

THE BOOK ON OPENING BANKING

A series of essays on the next
evolution of money

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Your thoughts?

What follows is a first pass. There's more to come but we feel like, in its current state, we've covered the main bases.

That said - we don't want this book to just cover the main bases. It's meant to be the definitive resource on Open Banking and to get there, we need your feedback.

Where are we missing content? What do we need to spend more time on? Are there sections of the book that we could spend less time on or look at differently?

If you have thoughts and you'd like to share them, please get in touch by emailing us on:

sam@thisisbud.com

Foreword

by Ed Maslavecckas.

"This miracle of me is mine to own and keep, and mine to guard, and mine to use, and mine to kneel before."

- Ayn Rand, Anthem

Information is power. The more fundamental the insight it grants, the more powerful it can be and the most fundamental, the most powerful information we all have access to is that which answers a simple question - who are you?

It's no coincidence that throughout history, newly installed rulers looking to consolidate power would routinely conduct a census. From India in 300 bc, Galilee in the year 6, to the Domesday Book in 1086, the owners of the answer to the question "who are you" have been in a position of immense power and in a modern connected world that demarcation between empowered and disenfranchised is no less distinct.

Facebook is powerful because it knows who you are, your banks are powerful because they know it too, technology companies are willing to lose billions on wearable tech because they know that at the end of the rainbow, there's another perspective that they can capitalise on.

It has taken a long time for this simple idea to filter down into the public consciousness. We've been giving away our data in return for minimal value for years. But that is finally changing. Across the world, people are taking control of their identity and the data that it encapsulates, they are coming to their own conclusions about its value and they are harnessing its power to improve their lives. Open Banking is a symptom of this cultural shift, it is just one of many symptoms but its impact on our financial lives will be profound.

This book is designed to cut through the technical quagmire that permeates Open Banking discussion at present and to outline the cultural, technological and economic themes that have come together to bring us to this point. Through an understanding of these we can start to set Open Banking in its proper place, to see it for what it is and to make the most of the opportunities that it presents, both for our economy and our society.

I hope you enjoy it.

Ed.

Contents

Part 1: Drivers of change.

1. Opening letter:
- 2 Conversations about Open Banking 8
2. The pursuit of connectedness 13
3. Designing happiness 22
4. Freeing the pigeon 29
5. Short read: The evolution of trust 39
6. Short read: Information and creativity 43
7. Open and secure 49

Part 2: New models

8. The economics of platforms 59
9. Open banking and the banks 71
10. Banking as a platform 85
11. About the authors 99
12. References 102

Part 1:

Drivers of change

1.

Some opening thoughts on Open Banking

- Chris Skinner

Another day, another conversation about Open Banking, and an interesting point raised by a bank. They said that they had been mapping financial moments for their customers - getting married, buying a house, having a baby, crashing your car, etc - and had started to reimagine the whole customer experience in those moments using APIs.

A good example was the car crash. Today, you'd call your insurer (if you could remember who they were and what their number was), maybe the police (if your phone had enough juice) and probably your nearest and dearest. But what if the car could tell the network what had happened? What if it could tell the tow truck to come, inform the insurer automatically, order you a taxi (or ambulance if needed) and arrange for a replacement vehicle to be delivered to your home that evening?

"API: Application Programming Interface. APIs are sets of instructions that allow two computer programmes to send and receive data from each other creating "If x then y" effects. Twitter's API, for example, allows people to (amongst many other things,) post tweets from different apps. The apps send the tweet text to the Twitter API and the API publishes the tweet to the twitter platform."

Wow! But it's not a wow really. It's just being clever with today's technologies. Recognising that cars are on the internet and can self-diagnose. Through the same process, and the fact that they are on the net, they could build in all these others features reasonably easily. In fact, your car will not only self-drive soon, but will arrange its own sick days to get parts sorted out and tell insurers what's going on directly.

I loved the sound of all this and the fact that this bank - a

Nordic one - had started to think out-of-the-box thanks to PSD2 and Open APIs.

Then I came back to my reality.

Another discussion followed talking about small business needs and I explained that I'm a small business. What has my bank done for me lately? Not a great deal to be honest. They never give me advice, call me proactively or tell me how I can run my business smarter with Xero or something like it.

"PSD2 (the second EU Payment Services Directive,) enables bank customers to use third party service providers to manage their finances. At the customer's request it obligates banks to provide the selected third party with access to the customer's data through APIs"

Nope. In fact, I don't think my bank could give a rat's arse whether I'm with them or not, as long as I pay my fees and charges.

Do I care? Not really, they're all the same - I should know as I've banked with all of them - but it does strike me as beyond belief the lack of digital imagination these guys have.

For example, I bring up my banking app 3-4 times a day. The bank probably thinks that I love them given that I bring up their app so often. Well I don't love them at all. I'm just going into the app so regularly because, as a small business, I want to see if my customers have paid yet.

Then it struck me. Why is there no alert setting in the app to send me a push notification as soon as any money is added to my account?

The fact that banks focussed on highlighting fraudulent transactions or debits and credits for the last week just shows that their focus was to take old branch banking into an app, rather than thinking what new things they can do in a mobile environment.

It's a reason why I really like new banks like Metro Bank, who are at least trying to do things better. Case in point: you can't find your card - is it lost or stolen? Most likely, in this case, you think it's lost. Most banks then expect you to call them and tell them and they reissue you with a new card. With Metro, you just bring up their app and set the card to 'off'. This means it can't be used until you find your card and set it back to 'on' again, or request a new card. This is better for the customer - no writing off a bank card that's under the sofa - and for the bank - it saves them money.

This is where Open Banking should really start - it is all about customer focus. Switching is currently rare because the benefits are minimal and the cost in terms of process is awful - for example, the customer onboarding experience at most banks is horrendous. If we could simplify and take the pain out of that process through APIs, that would be amazing. The question then comes down to: how do you commercialise this? After all, if onboarding could be done like cheque capture via a smartphone camera capturing your face and passport and address, that is a commoditised service that no one wants to pay for, but everyone would use.

If you think getting people to switch between established banks is hard, how do you get customers to switch from banks to FinTech firms when they're not unhappy with the service they've got? The biggest switch movement came

around from Santander, but it was costing them a billion pounds a year with the 123 account. That's hard to maintain, which is why they've dropped it. People will switch bank accounts but, for a challenger digital bank, the real difficulty is in gaining their trust through usage to begin with. You start as a secondary account and then the challenger can use the API economy to give information enrichment. That's what Monzo does. Over time, as a user, you find that you're always using the challenger's app and so you start to ask why you are still with the old bank? It's only at that point you switch.

Honestly, how many challengers really want to challenge the big banks versus be acquired by them? They've seen Simple and Atom backed by BBVA, and many want the same end game: to be acquired.

But coming back to Open Banking, there is a lot of fear, uncertainty and doubt (FUD) about it. We saw that with the way the UK press all said you'd be hacked and defrauded if you allow third party access. It's obviously not true – why would a regulator bring in a regulation to make you less secure? – but the FUD works. For example, if a third party compromises your data, who is liable? Where is the burden of proof? Generally, it is with the bank. It's not just the media even the regulators can sound uncertain, GDPR – the General Data Protection Regulation – makes is a good example. How can you share all the customer data when the other regulation is telling you not to?

This was all driven by EU regulations for Open APIs around payments. The UK has gold plated the regulations, as usual, and made it into Open Banking, but let's go back to basics: does anyone want pan-European non-domestic banks? They haven't in the past, so what is changing now?

That's why we are hearing a lot about banks talking partnership and co-creation. Sure, there may be a lot more in the future, but true partnerships between FinTechs and banks are few and far between today. In fact, it appears that most banks are a bit confused about what's going on. Half of the major banks weren't ready in time for the PSD2 implementation, and many are asking where the business case for doing Open Banking is, especially if it demands

gazillions in core systems replacements.

This is the wrong question. What banks need to ask themselves is this: "what does it mean if we open ourselves up to data sharing through APIs and what does it mean if our competitors' banks do this?" There is a win:win here and, for some bankers, Open Banking presents a huge opportunity to challenge their traditional competitors and their new ones. It's all about *carpe diem*, seize the day.

