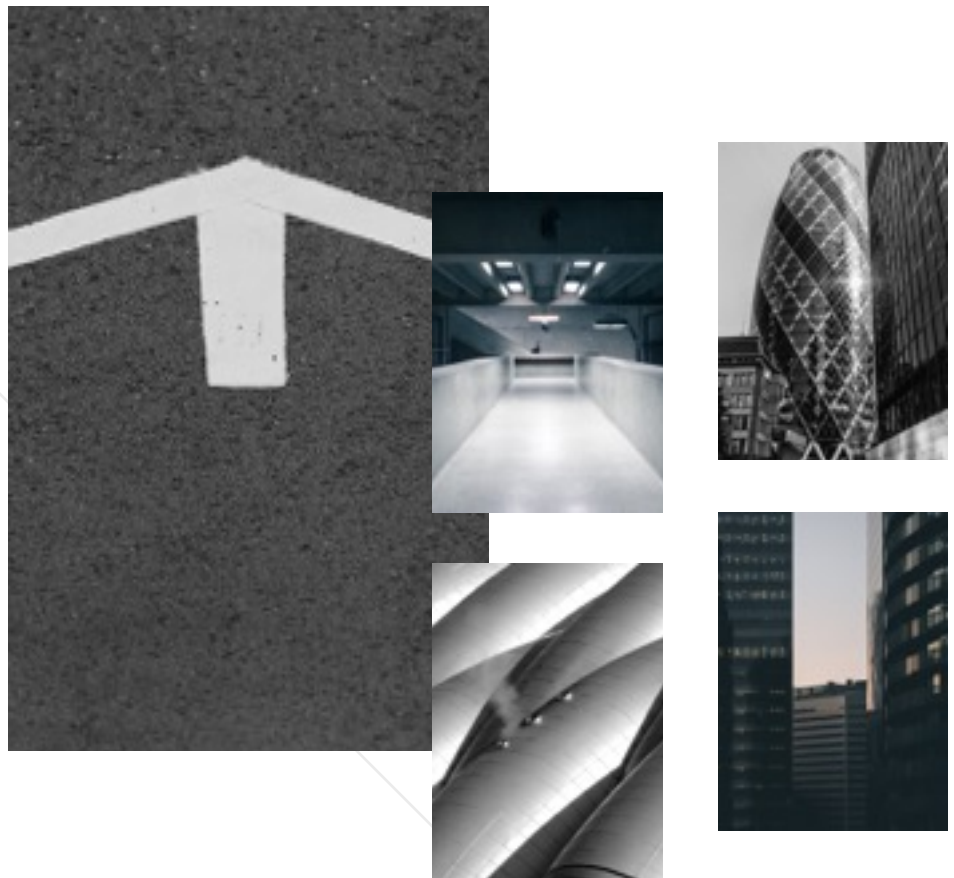
A low-angle, upward-looking photograph of several modern skyscrapers with glass facades. The buildings are arranged in a way that they converge towards the top of the frame, creating a sense of height and scale. The sky is a vibrant blue with scattered white clouds. The glass windows of the buildings reflect the sky and each other, creating a complex pattern of light and shadow. The overall mood is one of modernity, progress, and innovation.

FinTech and Innovation

Fintech And Lessons From Other Industries

Banking and financial services are being disrupted in many ways. It's not just FinTech that is doing the disrupting. And it's not just banking that is being disrupted. The disruption underway is part of an era shift in history, causing deep, structural changes across society.

There are other areas of society experiencing change and disruption at the same time as banking and financial services. The nature of these disruptions hold some lessons for banking.



Disruptions Affecting Society

Banking, at its heart, is about transferring value. As we move into the Digital Age, concepts of value, means of transferring information, access to markets and the value of various categories of consumers are being disrupted. These disruptions – or revolutions – are being driven by the technologies of the digital age.

These revolutions, as they relate to banking, are being driven by three key changes in society:

1. **The death of geography** – the digital age connects everyone everywhere, and removes geographic boundaries and barriers.
2. **The Internet of Things** – not only is everyONE connected, but everyTHING is connected too. The rise of connected objects requires us to add billions of extra entities to the global system of verification, transactions and interactions. The biggest cost currently in financial systems is identifying who we are and what we own, and managing counter party risk infrastructures between institutions. The IoT requires blockchain tech (as a shared ledger identification system) to ensure that we can verify identity, record transactions and transfer value in real-time at no cost.
3. **Real-time, mobile-based activities** – “there’s an app for that” – we all expect to operate via our smart devices, without intermediaries, instantly, and for free. Our mobile devices are at the heart of our personal digital universes. Banks need to realise that a mobile device can do more than just *make* payments, it can also *take* payments – every phone can be a point of sale. It is the mobile network, completely distributed, that opens up peer to peer connections, and democratises transactions and value transfer. All of this is expected to be done almost free, immediate and in real-time.

Banking, as the “lubricant of industries” will be changed in as many ways as society is changing. It isn’t just about replacing various banking activities with FinTech alternatives. It is about redefining what banking is, what it does, and where it can – and can’t – add value to society.

Lessons from other Industries

The big disruption in the transportation sector is the arrival of on demand providers like Uber and Lyft. What could banking and FinTech learn from the success of these platforms? There are many good points to Uber:

Transportation and Motor Vehicles

- the user interface is simple;
- value is being delivered immediately;
- the customer feels engaged on a one-to-one basis;
- the client is always kept informed of the progress of their request / order / transaction;
- customers provide feedback and ratings of the driver, but also drivers do the same of them - this creates a mutually dependant service interaction



On the business backend Uber extensively analyses about how the customer engages. The lesson here is to get the journey right and the product purchase will follow.

Design Thinking

Travers Clarke-Walker, chief marketing officer of the international division of Fiserv says: "Think about how you use Facebook. You flick up and down until you see a picture that interests you. The really successful digital businesses are visually engaging."

Visual engagement is needed to capture the new banking clients. Visual triggers like icons must be used to simplify search and navigate. Banks need to create images that prompt human-to-digital interaction. Once customers are interested, they will interact beyond the simple transactional operation and generate more value for the bank.

Social platforms teach us that trust is no longer in third parties, but in the network platform. Facebook is about to roll out a payment system, just as Google, Apple and other tech companies have done. These are not banks, but they're trusted to transfer value on our behalf because users view them as platforms.

Healthcare



The healthcare sector has embraced the use of wearable technology - 10% of healthcare companies are investing in wearables. Fitness bands monitor everything from heart rates to exercise; clothing is able to keep you cool when you sweat; smart food matches your metabolism. Technology can not only make our lives easier, but collate data and prompt us to improve our lives.

This kind of wearable, contactless technology must make its way into financial services.

Barclays recently launched bPay, a wristband similar to the Fitbit, that offers exercising data and motivation. Currently bPay is simply another way of making a contactless payment, but there's no reason why such a product shouldn't prompt us to think about our financial goals on a day-to-day basis by offering data analysis about our spending.

These systems teach us the value of big data. **This** must become more than a buzzword, and start to convert into real, value-added personalisation of services.

Gamification

Financial services suffer from an image and “pleasure” problem - not many people look forward to thinking clearly or regularly about money.

Banks can improve the experience by using the principles of gamification as a means of motivating us where elements of game playing are used, whether through scoring points, leveling up or competing with others. Gamification may be used to change behaviour by offering points, or other incentives, that can be exchanged for non-financial products every time you use the digital, rather than the high street bank.