In summary, there are a lot of things changing around the banks today, but little changing in the banks themselves. It is believed that Open Banking and Open APIs will change this, but it will be nibbling around the edges of the system. By 2025, the big banks will be leaner, faster and cooler, but they will still be the big banks.

2.

The Pursuit of Connectedness

- Tao Tao

Editor's note: Tao's chapter comes from the perspective of someone who has seen the development of Open Banking-like experiences in China up-close. It provides a brilliant insight into the development of new experiences, looking particularly at why those that achieved mainstream adoption won out. It breaks down these experiences into their component parts and compares those parts to the new suite of tools that are driving change in the European market.

This chapter is designed to see what we can infer about our own future from the experiences of the Chinese financial system. It is perhaps strange that we should begin on a battlefield in Pevensey, 11th century England but I'd argue that if we are going to look at the effect of Chinese technology on European culture, we should probably start at the last point when these two great histories could be reasonably referred-to as independent from one another

It is the year 1088 and William (the 1st) the Conqueror's youngest son, the imaginatively named William II, is in

the process of giving his elder brother a much-deserved thrashing. Paper is just arriving in Europe, though it is unlikely that it has reached England yet. The disputed will of his father (the cause of the fight in question,) is written on animal skin. The invasion fleet, launched from Normandy has found its way to English shores using the sun, stars and calcite crystals. The brutally effective weapons, probably the most advanced technology in play, are made of forged steel.

Meanwhile, 5000 miles to the east, a man called Shen Kuo, a Chinese scientist, artist, mathematician, engineer, author and statesman is putting the finishing touches to a work he called "the dream pool essays". It is an eclectic body of work covering themes ranging from swords to "strange happenings" via such topics as woodwork, astronomy and geology. What makes it stand out as a fitting point for the beginning of this chapter though, is the author's review of a number of technologies, already becoming established in China, that would go on to fundamentally change the history of Europe.

In this one book we find both the earliest known reference to the modern magnetic compass and the most complete description (of its time) of a system of moveable type. The compass would not be seen in Europe until around 1300 and the printing press not until 1436. Between them they comprise two of China's "four great inventions," the other two being the invention of gunpowder (10th century) and paper-making in its modern form (somewhere around the year 100 CE).

These inventions, in isolation, are worthy of considerable study, but it is the unifying themes that run between them that give them a particular relevance to this chapter.

The author Yuval Harari neatly outlines the historical role that the advent of modern banking, and in particular the concept of credit has played in reducing human conflict. In a world where credit, for the most part, didn't exist, it was almost impossible to believe in the idea of economic growth. It thus stands to reason that people believed there to be a finite amount of wealth in the world and leads to the inevitable conclusion that the only way to improve your

circumstances is to do so at the expense of someone else.

Seen through this lense, it is easy to see why the "four great inventions" were so important. They were technologies that, when harnessed, could dramatically increase an individual's chances of imposing his or her ideas on the people around them. The inventions facilitated, through a combination of persuasion, exploration and force, the greatest spread of cultural hegemony that the world had ever seen.

Fast forward a couple of thousand years and, whilst the world has changed beyond all recognition, China's role in it has remained as one of the great innovators. If we look at the original four great inventions from a position that acknowledges the spread of cultural hegemony as the most powerful tool available for the improvement of one's circumstances in a world in which there is assumed to be zero growth, it then makes sense to look at modern China's innovations with a view to understanding how they help people solve the same problem in the context of the modern world.

In a recent survey of students at Beijing's Foreign Studies University, students were asked to identify four modern innovations that they believed rivalled the original four in terms of their impact on daily life. They came back with;

1. the mass adoption of high speed rail,
2. the proliferation of dockless bike sharing schemes,
3. e-commerce and
4. mobile payments.

It is ironic that, while the original four were invented in China but delivered the bulk of their impact in Europe, of the four selected, none were first invented in China, in fact all four were European in origin. More accurately, their mass adoption in China has driven the technologies to new heights globally and placed China at the forefront of their development.

"Only 28 years separate the day when students from Stanford sold cannabis to their colleagues at MIT in what was the first ever recorded online transaction, and the foundation of Alibaba, a company growing so fast that between May and July 2017 it has added \$100bn to its valuation."

It's hard to say where high speed rail first originated. An experimental German train reached 210 km/h in 1903 but it wasn't until 35 years later that a regular service reached an average speed that topped 160 kph (the magic 100 mph mark that seems to define "high speed",) on a run between Bologna and Naples. What is not hard to say however, is where it reached maturity.

China's experiment with high speed rail began only 20 years ago. Its success however has been remarkable. China's high speed rail network is now more than 22,000 km long and it operates more than 60% of all high speed trains globally. The story is similar for its adoption of bike sharing schemes. Initially a post-war European curiosity, it took bike-sharing schemes until 2007 to reach China but in the last ten years its growth has been such that more than 4,000,000 trips were made per day in the city of Guangzhou alone last year.

China was quicker off the mark in e-commerce, and it's progress has been even faster. Only 28 years separate the day when students from Stanford sold cannabis to their colleagues at MIT in what was the first ever recorded online transaction, and the foundation of Alibaba, a company growing so fast that between May and July 2017 it has added \$100bn to its valuation.

Perhaps the most remarkable illustration of this pattern though is China's adoption of mobile payments. In 2004 when Alipay was founded, PayPal was 5 years old, worth in excess of \$1.5bn, and was responsible for handling payments in more than 70% of ebay auctions. By 2013 Alipay had overtaken it to become the largest mobile

payment platform in the world. During a single day in 2017 it processed 1.48 billion individual payments of which 90% were made through mobile devices.

These success stories may seem unrelated but I don't believe that to be true. If we look at the original four inventions and agree that they were important because they were a reaction to the question "how do I improve my circumstances?" in the context of the world at that time, I think it is logical to look at the new inventions in the same way.

In the context of a modern world, these four technologies offer opportunity through connectedness. As modern Chinese people struggle to shrug off the shackles placed on them by geography, high speed trains offer them the ability to connect anywhere, to move people and product anywhere, to move their goods and expertise with ease. Bike sharing schemes open up the city sprawl allowing people to live further from where they earn, to connect home and business at a negligible cost. E-commerce allows businesses to sell to anyone, anywhere and mobile payments make the movement of money just as universal.

If the answer to the question "how do I improve my circumstances?" in ancient China was the accumulation of cultural capital, then the answer to the same question in modern China is through the "accumulation of connectedness," by shrinking this vast, diverse population into a single unit of almost unlimited opportunity. This is what the financial system has given to China.

In 2010 Alipay reached its defining moment. The parent company Taobao was riding an unprecedented boom in Chinese ecommerce and Alipay, its payment arm was struggling to keep pace. The company had developed some market-leading technology that allowed its users to authenticate themselves with their banks but user experience and the success rate of its payments was holding back progress. This wasn't a tech issue, it was systemic and required a systemic response. Without going so far as EU regulation and requiring banks to work with third parties (at a customer's request), there was nothing in the Chinese environment that stopped them from doing so.

I doubt they knew at the time but when the major Chinese banks agreed to a proposed deal with Alipay, they were entering into an agreement that would redefine the financial landscape across the continent. The deal allowed Alipay to let its users use Alipay's authentication software to access their bank account and transfer money to pre-authenticated merchants - essentially replicating the payments element of the new Open Banking regulations that have come into force here in the UK.

It may seem like a trivial cause for something with such far-reaching consequences but the impact was immediate and profound. By initiating the payments directly with the bank, Alipay was able to drastically cut the cost and increase the success rate of the payments going through its system. The banks were happy to drop their costs because it reinforced their relationship with customers, merchants were happy to adopt the system as, at the time, transaction fees represented a very significant section of the total cost base and, most importantly, customers stayed within their pre-existing psychological models of the payments experience. For customers, the whole payments process just magically improved.

Within 9 months Alipay added 100 million customers to its user-base and was well on the way to becoming the world's biggest mobile payments provider. At the end of 2017 Alipay and its fastest follower, WeChat Pay accounted for almost 90% of mobile payments in China between them.