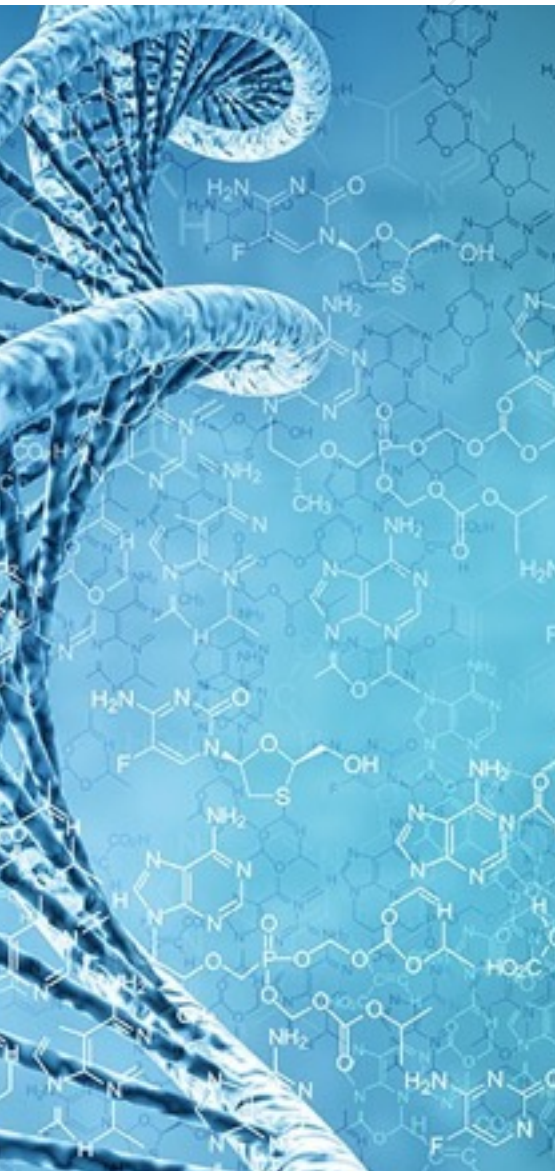
Gamification is being used more directly to incentivise appropriate behaviour change. Aviva’s Drive app (UK) or Discovery Insure app (South Africa) rate driving on a score out of ten, these are free to use and could save you money on your car insurance.

Pharmaceuticals

This industry has shifted its emphasis from cure to prevention and, like banking, has seen a huge rise in small, agile and well-focused startups disrupting the environment.

An increasingly vocal and more knowledgeable customer-base is demanding improved service based on outcomes rather than products. Big Pharma often has to bypass the doctors to speak to potential clients directly, and encourage a “pull” factor from the end users to ensure sales. As an analogy, this is scary for banks, since they would be the middle men that providers and users of capital would be trying to eliminate from the system.

Agile tech startups in the financial world are doing just this: disrupting the marketplace with cheaper and better options, while customers are voting with their feet and refusing to accept poor service or poor outcomes. The financial services sector will benefit from figuring out how to adopt a proactive “prevention” approach rather than reactive “cure” perspective.





A Platform for services

Many of the disruptors affecting other industries are disruptors precisely because they have not entered these markets with the intention of replacing the odd product here or there, but rather have focused on building entirely new platforms. In other words, the intention is not to take traditional offerings, products and services and find new ways to deliver them, but to change the way in which the customers receive the outcomes they're looking for, without delivering traditional services.

Alternatively they have developed platforms, such as Amazon.com who started out by creating a new way to deliver books to buyers. They quickly realised that their real value was to create a retail platform, where any willing seller can sell anything to any willing buyer. They choose to own the supply chain of some of the products, but by far the bulk of their activity is through third party sellers using their platform to sell and deliver products to clients. Banks of the future will do well to work out what platforms they can open up and develop.

Investec has created a portal as part of their Internet Banking offering that will consolidate information and allow users to manage hundreds of online accounts in one place, from other banks' accounts to frequent flier programmes. Lyndon Subroyen of Investec explains he wants their platform to be a one-stop shop for all transactional management.

What, then, should banks be doing?

Banks and Innovation

The 7th Annual *Innovation in Retail Banking Report* from Efma and Infosys Finacle surveyed over 100 retail banks around the world. The feedback regarding the role, priority and focus on innovation in the industry is enlightening and concerning, when it is this strategic activity that will direct banking's response to FinTech.

The proportion of banks with an innovation strategy (defined as having clear objectives, processes and measures of success for innovation) has increased from 37% in 2009 to 73% in 2015. When viewing the commitment to innovation from year to year, the proportion of banks increasing their innovation investment over the previous year was 15% in 2009, increasing to 84% in 2015.

That shift is significant, but of more importance is where that increased innovation may be directed, and whether it will produce results. The industry thinking seems to be that banks have to fear other banks — not FinTech startups. They therefore target their innovation strategy funding more towards their traditional products, rather than disruptive innovations. Like many other organisations, banks fail to generate meaningful innovation since they fail to focus effort and energy on creating a culture of innovation within their firms.

The current size of the FinTech sector indicates that banks still own the market and have a period of breathing room to adjust and respond. FinTech is disruptive, but has not quite disrupted the industry just yet. That said, to respond by increasing strategic innovation focus, but directing it at other banks rather than at FinTech ignores the rapid rate of growth in the sector and the increasingly imminent point at which FinTech, not other banks, becomes the most significant market competitor.

Banks are all similar in their approach to market, so innovation in this space is relatively simple because it is a competitive landscape that is understood. FinTech players are, however, more segmented and have a different value and supply chain. **Banking innovation is now being engaged with different rules and on a different competitive landscape - to invest in innovation assuming the rules are still the same will lead to bruising defeats and consequences.**

In an interview with Dirk Klee from UBS he observed that historically banks kill innovation. Coming from a technology rather than banking background he is using a process derived from car manufacturing for managing innovation at the bank. He has three teams in the business:

- He has a team building the bank for now
- Another team building the bank in 5 years
- And a third team looking at banking beyond 5 years.

UBS has Innovation Labs around the world trying to understand innovation and what they need to do about it. They make these spaces feel like non-banking so that they can engage with non-banks to get innovation input from alternative sources. Klee observes that the bank is opening itself up to new ideas - even if all of the ideas won't fit.

Innovation & Disruption Exhibit #1

The Uber of Banking is Uber



Uber

A recent Quartz (qz.com) article identified that up to 30% of Uber drivers in the US have never had a bank account. To be a driver on Uber, however, they need a minimum of a debit card to get paid. Uber has had to solve this problem by allowing drivers to sign up for a bank account as part of the Uber driver application process, in real-time, making Uber the largest acquirer of small business bank accounts in the United States today, bigger than Wells, BofA and Chase combined. Uber is offering car leases to its drivers, allowing drivers without vehicles to sign up for car financing backed by demand from Uber. This is what the new banking experience looks like for small business entrepreneurs.



Innovation & Disruption Exhibit #2 - Bye Bye Credit Cards

By downloading our credit cards to our phone, it will no longer be a credit or debit card. Consequently, it no longer needs to have the same properties as those 'physical' products. How we use a credit card today is being redesigned for a real-time world. You may still sell credit, just not 'card'.

Loyalty rewards may remain useful only if they are contextual and *immediately* relevant — i.e. offer me a discount for something you *know* I want to buy, but only when I walk into the store that is selling it. Millennials won't be sold on delayed gratification on airline miles when they realise they can probably get a better deal buying the ticket directly instead of through very expensive airline miles.