The exponential growth of mobile payments in China happened as a direct result of changes in the relationships between third party providers and banks and whilst the obvious parallels between the Chinese experience and what is happening in the EU are interesting, the real insight can be drawn from what happened next. As the market condensed and services like Alipay began to reach critical mass, people began to think about what a payments provider actually was, and what they wanted it to be.

Payment apps were becoming more established and were building trust amongst their users. It was this trust that enabled them to branch out. Once the payment app had become a trusted place for their users it started to make

sense that the users should do more within its environment. Payment apps became safe places in which people could carry out almost any task that required a secure environment where the user was verified and identified. Ticketing, for example, was a logical extension of the payment app and it caught on fast. Investments followed quickly afterwards and soon the draw was irresistible. Within two years, Alipay had integrated into public services, utility tracking, mortgages, logistics (shipment tracking), loyalty schemes, peer to peer transfers and much, much more. Wherever there was a need for a secure environment and a verified identity it was possible for Alipay to step in and fill the gap.

"the two experiences will converge is around the fundamental goals that I talked about earlier, the accumulation of connectedness."

This was a paradigm shift for both China's financial institutions and its society. Banks have, for so long, been such institutional anchors in a sea of change that it has been almost impossible to imagine a genuine shift in their role. That is happening now and at a faster pace than ever before as companies like Alipay re-define what it means to be a bank. The disintermediation is real and, according to some estimates, Chinese banks have lost as much as €20bn in deposits as a result. The Chinese people are blurring the lines between the payments app and the bank, creating, in the process vast amounts of valuable data, so much so that the Chinese government is working with payments providers on creating systems of government built around it.

Do I believe that the Alipay experience will play out in Europe exactly as it did in China? No. The technological forces that are in play are similar but the cultural sensibilities are very different. For one thing, people in Europe have a very different relationship with the concept of privacy and individualism. This is changing rapidly in

China but is much more embedded in European culture. The differences are also reflected in the regulatory environment where there is a predictable contrast between the collectivist and individualist skews of the relevant parties.

The difference in regulatory attitudes is not surprising. Kant's "golden rule", taken from the the book of Matthew in the Bible, was that you should "do to others as you would have them do to you." But Kant also had a "silver rule" taken from the Analects of Confucius (written around 400 years earlier by the way, but who's counting?). The "silver rule" says that: "What I do not wish others to do unto me, I also wish not to do unto others." Whilst similar in application it advocates a less activist role in the pursuit of symmetry.

Where I do believe that the two experiences will converge is around the fundamental goals that I talked about earlier, the accumulation of connectedness. In a never ending sea of information it is almost impossible for a human to see the kind of connections that a computer can see, and even where it is possible, it is seldom desirable. In Europe, the new open banking regulations open up the way for innovators who understand this. Those who can spot connections and automate them can redefine the role of the financial institution, moving it from one of "gatekeeper" to one of "enabler," and once demonstrated in finance, the Chinese experience suggests that this approach will spread.

The early signs seem to bear out this conclusion. There is already a burgeoning movement in technologically connected services outside of the purview of the European regulations. Utility providers are an early example but other sectors are following. The insurance, credit & investment sectors are also moving fast towards providing the kind of connectivity that would make them a natural part of the Open Banking's next iteration and in doing so they are building a network effect that can only serve to increase the pace of adoption.

On top of all this - elements of the payment process covered by PSD2 allow for an essentially Alipay-esque payments experience. The evidence suggests that this will impact on the retail sector and whilst initially there's

a challenge around how this integrates into the network effect, it will undoubtedly help to create a new normal in terms of the quality of experience that people will demand.

Demand.

Perhaps that is where all of this comes together. The four great innovations gave you the power to demand more in the context of the challenges you faced at the time. Their four modern counterparts did the same in the context of recent history. Open Banking makes you, the consumer, more powerful in the context of the challenges we will be facing over the coming years. As the amount of data in our lives proliferates exponentially, our ability to harness that data becomes a fundamental factor in our ability to lead fulfilling lives. Open Banking is not the end of that journey but it is big step along the way and I for one am looking forward to what it will bring.

3.

Designing happiness.

Open banking and the new consumer.

Devin Kohli

Editor's note: In this chapter, Devin Kohli, Investec's co-head of emerging companies looks at the research into why we react the way we do to some products and how our burgeoning understanding of psychology is affecting the market.

In a chapter based largely on three recent investments made by Investec, Devin takes us through some real-world applications of his thought process and uses the examples to explain how Open Banking has acted as a crucial enabling factor in each case. He goes on to talk about the underlying themes that are making the changes possible and where he sees these themes developing in the medium term.

The chapter is a brilliant illustration of what we're trying to achieve with the book. It lays out a thoughtful, nuanced argument that explains why Open Banking is about far more than APIs and integration and why it is the cultural drivers that will in-fact have the most impact.

If you think too hard, you fall over. Try it. Stand up straight and look at a fixed point on the ceiling a few feet in front of you. Now start to count backwards from 100 in units of one, then two, then three, then seven, then thirteen. As the mental task you're working on becomes more taxing, try to concentrate on the amount of sway that you're controlling with your ankles. If you're anything like any of the participants in a set of experiments run in 2002 at Uppsala University in Sweden you'll notice that the harder the mental task you're performing, the more your ankles will be correcting the sway of your body.

The Swedish researchers were measuring the effect of a phenomenon called "cognitive load."

It's a field of study in which psychologists study the effects of effortful, logical (and importantly,) conscious thought on the unconscious brain and it's fundamental in trying to understand why people react favourably to some products and not others.

The idea that our working memories have strictly limited capacities was first floated by the psychologist George Millar in the 50s. He was looking at how participants in a study fared at remembering complicated combinations of instructions when he noticed a correlation between performance in this test and the span of a participant's short term memory. He observed that, as the tasks became more complex, the span of memory became shorter and was able to quantify the connection between the two.

In a landmark paper called "The magical number seven, plus or minus 2," he argued that humans could hold around seven chunks of information in their working memories at any one time (plus or minus two). People with expert knowledge could cram more information into a "chunk" but even experts in a given field would tail off in their performance once their chunks started to fill up. Amongst other modern uses, the theory gives us an elegant description of why younger people, with their digitally native brains are able to adopt new products quickly and intuitively, whilst their older, but no less intelligent parents cannot.

Cognitive load has been the subject of extensive study in the

intervening half century, and much of Millar's original paper has been questioned or supplanted with newer research (including the assertion that the number of chunks is seven), but the underlying theory of "chunking" has remained an important part of the field. It is key to understanding the design (and consequent success) of modern tech products and it's one of the key ideas that I'll be looking at in this chapter in the context of some of the companies that we've backed at Investec. These underlying psychological triggers give us the clearest description of why certain products succeed or fail and through their success (or lack of it) they give us insight into the future that Open Banking offers.

If we look at the way customers move around within the financial services industry as a function of two factors - "friction" holding them in place and "new experiences" that lure them to move, there is little doubt that Open Banking will shift the balance of power in the direction of new experiences. With this reduction in the relative importance of friction, we can start to look at the businesses that will benefit from the changes, how they are changing things for their customers and from this, infer the broader changes that Open Banking will bring about.

I first met Norris Koppel, the founder of Monese, towards the end of 2015. Over coffee, he told me about the experience of moving from Estonia to the UK when he spent 6 weeks trying to open a bank account. He'd been renting in London whilst taking part in the Seedcamp startup accelerator and, as he talked through the process, it quickly became clear that Monese was going to be an interesting proposition. It's a business that bills itself as "banking without borders," a bank for an increasingly mobile global population that allows you to use your data, wherever it is in the world, to establish your identity here in the UK. For me, Monese embodies the principles that the FCA has codified in the Open Banking regulations. The idea that your data should be yours to own and should not belong to your bank, that you should be able to use the information that you create to help you achieve life goals and that your data should be completely portable.

It's a simple concept, but in its execution Norris has built

a formidable business. Despite charging a fee, (in stark contrast to challenger banks like Starling and Monzo), Monese has built up a significant customer base, 75% of whom treat Monese as their primary current account (including paying in their salary). It's also a joy to use. In terms of cognitive load and the mental stress incurred by uncertainty, it's very easy to see why its customers are so enthusiastic. A new account takes 2 minutes to set up and uses just a selfie and a photo of a passport or a state-issued ID card. Even its most basic account includes instant feedback on spending decisions and a simply designed app provides quick access to transaction history. It is a masterclass in taking a problem with high cognitive load, one that makes enormous demands on a customer's working memory and replacing it with a solution that uses almost none.

Monese is a good example of how, when data becomes portable it can be combined with psychological triggers to make products extremely easy to adopt, but the same concepts can be used improve the way people behave inside tech experiences. Smartup is a gamified learning platform that we backed during their "series A" funding round in 2017. Its gamified, micro-learning sessions help companies train employees to understand complex concepts and help companies get better insight into the institutional knowledge levels of their staff.

What really surprised me about Smartup was the data they could surface showing employees taking tests on the weekend and out of work hours - the way the platform was designed had broken down complex, effortful and unappealing tasks into such small chunks that the pleasure response to their gamification was enough to keep employees learning. Ignoring the obvious applications in the financial industry, where regulatory pressure makes professional development a constant challenge for most organisations, I chose to highlight SmartUp here due to the way they demonstrate the importance of ownership when it comes to data. I've talked before about how open banking's return of the ownership of data to the people creating it will be a fundamental driver of change and SmartUp gives us a neat demonstration through the way it prompts customers

to adapt tests which have low completion scores. Whereas most training platforms provide some form of analytics, SmartUp's complete return of ownership of data to the customer makes for a far more powerful tool.

Perhaps the best example though of the change in the power balance within the industry presents itself through the card-condensing firm Curve. Curve provides customers with a single card linked to an app that in-turn connects to any other cards that they might use. The idea being that users can carry one card (their Curve card) and distribute spending amongst their other cards via the app. Understandably, some card providers weren't exactly jumping for joy about the idea of being subsumed into another provider's app - despite the obvious benefits for the customer and, until recently, were refusing access to the necessary systems. The Open Banking regulations, despite the fact that, at present, they don't apply to most credit card issuers (the FCA has already said this will change), prompted the major issuers to invest in the necessary systems. The result is that they have, in essence, been forced to make the data available. It was the first such instance as far as I'm aware but it will not be the last.

Those who doubt the potential impact of open banking need only to look around and see what happens to other industries when the power balance between the establishment and newcomers is disrupted. Thomas Cook shares lost almost 90% of their value between 2007 and 2012, a year in which the British high-street lost almost 2000 travel agent retail outlets. The technological barriers to the creation of a DIY holiday culture were simple. Customers simply needed access to the right data and an internet connection fast enough to make the experience feel seamless. Suppliers needed the cost of computing power (in this case hosting) and the ability to publish their data somewhere it could be found and used. Just like open banking there was a confluence of technological shifts that combined to facilitate a cultural one and just like open banking the result for those incumbents that were slow to react was catastrophic.

The same pattern played out (and is still playing out) in the media space. Barriers to entry come down, new players crop

up, the market fragments and allows new cultural norms to establish themselves. It is estimated that brands will spend more than \$1billion paying instagrammers to post about their products in 2018. A market which had previously been effectively locked down by the huge cost of entry has been turned on its head inside a decade.

In the financial services space the changes may not be so fast, but they will be far more profound. Our relationship with our money is far more sensitive than our consumption of media and reaches much further than our relationship with our leisure time.

The underlying threads that draw the common factors in the disruption of the travel and media industries together lead us inevitably towards picture of what will happen in financial services. When centralised power is broken up in any market, the shards work their way to the bottom. What better example is there than Monese, a bank for immigrants, a bank creating a profitable market out of people the incumbent banks don't want to touch, giving access to and consequently economic power over, the financial system to people who until recently would be refused this access.

This is the fundamental shift.

The financial system was designed based on the technology that was available to its designers at the point of its design. The system has so little flexibility because at the time it was impossible to foresee the kind of flexibility that future technology might offer (before facebook created a network out of 2 billion people, who could have predicted the consequences?)

Now the problem isn't with the technology. The inflexible technology meant that organisational process and, perhaps more importantly, organisational culture didn't need to be flexible either. "We force our customers through cumbersome process A because process A is baked into our organisation."

The problem is that in a world where power no longer

resides with the people who designed the process, there is a huge amount of "unbaking" for the industry to do.

I talked at the beginning of this piece about the way that humans react physically to psychological triggers, how good design can give us hits of dopamine and serotonin, how good design makes us happy. I wanted to do that because, ultimately I believe it will be the key battleground for the future of financial services. In an environment where the power balance has shifted fundamentally in favour of the consumer over the establishment we will be buying products based on different criteria.

Geographic proximity of a branch was once a key factor in deciding which bank to use but if the branches all come to you, nestled snugly in your pocket, the differentiator ceases to mean anything. Price is (obviously), still a factor but in world where your data can be used to assess the exact level of coverage (insurance) or your exact risk profile (credit) or your exact affordability criteria (mortgages) then it stands to reason that there will be a significant harmonisation of price points. Again the differentiator ceases to mean anything. In this environment what is left for us to use to choose between financial services other than how they make us feel?

As a small c conservative, I am naturally sceptical of prescriptive regulation. The highest (and arguably lowest) forms of human instinct work best when set free. It was Hobbes who said "the greatest liberty of the subject depends on the silence of the laws" – we should be free to do what we want as long as the law doesn't tell me I can't. I hope, therefore that you'll forgive me if I confess to viewing the incoming open banking regulations initially with a degree of philosophical scepticism... but if the legacy of our new laws is to create a financial system that promotes a better understanding of financial services and reduces the asymmetry between product and person – I'll be happy to overlook the dogma and embrace the new world order.

4.

Freeing the pigeon in the bank

- Alex Matchett

Editor's Note: Alex's piece comes from the perspective of a journalist who has conducted more than 300 interviews with wealth managers and describes how he saw organisational culture beginning to shift over that time. The flexibility of our banks (or lack of it) is as much cultural as it is technological and if we are to understand how things will be different in the future then understanding cultural change is just as crucial.

"Sorry sir, we've got a pigeon in the bank this morning," said the teller at my high street bank as his colleague handed him half a sliced loaf. "We're trying to lure it out with some bread..." I turned around and there was indeed a pigeon flying around in the space between the service windows and the high ceiling. I wanted to make a joke about the bank not having enough dough but I was not in the mood. I was there to make the most important transaction of my

life that would, hopefully, represent my first step onto the property ladder and was not comfortable knowing the man responsible for this transaction was more focused on distracting a pigeon. It is much easier to remove a dissatisfied customer from the bank than a pigeon it seems.

This remarkable but entirely true story has, for me, galvanised the opinion that Open Banking is a long overdue intervention in a complacent profession. While I have no doubt most banks are sincere, industrious and dedicated to their customers' needs they are also poorly managed, inefficient and present unacceptable levels of inherent risk.

The first two of these faults have been evident on other visits to high street banks. On one occasion I had to book an appointment but the teller couldn't access the computer system upstairs and so had to go and ask each consultant individually when they would be free. On another visit I wanted to discuss a mortgage and made an appointment but fell ill on the day. I couldn't rearrange it because the branch did not have a phone number.

Open Banking gives people like me a much closer relationship with their provider. I can contact them instantly through the app and I can see my bank utilising my data and use the efficiencies of technology to pass cost savings on to me – there is a sense of dialogue and mutual interest in managing my money effectively and easily. By comparison, I fear, many mainstream financial services are complacent in their operations, treating the customer as a meal ticket, and I don't limit this to the standard high street bank. For almost four years I worked for a magazine called *Spear's* which specialised in reporting on the wealth management sector – the professionals who look after the portfolios which typically contain the lifetime earnings of a family or individual. As head of the research team at *Spear's* I oversaw the compilation of a number of indexes that analysed and ranked the private client industries. This involved a lot of off-the-record meetings and formal scoring. It also involved a lot of on-the-record interviews and questions.