Innovation & Disruption Exhibit #3 - When your self-driving car has a bank account

While owning a car will definitely be an option in the future, many Millennials and those who follow them may opt to participate in a sharing economy where ownership is distributed, or where self-driving car time is rented. On any given day the self-driving car, calculating an approximate 3.5 hour window before it will be required by its owners, logs in to Uber and makes itself available for a 3-hour block as a self-driving resource. It is immediately called out to a pickup, and after 3 hours has earned \$180 in fees, which it puts away in its wallet. The wallet in the self-driving car is not linked to a single individual owner, but a collective account. Any earnings offset ownership costs, energy costs, parking and registration fees, etc. The owners merely top up the self-driving car's own wallet on a monthly or weekly basis as required.

Innovation and the future of banking is about putting money in the lives of our customers with minimal friction everyday. That means banks have to come to terms with the fact that innovating around better ways of doing manual intermediated processes will not work. Anytime we stick a piece of paper in front of a customer it is pure friction, and it won't allow us to execute revenue or relationship on a mobile phone, iPad or in a self-driving car in the moment. Paper and signatures have no future in the banking world .

In fact, many items and activities that banks consider to be part and parcel of what it means to be a bank have no future.



A long-exposure photograph of a city street at dusk. The foreground shows a multi-lane road with light trails from cars, primarily in red and yellow. To the left, there's a concrete barrier. In the background, several skyscrapers are lit up against a twilight sky. One prominent building has 'HERMES' written on it. The overall scene is a vibrant urban landscape.

FinTech Areas of Major Activity

Key FinTech Categories



FinTech is not something that just banks need to be thinking about, nor is it only focused on the retail side of banking. FinTech can be categorised in many ways, with different analysts taking different approaches for different reasons. The FinTech Innovation Awards use the following categories, which are fairly useful as a basis for conversation:

- Corporate banking solutions
- Cyber-security and anti-fraud
- Data solutions
- Insurance
- Lending
- Money transfer (including forex)
- Payments
- Risk Management
- Trading systems
- Treasury management
- Wealth, Asset and investment management

We could also analyse the sector based on the expectations of disruption within the industry. Efma found that **'mobility'** and **'advanced analytics'** were the two most disruptive technologies that startups are working on, followed closely by **'open APIs'** (53%) and the **'Internet of Things'** (47%).

Efma found that banks expected startups to have the greatest impact in the areas of **payments** and **digital marketing**. Almost three-quarters of banks (71%) believed the impact will be high or very high in payments, with the greatest impact on **mobile P2P payments** (61%) and **mobile wallets** (54%).

Payments



Francisco Fernandez from Avaloq stated in an interview that 80% of FinTechs he's seen recently were presenting payment solutions - but only the top 5 were worth any interest. He believes that the hurdle that needs to be overcome is the integration of payment into lifestyle. Fernandez expressed the point that people don't get excited about financial transactions - they are excited by life events that have financial implications. The best payment is no payment, the best loan is no loan, i.e. the user is not confronted by the payment experience. When FinTech manages to achieve this then there will be significant disruption in the payments landscape.

Banking is one of the few industries where a customer's data isn't being used to their advantage, but rather in predatory ways to the customer's disadvantage to prop up a broken system. The recent past is littered with examples where the banking and financial services industries have taken advantage of their clients. Payments is an area where FinTech is stepping in to take advantage of this broken trust.

PayPal, Apple Pay, Samsung Pay, and now Android Pay are the bigger players in the payment segment. Apple and Samsung are known to have some issues between them, but they seem to share the vision for this market: both wanting users to buy products from stores using only a smartphone, without the need to use a credit or debit card.

“Banks must partner with FinTech and digital currency businesses or risk disappearing altogether.”

- Deutsche Bank, quoted in CFO Magazine, May 2016

Peer to Peer Lending & Crowd-Funding



One of the most significant disruptive forces in the world right now is disintermediation and the rise of the sharing economy. In financial circles, this is playing out as peer-to-peer financial products, where the intermediaries are being removed.

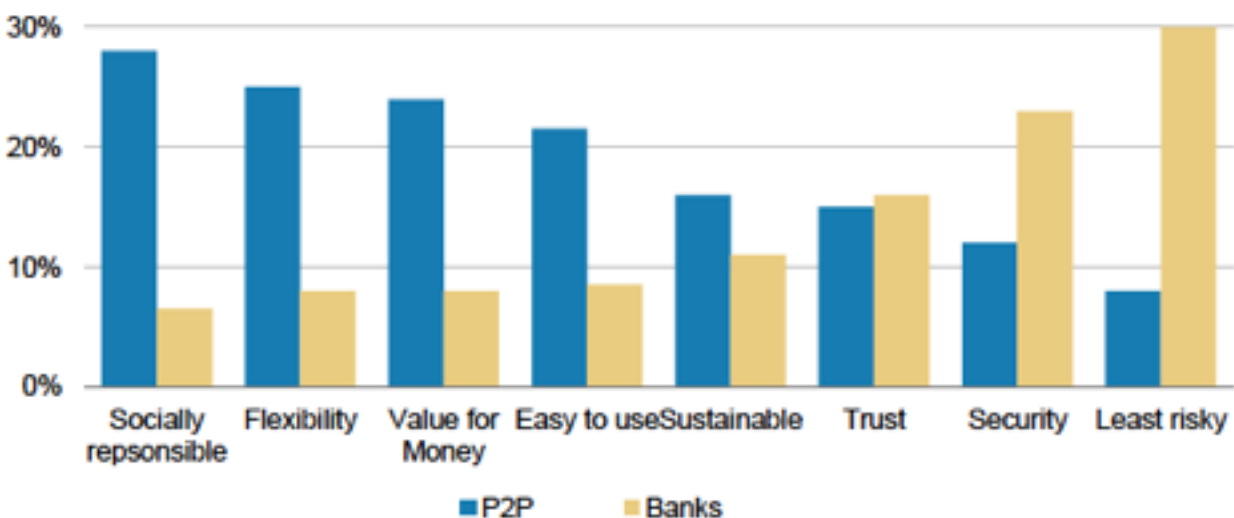
Standard & Poor's identifies one of the competitive factors in this area being that many FinTech companies operate on a marketplace model and don't hold risks on their balance sheets. That means they need relatively small amounts of equity compared to bank rivals to meet similar client expectations. They usually are able to operate outside of regulations, especially capital requirements.

Marketplace lenders' key advantages vs. traditional lenders:

1. They typically have lower operating costs than banks due to a lack of physical infrastructure and use of technology to drive process efficiency.
2. They can offer “lenders” (i.e. consumers or institutions who provide funding to lend money to borrowers) a higher net yield than what they can currently earn from banks or government bonds.
3. Lack of capital requirement, as they typically do not hold any residual interest in loans that they originate.
4. They typically utilize more data points in their credit scoring algorithm, which may allow them to approve loans that traditional lenders do not have the ability to underwrite.
5. A simpler and more efficient application process relative to traditional financial institutions. The whole process takes place online, with minimal human interaction and credit decisioning in minutes.
6. Lower overhead costs are passed on to borrowers in the form of lower interest rates, although it should be noted that most marketplace lenders are currently not profitable due to lack of scale.

UK: P2P platforms are seen as good value and easy to use vs. banks, but less secure and higher risk

Public Perception: P2P versus Banks



Source: The UK Alternative Finance Industry Report (Nesta 2014), Morgan Stanley Research

Marketplace lenders' key disadvantages vs. traditional lenders:

1. Lack of long-term track record for investors as most platforms have been around for less than 5 years and haven't been through a credit cycle; those that were around during the last financial crisis were too small to draw any meaningful conclusions.
2. Unclear regulatory framework in many regions given that marketplace lending is a relatively new phenomenon.
3. Pure marketplace lenders do not have a deposit base or committed sources of funding. If loan losses spike during a credit cycle, it could deter investors from lending on the platform and revenues could plummet overnight given the heavy reliance on transaction fees.