These were very often problematic because while companies and individuals wanted to appear in the

indexes and in the media generally, they were far, far too conservative when it came to having constructive conversations. I once asked one wealth manager at a very well-known American bank what made them special and he said "the level of service". I asked him what that meant and he said "just, the level of service is higher here". Another wealth manager had to cancel a meeting because he could not find his own meeting room, while one banker at a very, very, well-known firm childishly lost their temper when I asked if a family office offered better service.

There were other worrying precedents: only the best wealth managers would admit to having a bad year. If they had lost money too many would justify it by saying the whole market had underperformed or that vagaries beyond their control such as "uncertainty", "volatility" or "falling oil prices" had meant poor returns.

I also asked several wealth managers about the naming of their bank as a handler of tax avoidance in the Panama and Paradise Papers. They all denied any involvement and said it was another part of the bank entirely, which is curious because their job was to manage private client money and this was private client money that had been moved for tax purposes. None took responsibility for the brand they represented but all claimed honesty and trust were paramount.

Every time I conducted one of these interviews, and I must have done well over 300, I asked myself how I would feel if I was a client. Most managers were reassuring, friendly and courteous but too many weren't. Sadly, the stereotype of older, public-school educated white men speaking in jargon and in patronising tones was not dispelled. If I was a widow, or someone suddenly responsible for my family's money I would have felt intimidated. The best wealth managers sought to avoid this, the worst exploited it.

When I started out as a journalist one of the first features I wrote was on the future of wealth management and for it I interviewed a man called Nick Hungerford who, having previously worked for two large wealth firms, had left the industry to set up a company called Nutmeg. "The definition of a wealth manager is someone who says 'I know more

about money than you', takes your money, puts it under his desk and goes to the pub. And I think that's slightly insane," he told me. In a nutshell his view encompassed everything perceived to be wrong with the sector. Open Banking now gives us a clear way to put his theory to the test.

Losing your FX appeal

Open Banking puts a premium on honesty, innovation and – well – openness. If your data is going to be used to find you the best service there is little margin for garnish. This has made finance more competitive and more accessible, and the winner is the consumer. For example, five years ago many banks would allude to currency cards offering interbank exchange rates, but only for their very top clients. This now comes as standard for a number of new Open Banking accounts.

Charges for using your money abroad, be it via ATM withdrawals, point of sale transactions or simply making a payment to an international bank account, have been unnecessarily high for too long. One recent report estimated that banks make £125 million a year on the first airport withdrawal made by holiday makers alone – take out €200 on landing and you'll typically spend £9 on fees. That you are able to use your current account card to withdraw money abroad does not justify being charged every time you do so. If banks advertise a service as an asset to their customers, they should not levy opaque charges on it.

Rightly, this margin of profiteering has been targeted by Open Banking as way to break into the market. Open Banking organisations can offer their clients FX rates that are much closer to the spot rate and, more importantly, they can be much more transparent with the fees.

By contrast an organisation such as a very well-known American credit card company, charges £3 or 3%, whichever is higher, on foreign currency ATM withdrawal, plus 2.99% for any FX transaction, and that is not taking into account the spread on the exchange rate – the price of the currency the company gives you – which can be typically 2% higher than the spot (real) rate. For this credit card firm it is another 2.99% meaning you'll spend roughly a total of £9 in fees if you

withdraw £100 abroad. You might also be charged by the bank that owns the ATM for the privilege of accessing your own money.

That these charges exist at all is frustrating but the real, existential, problem is that they exist despite not being business critical. Many currency card providers base their business model on such charges and to this end there is a degree of competition for low price provision. For banks, exploiting the needs of their customers to access money overseas looks punitive. In such an environment an organisation genuinely putting their client's needs first should seek to provide such services at cost, or waive all fees altogether, realising the competitive advantage it gives them in winning market share. Rightly, Open Banking has allowed new players to target this margin to help them win new customers, revealing how technology is set to reward the nimble and client cost minded.

Closing the Advice Gap

Another high-cost margin Open Banking will help close is the "Advice Gap". Put simply this is the space between very rich and very poor that most people fall into. If you are very rich, a bank or wealth manager will spend time and energy managing your wealth because it is in their interest to help you grow richer because they can charge you a percentage of that growth. If you are poor it is very hard to get financial advice or management because banks cannot get a return from this. However, if you are middling you are likely to be caught in an advice gap: banks want to give you a service they can charge you for but at a minimum cost. This will often mean you are sold an investment 'product' that allows you to invest alongside many others. You have little choice on where or how your money is invested and it could be exposed to unwarranted risk.

As elsewhere, Open Banking has provided a degree of democracy here, making it easy for consumers to move between providers and find and choose investment vehicles that are tailored to their needs. It also simplifies the process: Most wealth managers have spent the last ten years finessing their online and app services at a cost to their clients. New Open Banking players are starting out at

this level and base their service solely around that platform, that means their clients won't be able to hold a face to face meeting with a physical wealth manager but they will get an identical money management service for a lot less. Open Banking has rendered the solution to the advice gap by making you the manager of your money digitally and jettisoning the dated pretence that if you're using a wealth management house you need to be paying to have access to a man in a suit.

There will always be a role for a human relationship but it is disingenuous to sell that to those with small portfolios looking specifically to reduce cost. The fact that major banks and investment platforms are now using Open Banking to roll-out app based ISA investment services is testament to that.

The razor of regulation

It is unfair to present established banks and wealth managers as reluctant dinosaurs in the face of Open Banking, they did not earn the gravity of becoming 'established' by being anti-innovation. But innovation can cut both ways. Perhaps the most succinct illustration of this is the assault course of regulation that banking institutions are being forced through. It's an open secret in the industry that wealth managers have been driven to distraction by the amount of regulation they have had to deal with. By future proofing and accounting for all trades in client portfolios they have spent a huge amount of time making sure they avoid regulator fines and shaming in the press.

The frustrations are clear and clients are entitled to ask what they are paying for as they hear more and more about compliance and less about their own investments. The irony perhaps is that the capacity for such firms to take advantage of the innovation coming out of fintech and Open Banking has been limited. The likes of Markets in Financial Instruments Directive 2 (MiFiD II) and prior to that the Retail Distribution Review (RDR), meant firms had to check the appropriateness of their investments on clients' behalf both past and present – resulting in a colossal amount of work. One potential tech unicorn seeking an investment discussion with one of the UK's biggest wealth managers was told

no one was available to open discussions "for at least the next six months" due to MiFiD II implementation – a missed opportunity for both parties and their clients.

However, it is hard to blame the regulation for these side-effects when you remember what prompted it. Had the banks and financial institutions not done the exact opposite of what they were supposed to and invested client's money in low-risk, non-toxic, well researched assets they would not have triggered the worst financial crisis in history. In is entirely right regulation is implemented to prevent such a tragedy re-occurring and the regulation is not asking financiers to do anything they should not already be doing.

The financial crisis has cost the world trillions and limited prosperity opportunities for all of us. What is crucial now, is that the regulation is applied constructively and effectively – making best use of technology and with forward planning that will avoid duplication of compliance. Here, the digital and strategic assets of Open Banking can be a boon – as already seen in the advent of 'regtech'. Additionally, the new firms facilitated by Open Banking will directly benefit from not having to deal with the legacy compliance issues faced by their older competitors. This is another unplanned side-effect of regulation but it creates a much healthier competitive ecology by levelling the playing field.

Tearing up the monopoly board

Open Banking has happened because of the staid service currently given by banks. Generally, for the consumer, the cost of changing provider is seen as too high and banks still set themselves up as one stop shops, enjoying the monopoly of necessity they hold as their clients financial facilitators.

This is rent-seeking behaviour. Like the UK's 'Big Six' energy providers, banks have taken advantage of the perceived difficulties in changing providers and offered their clients little holistic benefit by continuing to propel the rhetoric of being your bank for life by necessity rather than the worthy winner of your business.

While Open Banking will change the business culture of our banks and financial institutions, it will also change how we behave as consumers. The erosion of the barriers

to switching services means users can make the most of competitive rates and products. Indeed, Open Banking allows third parties to curate different services from different providers for the user's needs. A global gig-economy worker might use the ISA saving plan from one provider and the non-overseas charging current account from another but access and manage both through the same app.