Blockchain (shared, distributed digital ledgers)

Blockchain is clearly an important technology for banks to consider, as it is changing the way we verify and transfer items of value and can be used to record the exchange of anything that holds value. In fact, one couple has already recorded their marriage using the blockchain. Dee Hock the creator of Visa has said that blockchain is not just the future of money but the future of governance because any contract can be irrevocably stored on it. Blockchain can revolutionise mainstream finance by ripping out huge amounts of processing cost. Cutting out the middleman makes things faster and cheaper, so banks are desperate to find a way to adapt the technology to traditional finance.

The blockchain records where a cryptocurrency (e.g. bitcoin) is at any given moment, and thus who owns it. From a similar perspective the blockchain can also be used to record the ownership of *any* asset and then to facilitate trade in that asset.

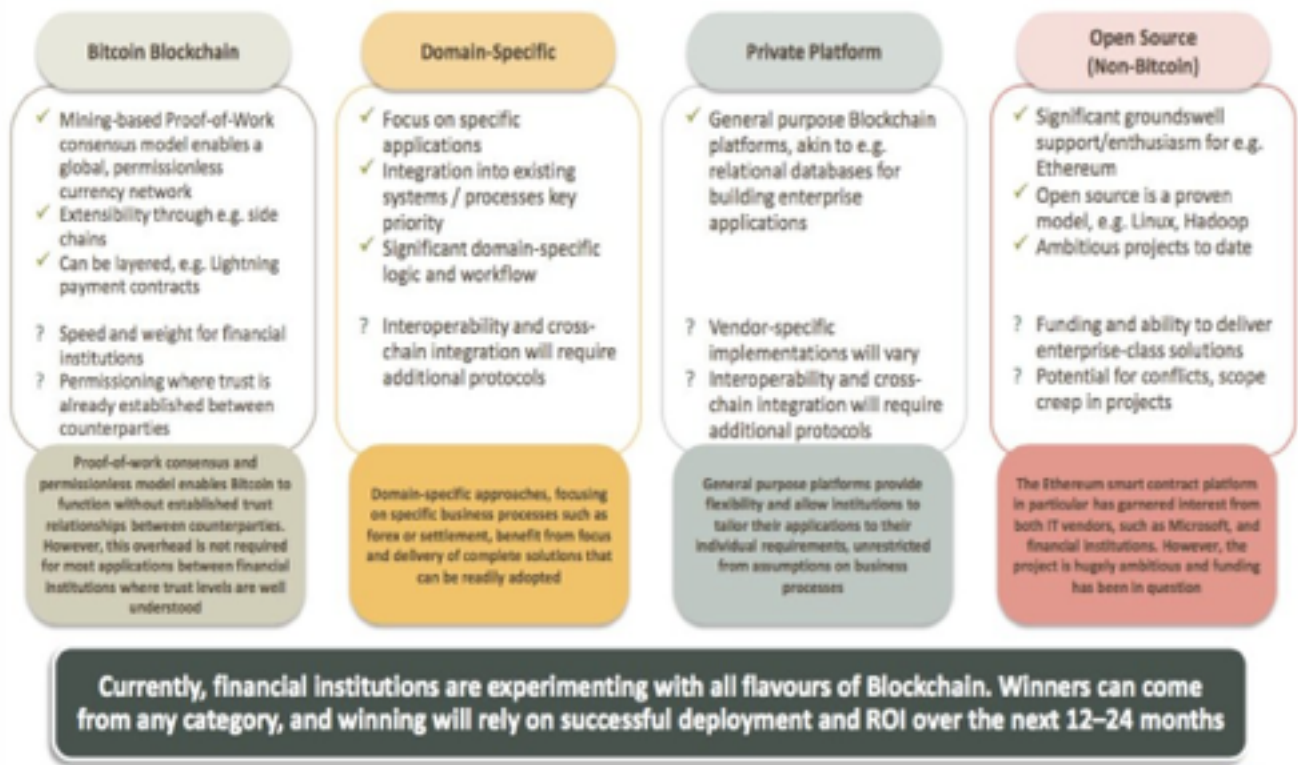
Blockchain tech may be developed in automating contracts. These blockchain facilitated interactions are being called 'smart contracts'. The conditions related to the contract can be encoded in a blockchain and all the resulting actions automated. A smart contract automates the rules, checks the conditions and then acts on them, minimising human involvement - and thus cost.

Jeremy Millar from Magister Advisors presented a report saying that almost \$1 billion has been invested in bitcoin and blockchain-related technology over the past three years. One of the drivers behind this is that: "The business owner gets to release capital — this is very important. With the new regulations, post-2008 and Basel III, the collateral and capital that's required against any trade has increased. Reducing the settlement windows allows the banks to do more trades or release more capital."

"This is the bank's internet moment," Millar says. "This is their moment in the sun. All of a sudden being a CTO (chief technology officer) or director of information at a bank is sexy."

Money requires trust - trust in central banks, commercial banks, other large institutions, trust in the paper itself. The US dollar bill bears the words: 'In God we trust.' Bitcoin enthusiasts are fond of saying: 'In proof we trust.'

BLOCKCHAIN 'FLAVOURS'



Source: Jeremy Millar Magister Advisors Report: Blockchain and Bitcoin in 2016. A survey of global leaders. Dec 2105

Blockchain tech can prove authenticity or ownership. The most important thing that blockchain tech will authenticate will be you. At the moment, we use a system of usernames and passwords to prove identity online and offline. It is high friction and prone to fraud and abuse, which blockchain will not be.

From identity, blockchain can secure your reputation. Online reputation has become essential to a seller's business model. Once your online reputation can be stored on the blockchain everyone will want a good one. This reputation will support all online transactions allowing all parties to know each other's respective levels of trustworthiness.

We are also seeing the development of new voting apps. The implications of

this are enormous. Elections and referenda are expensive undertakings - the campaigning, the staff, the counting of the ballot papers. Soon voting via your mobile phone will be possible, in a way that is 10 times more secure than the current US or UK systems, at a fraction of the cost and fraud-free. What's more, you will be able to audit your vote to make sure it is counted, while preserving your anonymity. Not even a corrupt government will be able to manipulate such a system, once it is in place.

The revolution will not be televised; it will be cryptographically time-stamped on the blockchain. The blockchain, originally devised to solve the conundrum of digital cash, could prove to be something much more significant.

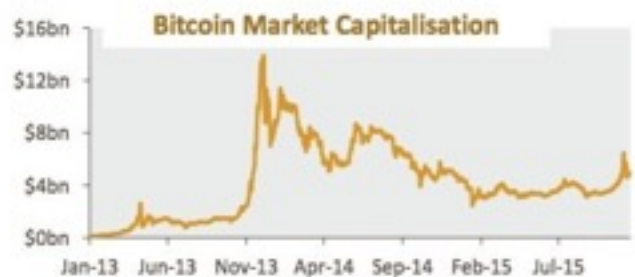
Cryptocurrencies and Digital Cash

The most highly visible use of blockchain tech has been to create a digital currency, bitcoin. This currency's usage and adoption has been slowed by regulatory problems—particularly in the US, but these are easing, with regulators in New York leading the way. Ultimately, bitcoin can still provide a much cheaper and simpler way of moving money from

place to place, particularly as a consumer or business moving it across international borders or a retailer accepting payments from online buyers. Even with these constraints the usage has hit a record high, and in December 2015, compared to the same time a year before, the average number of daily transactions more than doubled.

BITCOIN: 6TH LARGEST RESERVE CURRENCY BY 2030?

#	Currency	Total FX Reserves \$B (COFER)	% Reserves
1	\$	4,250	65.8%
2	€	1,367	21.2%
3	£	313	4.8%
4	¥	255	4.0%
T-5	C\$	128	2.0%
T-5	A\$	128	2.0%
6	SFr	20	0.3%
-	B	5	n.m.



'Adding Bitcoin to the reserve portfolio of the central bank would not significantly increase volatility, but could provide opportunities to offset exchange rate depreciations against major currencies such as the Pound and the Euro. In addition, the appreciation in the value of the Bitcoin portfolio (in US dollars) would have also generated a significant return for the Bank.'

– Central Bank of Barbados Working Paper, Nov 2015

Becoming the 6th largest currency globally is well in sight, given the sharp drop-off outside the top 5

Source: International Monetary Fund, Currency Composition of Official Foreign Exchange Reserves (COFER), Blockchain.info

Note: Data as of December 2, 2015

Note: (1) Total Allocated Foreign Exchange Reserves at Q2 2015 was 4,249,907 USD

Robo-Advisors

The Millennial market raises new challenges that need to be addressed in the financial advisory sector. A Merrill Lynch survey polled 153 investors aged between 18 and 35 in 2013, and found that Millennials have been reluctant to start relationships with investment professionals, whom they tend to view as "salesmen." As clients Millennials have not been great prospects because the average millennial is low-income, low-net-worth and generally of low interest to wealth advisors.

One of the central selling points of robo-advisors is that Millennials are internet savvy, have a DIY attitude, and a toxic mistrust of more traditional wealth advisors and financial services firms. This mistrust is the product of the two major financial crises they've experienced in their lifetime. They harbour a level of mistrust for the financial brands their parents revered. They viewed the big banks as inherently evil, and perilously self-interested.

A recent report conducted by Salesforce suggests that the majority of Millennials actually prefer having an advisor. 81% wanted their advisor to either manage their money completely independently, or collaboratively with them compared to 86% for Gen-X'ers and 89% for Baby Boomers. The number one reason Millennials gave for firing their advisor was high fees.

The advent of robo-advisors also offers a new way of accessing the lower end of the market, not only Millennials.

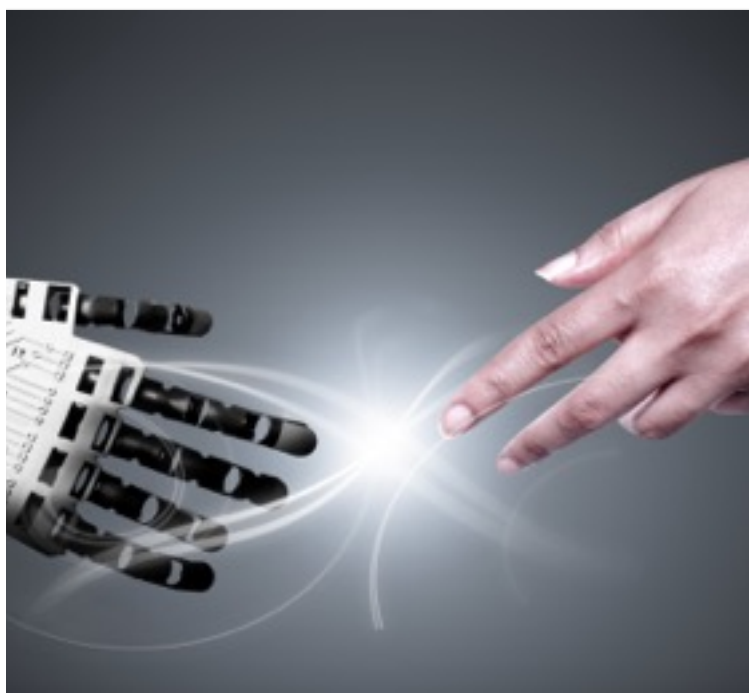


The FCA in the UK published a report on the local market for financial advice. The report noted a few areas that robo-advisors will leverage, and are leveraging, in order to create a market.

- **The gap in the advice market.** The FCA's report notes that two-thirds of financial products sold in 2014/15 were "non-advised", and that 34% of people who had bought a financial product without advice later regretted the decision.
- **Firms focus on higher net-worth customers.** Providing face-to-face financial advice is expensive for firms. This makes it hard for those with fewer assets to get advice.
- **Technology can help.** Robo-advice and other FinTech innovations can lead firms to offer advisory services to demographics that would otherwise be unprofitable.

Dirk Klee from UBS noted in a recent interview that he spends 30% of his time on technology. He buys the Bitcoin / Blockchain trend, but less than 3% of his time is allocated to it. He instead has a specific focus on Robo-advisory. Klee believes that automating the existing value proposition will enable them to come out with a unique value proposition from UBS.

Ivo Furrer from Swisslife sees challenges from this technology in the insurance / assurance market. From his perspective one of the opportunities is that robo-advisors will allow clients to move to "bank-similar" products offered by the industry. This is needed as low interest rates in markets in the EU has meant that traditional life insurance came under pressure.



In the short-term, we don't believe that robo-advisors will completely replace the traditional advisor. A likely scenario for the near future is a hybrid model where they will sit alongside human intermediaries to provide an optimal mix of technology and human intelligence. The future of advice, though, will become increasingly digital with the human role taking on a new / revised function.

Insurtech



Much of the hype in the FinTech world and technology innovation in financial services has to do with banking, which is where most FinTech disruptors initially focused. **The insurance industry is also beginning to experience disruption.** Goldman Sachs believe this is the key focus for much FinTech activity in 2017-18.

Insurtech is mainly disrupting the market in its approach of the client. Analysts of the sector have identified a few ways in which this disruption is coming:

- **Peer to Peer Opportunities** - using another person, or group of people's money to cover your risk.
- **Short-term on-demand cover** - being able to get cover via your mobile device for just the period you need it, in some cases as briefly as an hour. So, if a friend borrows your car you can purchase extra cover only for the period of time during which it is out of your hands.
- **Data relevant cover** - using information provided wearables and other sources of personal data cover and risk parameters are actively adjusted and managed to provide just what you need, when you need it.
- **Linking various policies and products together** - a client's healthcare policy information will inform their life insurance cover both of which will be impacted by and will elicit impact on their short term cover. All of this linked to specific information relating to the customer's exposure and risk dependent on what they are doing at the moment.

A client may elevate their short-term exposure because they have gone out for an evening run on busy roads, but their health and life cover will be de-risked because of the benefit of exercise. Through a brief stressful work period they may be office bound and spend more time at their desk, their short-term risk cover will be adjusted down, but the readouts from the wearables related to stress will adjust their life cover risk upwards. After a few days of not exercising their healthcare risk will be adjusted to reflect the extended time seated and immobile.



Start ups

The highest perceived threat to banking is from tech companies like Google and Apple with 45% of banks rating the threat as a high or very high threat. The second highest threat is perceived to come from startups (41% of banks regard the threat as high or very high), even though even the largest of these firms still lacks significant scale.

Efma found that 'mobility' and 'advanced analytics' were the two most disruptive technologies that start ups are working on, with 59% and 57% of the respondents believing the disruption level was either 'high' or 'very high'. These were followed closely by 'open APIs' (53%) and the 'internet of things' (47%).