Additionally, the free and fast exchange of information will make any faults in systems clear. The forums of communication that exist in social media and elsewhere offer a degree of scrutiny. It is hard to see scams such as PPI gaining much traction in a connected consumer base that is comparing and contrasting services and informing the sector as an interested advocate of consumer rights.

Assessment as a constant puts a premium on communication as well as service. Open Banking allows financial firms to contact their clients regularly and quickly, not only keeping them updated but also building trust if things go wrong. By contrast, recently seven UK high street banks were named in the press as being targeted by a cyber-attack with software costing just £11. The press revealed this had happened some 15 months previously, but despite the costs running into the £100,000s, all seven had decided not to comment or provide any level of public reassurance. Such mistakes make the argument for using Open Banking's new players all the clearer.

Perhaps the biggest barrier to switching to an app-based current account is the gut feeling of trusting a non-physical bank with your money. But when you consider the fact thousands of people missed payments and couldn't pay bills because one high street bank's online and app service were down for over a week; remember the government spent £90 billion of taxpayer's money on high street bank bailouts or recall that some bank employees will be more focused on a pigeon than your flat purchase; the argument for changing service provider become much easier.

Changing money

Someone else I interviewed on the future of wealth management was Jason Cozens and Ben Davies. They had

created an app called Glint which allowed users to buy gold and then spend it worldwide as currency. Using the app you can select which currency you wanted to pay with wherever you are in the world, this includes gold: a currency that doesn't devalue over time. Previously, some banks would offer you spot rate currency conversions and help you buy gold at spreads of around 4% but only if you were a very wealthy client. Now anyone can do both those things, paying considerably less when they buy gold. Yet another example of how the barriers keep on falling down.

Disclosure: I am now fortunate enough to be working for Glint, editing their magazine Glint Perspectives, where my job is to provide a forum on money, economics, gold and innovation. It is, I hope, informative and stimulating as well as educational. One important and growing space I have made sure we've covered is technology in finance and society and two specific articles come immediately to mind when I think about how the phenomenon of Open Banking can fundamentally change how we see money. One is an interview with former UK pensions minister Baroness Ros Altmann on the need for better communication between banking and society - she was passionate about financial inclusion and scathing about the industry's progress against this yardstick "The finance industry doesn't seem to be able to speak plain English. It's impenetrable. Pension providers are so happy with their 'Default' funds! Why not call it 'Experts' Choice'!?"

The other is an article about a proposal for Lego brick government, which argues that digital technology alone is not enough, we must think beyond complacent comparisons to fully realize the potential for change. A poignant example was the commissioning of council tax online payment service software by 300 different councils. Why was one not made centrally and then replicated for free? Such duplications are everywhere as three almost identical letters I recently received from my bank attest. A text would have sufficed. As one former mandarin noted, "it's the anthropology, not the technology, that will drive this".

Open-minded

Money is not a commodity but the path by which we reach

prosperity. Being able to invest, save, spend and send money instantly and globally via your smartphone doesn't just make it easier to manage your money, it makes it possible to reimagine how you can use your money to best match your time and ambition. If you want to make all your payments marginally philanthropic, you can do so, if you want to buy dollars at the price of the euro in six months you can do so, if you want to use gold to buy a house in Spain, you can do so. There is no need to liaise with the arcane and slow machinery of institutions. What Open Banking gives you is freedom to think differently from the traditionally linear banking process. Indeed, the term 'Open Banking' should really be 'open money' given the power technology now gives us when we use money.

'Democratisation' has become a stretched phrase in recent years but when it comes to finance it is entirely apt. Not only is there community but a collaborative approach which actively values transparency and discriminates against opacity. The concept of a single organisation having a monopoly over its clients' dealings has been disproved by the inefficiencies and complacency of traditional banks. Open Banking will change the world view of finance from monopolies of service that are hindered by regulation and anti-social in communication; to collaborative agents, engaged and aligned with customers and empowered by responsible regulation.

That is important because it provides a better service and forces banks to examine what their role is in society and how and why they want to facilitate people's wealth. In a capitalised society a bank account is a fragile vessel for your hopes and dreams.

Open Banking isn't just a new playing field, it's a new world. We now have unprecedented access to myriad forms of financing, not to mention the ability to bypass inflation permanently and completely revolutionise our spending by using transcendent money. The traditional banks and wealth managers must look forward to embracing a culture of change and choice, or else the pigeons trapped in their branches may soon resemble choking canaries.

5.

The evolution of trust

- Peter Mülhmann

Editor's note: Loss aversion and a lack of trust have combined to form the main impediments to the uptake of Open Banking products so far. Peter founded Trust Pilot and is recognised as an international speaker on the subject of building trust. This chapter looks at how trust is formed and what both incumbents and challengers need to do to build it.

Trust is a much used word but it's rare we stop to consider its meaning, much less how the concept might be changing. But it is evolving and that evolution has been accelerated by technology. Just consider services like Bla Bla Car, the long-distance ride-sharing app which now enables over 5 million complete strangers to share rides with each other every month - that's the same as a medium sized airline. Yet we were always told not to get into a stranger's car.

Imagine my mother considering her first online purchase back in 2007. Does she trust the concept of online shopping? Does she trust the business she's buying from? Well those two questions were fundamental to me founding

Trustpilot the same year. I wanted to help people tap into the experiences of others in order to decide where they place their trust. I believe it's still a valid concept 10 years later, if anything I might have been a bit early back in 2007. That's because trust in institutions continues to decline, as people place greater emphasis on the views of their peers.

It's natural when you consider how human society has evolved. Before the 18th century, society was largely local. If you wanted to borrow money you did so from someone in the village or community, and everyone knew your reputation for repaying. As institutions grew we scaled trust by using legal contracts, regulation and permission-based mechanisms to help us trust business, government and other institutions.

"69% of people believe 'building trust' should be the number one job for CEOs today"

Today, the institutional model is under increasing pressure. We've had numerous scandals, Volkswagen's emissions admission, the Panama Papers and the financial crisis that have rocked trust in institutions. According to Edelman's 2018 Trust Barometer, 43% of citizens 'don't know which companies or brands to trust' and 69% believe 'building trust' should be the number one job for CEOs today. It's safe to say the bonds of trust are changing again.

What's filling the gap? Trust in other people. Peers, those without a vested interest, those that will give you the unfiltered picture. This change is technology enabled, most platforms have a reputation system of some kind. Bla Bla Car certainly does, you know if a ride sharer is a smoker, the music they like and even how much they talk, before you share a ride. In this sense technology is enabling a shift back towards more 'local' forms of trust where the accepted wisdom is widely understood. The truly smart institutions have recognised this and are responding by increasing transparency and openness.

The power of transparency

Box out: "When the cooks could see their customers, satisfaction with the food increased by 10% but when both

groups could see each other, satisfaction increased by 17% and service was 13% faster too."

Conducting business in a transparent way can mean many things. At Trustpilot, we believe in the reciprocal value that is created by allowing customers to publish their feedback for the business (and the entire world) to see. That's the good, the bad and the ugly. We don't think it is right for businesses to be able to moderate which reviews are published, or to select the customers they invite to leave a review. Feedback should be representative and all encompassing, negative feedback is even more valuable than positive in our experience. We call this stance our 'open' reviews philosophy. It's only by displaying your service experience, warts and all, that people can be truly reassured about what to expect and it's the only way to guarantee employees buy-in to trying even harder. As more business is handled digitally this direct connection to the customer has been lost or become abstract. Giving customers a place to share their feedback openly helps restore it, and that's good for everyone.

Transparent food is tastier food

Harvard professor Ryan W Buell and University College London professor Chia-Jung Tsay put the power of transparency to the test back in 2014. The professors wanted to understand if more transparency in the 'real world' would boost performance and service levels. Where better to try it than a real canteen? The professors set up four scenarios in a real canteen for two weeks. In the first, diners and cooks couldn't view one another; in the second, the diners could see the cooks; in the third, the cooks could see the diners; and in the fourth, both the diners and the cooks were visible to one another. When cooks could see their customers, satisfaction with the food increased by 10% but when both groups could see each other, satisfaction increased by 17% and service was 13% faster too.

In similar study by the same team, customers pre-ordered a sandwich and then either waited to pick it up in view of where the food was prepared or bypassed the queue and picked it up without waiting. The sandwiches weren't any different, but customers who waited in line rated the

service higher. Think about that for a moment. People who observed the chef thought the service was better despite waiting, because they could see the effort being made. Transparency is a powerful concept, it motivates employees to do better and it shows customers those efforts.

Trust and Open Banking

Open Banking is a huge change. Giving even regulated companies direct access to your intimate financial data is a real 'trust leap', as Rachel Botsman, Visiting Academic at Oxford University would say. It's akin to the first time you used a credit card online or the decision to conduct banking online. Whether you're a traditional bank that's operated for hundreds of years or a newly emerging fintech player, you're going to need to work extremely hard to earn that trust. And if you do earn it, you'll need to keep earning every day.

We recently commissioned the Centre for Economics and Business Research to quantify the benefits Open Banking will yield for the UK economy. Cebr's model forecasts benefits of over £1 Billion annually, if enough people consent to share their data however, there's broad consensus in the industry that securing that consent is likely going to be harder even than the technology change.

Beyond well designed, secure, Open Banking APIs and other specific measures what can the industry do to encourage enough customers to provide consent? I'd argue part of the answer is simpler than you might think. Start thinking like a retailer. Our traditional customer base of e-Commerce retailers operate in an extremely competitive environment, often with limited opportunities to differentiate. In this context we've seen retailers look to build trust at every opportunity, Amazon is a pioneer in this respect. If you return a product to Amazon they credit your refund before they've even received the product back from you. It might sound simple but in a digital-first world it's about creating simple experiences people can rely on and delivering for customers.

6.

Information and Creativity: What the Nokia 3310 can teach us about Open Banking - Oliver Mitchell

Editor's note: Oliver's chapter explores the relationship between sudden blooms in creativity and the accessibility of information. In a piece that takes us from the printing press to cloud computing he argues that with reduced barriers to entry, pent-up creativity becomes suddenly free to express itself. The implications for Open Banking are evident. With sudden access to a new breed of data what kind of creative responses can we expect to see?

When I was 10 one of my classmates brought in a Nokia 3315 and showed us how he could create his own ringtones. We stood transfixed. The power to create music in your hand; it was inconceivable! There was one problem. He was a pitifully poor composer and he wouldn't let anyone else touch his phone. We began to drift away from the amelodic beeping.

When the next school year rolled in, everyone's parents had caved into buying mobile phones for their children. The school yard was filled with beeps and trills. Kids started by mimicking theme tunes (far too many Simpsons intros) but soon were making their own music. Some even collaborated with their peers to create electronic orchestral arrangements!

Decreasing barriers to entry releases an explosion of pent-up creativity. This was the principle underlying the proliferation of new ringtones in the schoolyard, and it applies at the macro scale as well. As the tools of creation become more readily available, smaller firms enter the market and drive innovation. This is the rationale behind Open Banking. And this trend - the democratisation of creation - follows a long historical precedent. The clues to Open Banking's long term potential lies in these analogues.

The Printing Press

On 31 October 1517, Martin Luther nailed his '95 Theses' of the Catholic Church on Wittenberg Castle. The manifesto was a criticism of the Church's centralised power and its many abuses, a lightning rod from which the Reformation would be born. In the months that followed, it would spread across Europe, igniting a cultural revolution that would pull Europe into the modern era.

Central to this revolution was the printing press, a device that enabled public access to information that was unheard of at the time. Friedrich Myconius, a contemporary of Luther's, wrote that "hardly 14 days had passed when Luther's propositions were known throughout Germany and within four weeks almost all of Christendom was familiar with them." Pamphlets both for and against Luther's arguments were distributed widely across Europe.

The printing press's greatest success is that it lowered the barriers to distributing information, which had previously been imposingly high. The Catholic Church's prominence and power no longer guaranteed that its message would be heard to the exclusion of all others. The general population now enjoyed a diversity of views and the results were unquestionably positive.

The Internet

The internet has existed since 1969, but for its first few decades of existence it only constituted a sparse few connections between universities. In 1993, the Mosaic web browser launched, which began the process of opening the internet up to the general public for the first time. Slowly but inextricably, more and more commerce and interaction has moved online.

Digital disruption is now a cliché, such is the power of the internet to up-end old business models. Looking at the retail industry, large physical retailers are under siege by tech firms with lower cost bases. Of course Amazon stands as a singular example to the power of e-commerce, but more interestingly a huge variety of niche players have sprung into existence to meet consumers' unmet needs. Platforms like Etsy and products like Shopify have thrived by enabling smaller producers to reach customers cost-effectively.

Although GAFA (Google, Amazon, Facebook, Apple) now threaten competitive equilibrium with their dominance, the internet originally spurred innovation and creativity. Costs of distribution were slashed in many industries, enabling innovation for new firms to the benefit of consumers.

Social Media

Myspace was launched in 2003 and grew to a peak of around 80 million active user per month in 2008. Though it was not the first social media site (sixdegrees.com holds that distinction) it was the first to grow into a cultural phenomenon. It paved the way for today's social media titans, giving ordinary people the tools for self-expression on the internet.

One of the most interesting offshoots from social media is the rise of citizen journalism and creative production. When once large media companies held an effective monopoly on the distribution of content, they now compete with a multiplicity of voices amplified by social media's reach. To take one stark example, when Youtube launched in 2005

the total daily newspaper circulation in the US was around 55 million. The latest available statistics show a decline of around 20 million, while YouTube has risen to 1.5 billion monthly active users.

Social media allows the voice of private citizens to compete with traditional media distribution. There are undoubtedly negative aspects to this phenomenon, its rise has occurred concurrently with a surge in populism and the ubiquitous 'fake news', yet the underlying ethos is highly democratic as tools of creation have become more accessible. As such, it has given rise to enormous innovation; even staid news networks now broadcast on Twitter! The media landscape has been irrevocably altered.

Cloud Computing

Amazon Web Services was (re-)launched on 14 March 2006. It grew out of an internal department within Amazon tasked with creating common infrastructure for new technology products. When the executive team realised that many other technology firms were struggling with the same problem, AWS was offered as an external proposition.

Databases and infrastructure, one of the major barriers to building scalable technology products, were now widely available. Startups could now outsource these components, rather than investing in building and maintaining their own infrastructure. The barriers to entry had been lowered, and an explosion of new technology businesses followed.

From 2008 to 2016 the number of technology firms funded by venture capital doubled in the US. In the UK, new company registrations increased by almost 50% from 2012 to 2018. Startups have become more pervasive and pierced the cultural consciousness as cloud technology has commoditised software infrastructure. The tools of production are far more widely available.

Open Banking

Open Banking fits within this historical narrative. It is simply greater access to financial information. Under the Open

Banking model, a consumer's financial data, once held solely with their bank, could be shared as the consumer sees fit across many applications. The barriers to innovation have been lowered.

It is difficult to predict how it will affect the financial industry, but there are clues in the examples we have already discussed. As Mark Twain apparently said, history may not repeat but it certainly rhymes.

Adoption will not be instant

Although the infrastructure may already be in place for unlocking financial data, attitudes will shift only gradually. The printing press was in existence for almost 100 years before information started to flow more freely. Similarly, the internet was the sole domain of university academics and the defence force for years. Though the adoption period for technology seems to shorten throughout history, there is still a significant adoption lag. The lesson here is that the commercial possibilities of Open Banking should not be judged in its first decade of operation.

Adoption will not be linear

Patterns of adoption are generally exponential rather than linear for technology innovations. Fear of new things gives way rapidly to fear of missing out as mainstream consumers pick up on new trends. Though open banking products have a limited distribution right now, this is temporary phenomenon and the market is many times larger than early statistics may indicate.