Efma found that banks expected startups to have the greatest impact in the areas of payments and digital marketing. Almost three-quarters of banks (71%) believed the impact will be high or very high in payments, with the greatest impact on mobile P2P payments (61%) and mobile wallets (54%). Close to two-thirds (65%) expected the impact to be high or very high in digital marketing.

The Third Wave of FinTech



The next stage of development in FinTech will be partnerships between big banks and startups, according to Jeff Gido, Goldman Sachs's Global Head of FinTech in the investment banking division.

He suggests that the first wave was when regulatory changes, new technology and changing consumer preferences drove the big investments.

"After the financial crisis, new laws made some businesses less profitable for banks, creating opportunities for tech-enabled lending and other services to fill the void. At the same time, big data, cloud computing and growing wireless usage made it easier for startups to jump in ... and millennials [used technology] to bypass the complexities, processes and delays of dealing with traditional financial services," he said at a company event in September 2016.

Gido believes that we are currently in the second wave of FinTech development, where "incumbents are using their brands and infrastructure to remain competitive with the startups."

However, the third wave of development is about to begin, and will be focused on partnerships between established players and FinTech startups. An increasing number of FinTech startups are already focusing on B2B models, with the goal of selling to and partnering with traditional financial services players. They want to take advantage of the existing vast customer base as they offer up their own nimble, innovative technology.

A window of opportunity is open for banks to partner with (rather than buy up) key startups. The B2B space is the place to look or these opportunities.

A photograph of two men in a bar setting. One man, wearing a white long-sleeved shirt and glasses, is standing and holding a tablet computer. He is showing the screen to another man who is sitting at a wooden bar counter. The man sitting at the counter is wearing a grey t-shirt and is looking at the tablet with an engaged expression. The background features a dark wall with a chalkboard menu and a modern, geometric pendant light hanging from the ceiling.

Profile of the Digital Landscape, Employee and Customer



Value and Trust

Why will an industry and part of society that has been functioning “effectively” for generations be disrupted in the near future? With banking and financial services so intricately woven into the fabric of society surely the systemic risks will act as holding forces against radical change.

Before the global financial crisis of 2008 the views expressed above would have held true. People were largely ignorant of the machinations inside the box of the financial services sector and were comfortable with the output delivered and achieved. And then everything fell apart.

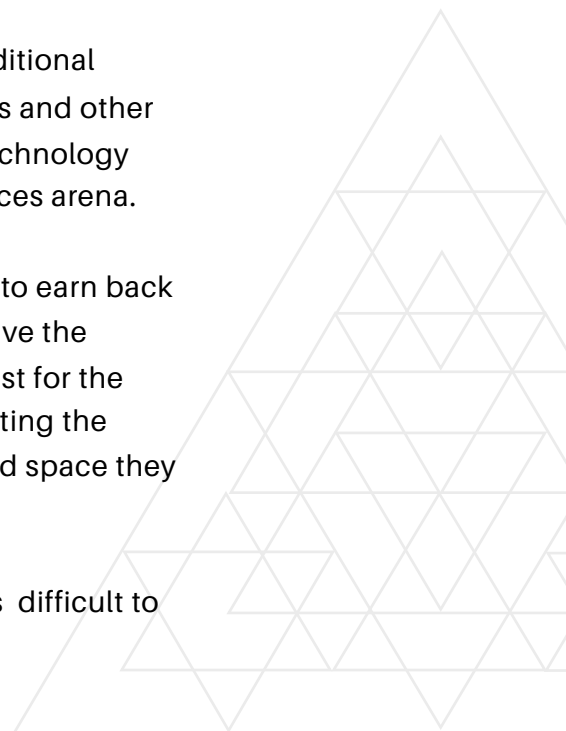
Now the perception is of a corrupt, greedy and self-serving industry. Millions of people around the world lost jobs, incomes and homes; while bankers received bailouts, payouts and bonuses and seemingly learnt no lessons. In the process, they eroded the last vestiges of trust that the market and customers had in the sector.

Initially there were few options and alternatives available to customers, but they waited and in the past few years the FinTech industry has become a light at the end of the tunnel. The light holds out two elements needed by the market:

1. **Trust** - Many of the FinTech players are not from the traditional financial services sector, rather from tech, mobile, retailers and other areas. These are innovators who have developed great technology that they just happen to be applying to the financial services arena.

It is easier to earn trust that you have never had, than it is to earn back trust that you have lost. The emerging FinTech players have the benefit of being in the former space. In the absence of trust for the incumbent financial services players, customers are crediting the FinTech innovators with that trust, along with the trust and space they give to promising new ideas.

The financial services sector has lost so much ground it is difficult to imagine how they will recoup it.



2. **Value** - The financial services sector has built the industry on being effective and useful brokers/intermediaries of financial transactions between parties. Through perceived greed and arrogance, they have undermined any sense of value that they may add - the sector is seen as a necessary evil rather than a valued partner.

The FinTech sector is dis-intermediating much of what it touches. The value proposition of a significant number of players is the platform they provide for the parties to directly connect with each other in a value transaction. Payment is for the use of the platform not for the broker services provided. The customer can see a direct connection between value and payment.

Many financial services organisations are watching the FinTech sector with an acquisition lens - looking to snatch up the most promising players. The problem is their view to incorporate them into the same business and operating model as the rest of the industry. This will not work. **The historical business model of the financial services sector is broken and increasingly irrelevant to the digital age.**

Digital customers will follow organisations and innovators who restore their trust, and offer them real value - since little in the current ethos accomplishes either, and the fault for that lies firmly at the feet of those in the industry who have treated their customer like ignorant sheep to be fleeced rather than valued investors to be nurtured.



New Banking Customers Are Digital Customers

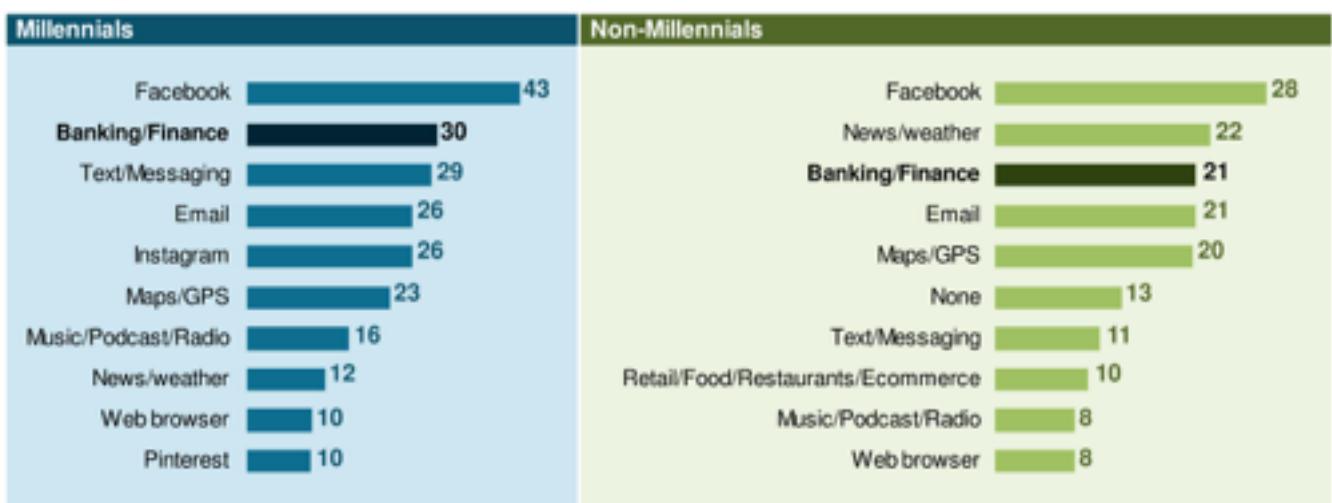
All information and discussion of FinTech and banking activity and machinations is irrelevant if it isn't addressing a need or expectation in the market. What does the modern digital customer and marketplace look like? An understanding of this shift enables intelligent interrogation of the options available for response by those needing to address FinTech disruption, or move on FinTech opportunities.

By 2026, it is estimated that between 33% and 50% of finance employees will lose their jobs to automation software, because Artificial Intelligence (AI) platforms are able to do analytics work — previously an artisanal skill within Wall Street — at high speeds. Activities that used to take minutes when done by the best individuals take seconds with AI. Searches that took days, from people who were making an average of \$350,000 to \$500,000 a year, will now take minutes.

Millennials can't live without social media & banking apps

What are the apps you can't live without?

2015, top 10 mentions; % of responses



Source: Capital Millennial Finance Survey



Artificial Intelligence and Retail

To understand the imminence of the impact of AI it is important to consider Google's huge AI victory in the game of Go in early 2016. Brown University computer scientist Michael L. Littman explains that in any game with fixed rules, computers will win. "What we're finding is that any kind of computational challenge that is sufficiently well defined, we can build a machine that can do better," Littman says. "We can build machines that are optimised to that one task, and people are not optimised to one task. Once you narrow the task to playing Go, the machine is going to be better, ultimately."

FinTech innovators are building machines better optimised for certain types of white collar finance work, and they will shift the employment landscape in banking forever.

Swiss bank UBS polled 1,117 Millennials and Gen X investors in December 2015. Millennials were much more likely to say they trusted "their gut" and least likely to stick to an investment plan. They are most likely to say they will take on risk, they actually take on the least. Millennials favour fast, convenient consumer credit.

In the West e-commerce companies piggybacked on an existing infrastructure of shops, banks and logistics firms. In India and China the game being played by the e-commerce pioneers is *leapfrog* where they're using big data, their consumer-focused mind-

set and a vast network of retail contacts (both buyers and sellers) to take on traditional

products and markets. Alipay, for example, is an arm of Alibaba, which overcomes mistrust between buyers and sellers by holding customers' money until they have safely received their goods. Something similar is under way in India.

EY found that early FinTech adopters tend to be younger, higher-income customers. Respondents between the ages of 25 and 34 years old used at least two FinTech products in the past six months (25.2%), followed by those aged 35 to 44 (21.3%), and those aged 18 to 24 (17.7%).

- Payment services have the highest adoption rate among FinTech products in the markets surveyed (17.6%).
- Savings and investments is the second most-used category (16.7%).
- Insurance services, including health premium aggregators and car insurance using telematics (7.7%), and online borrowing through peer-to-peer websites (5.6%) are among the less commonly used services by respondents.

The digital customer

Millennials have taken on more debt than previous generations and are earning less income, but at this point they still obtain bank accounts and handle their finances like everyone else. The numbers show, however, that Millennials are not satisfied with banks and prefer mobile banking (financial and banking apps are the second most important apps on Millennials' phones).

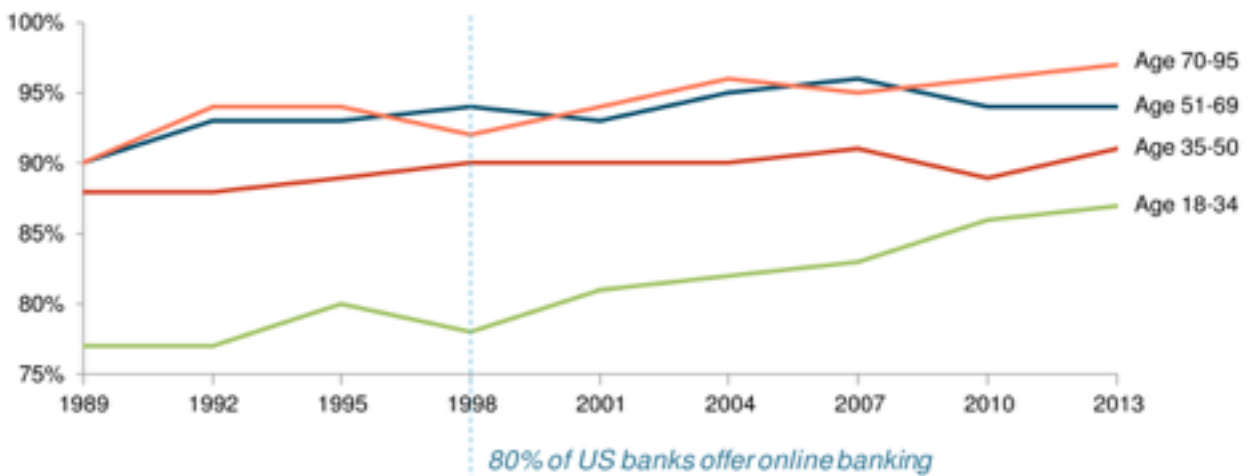
Millennials are very open to investigating the options FinTech presents with 15.5% having used at least two FinTech services in the past 6 months. Payment services are at the top of the heap at 17.6%. Savings and investments come in at number 2 with 16.7% utilisation.

Ease of use remains one of FinTech's key selling point. Lack of awareness or knowledge of services is the single largest hurdle to greater adoption.

The latest 18-34y cohort is more banked than ever

US HH's with checking account by age range

1989-2013, %



Source: Fed Survey of Consumer Finances 1989-2013

Student Loan Refinancing

A major area of debt carried by Millennials is student loan debt. The outstanding student loan debt has now reached more than \$1.3 trillion in the U.S., and continues to grow faster than GDP as tuition costs increase and young employees have trouble paying down loan balances.

As more loans enter the repayment phase, more loans are potentially eligible to be refinanced to a lower rate and companies are looking to profit. SoFi, the largest student loan refinancing lender, was able to secure \$1 billion in Series E funding in 2015.

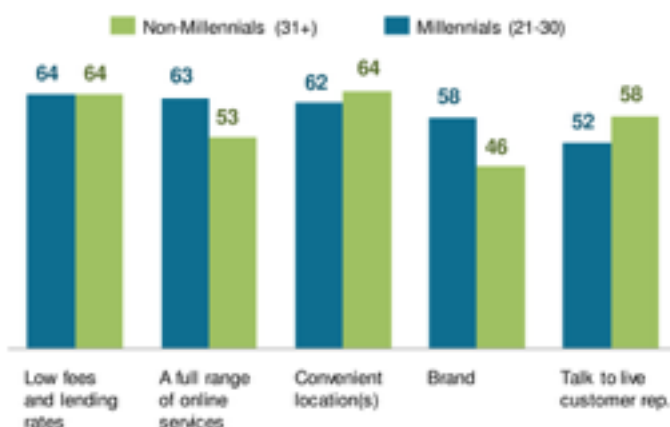
Lenders SoFi and CommonBond have started connecting institutional investors with mispriced student borrowers, taking advantage of their more effective intelligence and qualification processes to cherry pick the highest quality borrowers with strong credit and high income.

This area of financial activity is a significant green fields opportunity. FinTech players who are more connected to the pulse of digital customers are taking advantage of the opportunity. In the process they are stripping out the best Digital Native customers, and leaving the dregs and least profitable on the books of the banking competition.

They pick banks mostly like we all do

Attributes to decide checking account institution across age groups

2015, % of response avg. > 50%



Millennials value certain attributes differently

More Valued

- Full range of online and mobile banking
- Recommendation from friends / family
- Brand
- Good promotional offers

Less Valued

- Personalized service
- High deposit and savings interest rates

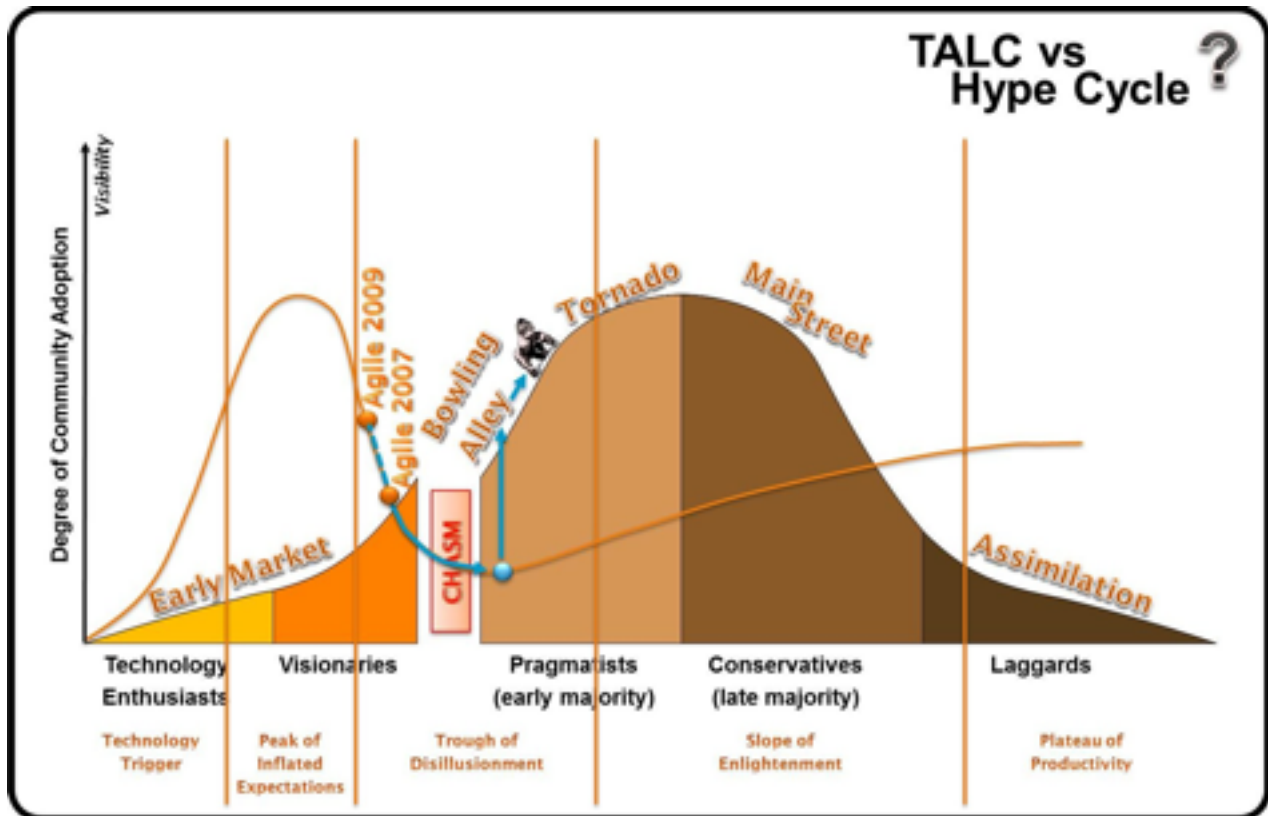
Source: Foundation Capital Millennial Finance Survey



**Concluding
comments and
observations**

FinTech and the Innovation Cycle

Geoffrey Moore identified the Innovation Lifecycle, which is a useful reference point to understand the current and near-term probable future of FinTech and money.



Source: <https://ullizee.files.wordpress.com/2010/09/grafx-agile-on-the-hype-cycle-vs-talc-2010.jpg>

We recognise several stages to the lifecycle of any innovation, but the most critical part of the early cycle is the CHASM. This is the point at which many good ideas die because they have not managed to cross into main stream thinking or usage. We all know of ideas that were set to change the world that never reached their potential because they just seemed to die - this is the effect of the innovators chasm.

The diagram above shows an additional orange line that tracks the "Hype cycle" surrounding a new innovative idea. The most hype around a disruptive innovation is at the point just before it has to cross the chasm. From the peak the hype dips into a trough where reality sets in and degrees of disillusionment dominate.

At the moment, FinTech is following many other earlier tech disruptors and is rapidly reaching the peak of its hype. Significant cash and investment inflows are coming into the sector - some of which beggar belief. Most of the unicorns (companies valued beyond \$1 billion) in the sector have yet to return a profit, yet their valuations are sky high. There is even talk of a FinTech Bubble developing, much like the dot.com bubble of the 1990's. So much excitement about the potential of the innovation, and in some cases not a lot of common sense.

FinTech and the Innovation Cycle

The innovators chasm looms for the FinTech industry and the future of money, but what will this mean?

1. **The FinTech bubble is going to burst in the near future** as many of the promises, aspirations, and unrealistic hopes foisted on the sector are seen to be unobtainable. Market values will plummet and many of the marginal players will go out of business.
2. **The remaining players will begin to consolidate;** with some acquisitions but also the failing companies selling patents and other intellectual property to recoup value. However it happens, fewer, more secure players will remain in the field.
3. **Other systemic innovations and disruptions will be incorporated into the FinTech and Money space.** Artificial Intelligence and Machine Learning, Quantum Computing, Virtual and Augmented Reality, these and other areas will merge with FinTech concepts to create a whole new way of managing and working with money and financial value.

The net effect of the innovators chasm is that the products which will eventually achieve mainstream acceptance will be unlike the FinTech and money products we are discussing today.

At the current rate of change and sector activity and interest we anticipate that the chasm will impact the FinTech sector within the next 24-36 months. With mainstream relevant products emerging within 48-60 months. What we are effectively saying is that much of this activity will happen within most organisations' current strategic cycle.



Concluding Comments and Observations

It is tempting to read through this paper and decide that it remains safe to carry on with business as usual, and delegate the FinTech response to a small group of individuals with the goal of responding through acquisition when the itch turns into a stinging sensation.

Given how fast FinTech and consumers change, incumbent financial institutions cannot afford to ignore FinTech, or take a wait and see attitude. A bold response to the FinTech challenge is within reach of banks, no matter how slow they have been in the past - we're working off a relatively clean slate. It's going to take internal adjustments to systems and structures, and most likely some partnerships with external firms to develop innovation, positions of strength, and the ability to deal with issues, no matter what new innovation is waiting around the next corner.

As Strategy+Business put it: "You might not know precisely what the financial industry will look like in the coming years, but you will be certain to be in the middle of it."

Delaying responses to FinTech is the worst possible action. Yes, FinTech's impact is currently small with its profile in the media belying the actual size of the sector. Banks will do well to consider nature though. The deadliest creature in the world is not the lion, shark or elephant - the animal responsible for the most human deaths each year is the mosquito.

Which FinTech player is your mosquito, irritating and making more noise than its size would indicate but carrying within its proboscis the elements of your downfall?





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