Innovation will not be predictable

Once barriers to entry are lowered, it is impossible to know what will be created. The commercial and social changes wrought by the technologies we've discussed were beyond the realm of what previously would have been considered possible. So far, open banking use cases are iterations on existing banking products. This will not be the case for long, and we should expect to see propositions that bear little resemblance to how we bank today.

As an early-stage entrepreneur, the opportunities that open

banking presents are endlessly exciting. The technical and regulatory barriers to building financial propositions, whilst still considerable, are now far more realistic. My hope is that this will lead to more inclusive product design and better targeted products for groups that have been historically underserved. Just as the exploratory beeping of phones in a school yard leads to new music, so too open banking can be the framework for real innovation in the financial system.

7.

Can we be both open and secure?

- Merlin Gore

At the headquarters of KFC in Louisville, Kentucky there is a non-descript corridor leading to a plain white door with the word "legal" stencilled on its frosted glass pane. Behind that door is a safe. There is one person in the world who knows the combination and a further two who know the details of the safe's contents. "The Colonel's" recipe is one of the the most closely guarded secrets in culinary history and yet, with enough time and cutting equipment, literally anyone could walk in and pick it up. Humanity has come a long way in the last three and half thousand years but I think KFC could still take a leaf out of the ancient Mesopotamians' book when it comes to information security. One of the earliest know encrypted texts, when eventually decoded three millennia later turned out to be a recipe for bread.

I don't know whether to find this surprising or not. Bread recipes seem trivial now but the story of cryptography is inextricably linked to the relationship between humans

and recorded data. Where there was value in that data that we wanted to protect, there would also be creative ways of protecting it. Bread recipes may not seem that valuable now but in agrarian mesopotamia I can imagine that being different.

It's hard to say when data-obfuscation first became something we could definitely call cryptography. There are references in the Kama Sutra to methods of "understanding writing (presumably between lovers,) in cipher and writing in peculiar ways". These probably date from between the first and fourth centuries CE but I'd argue that you can't really have a cryptographic discipline until you've got someone on the other side attempting to decode your cypher against your will. If we accept that definition then modern cryptography began around the year 800 with an Arab mathematician called Al-Kindi. It was his idea that, with enough knowledge of the encrypted language, patterns could be discerned that could help the de-crypter. In a treatise that would establish most of the basis of cryptography for the next thousand years he wrote:

"One way to solve an encrypted message, if we know its language, is to find a different plaintext of the same language long enough to fill one sheet or so, and then we count the occurrences of each letter. We call the most frequently occurring letter the 'first', the next most occurring letter the 'second' the following most occurring letter the 'third', and so on, until we account for all the different letters in the plaintext sample. Then we look at the cipher text we want to solve and we also classify its symbols. We find the most occurring symbol and change it to the form of the 'first' letter of the plaintext sample, the next most common symbol is changed to the form of the 'second' letter, and the following most common symbol is changed to the form of the 'third' letter, and so on, until we account for all symbols of the cryptogram we want to solve."

The centuries of progress in cryptography have been driven by this interplay between encryptors and decryptors and it's important to remember that the encryptors have, historically, been ahead. The computer was a reaction to, not a precursor of, a cryptographic advance. We think of modern day bank security as a cat and mouse game

between cyber-security experts and hackers but in reality, only one of the biggest bank robberies of the 20th Century has involved any cyber-breach at all, and even in that case, the bank's IT systems were also responsible for the thieves being caught. In September 2007 a group of hackers threatened the family of Kevin O'Donoghue, the CEO of Sumitomo Bank. Under threat, he let them use USB sticks to install keylogging software onto the computers of bank employees and steal the usernames and passwords for corporate bank customers. After 23 failed attempts to transfer \$300 million dollars out of the bank the IT systems noted that certain employees were failing to use the SWIFT international transfer system correctly and the thieves were promptly apprehended.

To get an idea around how difficult it is to access information that a bank doesn't want you to, there are a few concepts that you need to understand. The first is the basis of most "bank level security" - block ciphers. The first widely accepted secure encryption method was called the DES (data encryption standard) and was developed in the early 70s by IBM in response to a call from the US National Bureau of Statistics. It was finally adopted despite some fairly intense criticism in 1976. Allegations that the NSA had deliberately weakened the standard so that it, (but only it,) could break the cypher if need be persisted until congressional testimony later debunked many of the claims. More questions began to arise when a declassified NSA book on cryptographic history re-asserted its involvement and the issue remains at large. Either way the DES was immensely influential and, despite rapid advances in computing power remained a world standard until it was replaced by the AES (Advanced Encryption Standard) in 2002.

Both the AES and DES were examples of Symmetric Key Encryption. It's a system whereby a string of characters is broken up into blocks and scrambled by the combination of static keys and entropic elements (methods of introducing randomness into the encryption process. My favourite example is the live-streamed wall of lava lamps used by the hosting company Cloudflare). The keys are available to both encrypting and decrypting partners and can be used to

decode the message, but anyone looking at the data without the key will simply see random noise. It's not important that you understand how these systems work but it is important to understand why. The maths is complex but it all boils down to the fact that there's a massive asymmetry between the computational effort needed to encrypt information and the effort needed to decrypt it. With the right systems in place it should be relatively easy to create encrypted information that would take years to decrypt.

This is good because for banks, data security is complex and it is only getting more so. Cloud services like Google and Amazon are making ever-stronger cases for the shift away from physical to cloud infrastructure and despite the fact that today, almost 70% of banks' data remains on mainframe terminals, they are making headway. As the composition of IT infrastructure changes so does the nature of the threats faced and whilst external services give banks far more flexibility to deliver new experiences, in the process they introduce new risks. On the 28th February 2017 a developer working on some debugging at Amazon's US-East-1 data center accidentally removed enough server capacity from the network to bring down a significant chunk of the internet. It was up again in 5 hours and, in Amazon's defence, had the customers who experienced problems backed up their systems according to Amazon's guidelines they wouldn't have experienced any problems but that's the problem with complex systems. As you increase complexity by orders of magnitude you also increase the propensity for human error.

If you have a casual read of the average morning paper you'd be forgiven for coming to the view that the internet is full of genius hackers who, with a flourish of their fingers, can breeze past the toughest of security. There is almost zero evidence that points to this being true. The fact is it's just easier for the average person to believe the "clever hacker" narrative than it is for them to accept that in many cases, they are their own biggest security liability. Human error is much harder for systems to accommodate.

The term "phishing" was first found in a piece of mid 90s software created by a 17 yr old hacker. The author, who went by the name "Da Chronic" and peppered his software with references to Dr Dre had pulled together a toolkit that would

allow its users to cause general havoc on AOL and used the word "fisher" to describe the part of the tool that harvested a target's passwords. The term was taken up by the hacking community and popularised through the use of the HTML tag "<>" during AOL chat sessions in order to disguise certain watch-words from the AOL security staff.

It was not sophisticated. A reportedly common (early) use case of the toolkit was for a phisher to enter a chat room and use one of the tools repeatedly to draw explicit imagery using ascii text. The would-be hacker would continue to do this until members of the chatroom started to ask if the chat room was buggy and at this point the hacker would then use another tool to send them a message reporting to be from AOL staff. During the ensuing conversation the hacker would persuade the victim to provide his or her password, the fisher would capture this and use it log in using the victim's account.

AOHell laid out a model which was quickly taken up by fraudsters across the world. It was a revelation. Before phishing, hackers had been struggling with the essential asymmetry that we talked about earlier, the fact that it takes far more effort to break a code than it does to put one together but phishing offered a way out. It applied the scale achievable through the use of modern technology to a problem that was much simpler to solve. Trying to hack through secure encryption was predictably fruitless. Relying on human error at scale on the other hand was predictably lucrative.

More than two decades later Phishing, and its related activities are still some of the biggest security headaches faced by banks. According to the organisation FFA (Financial Fraud Action), more than 14,000 malicious websites were reported during 2016 in the UK alone and it is hard to see how the banks can effectively combat it, at least in their current configuration. It's not like the industry hasn't tried. Almost every bank communication has on it somewhere, a statement to the effect of "we'll never ask you for your password," there are browser add-ons that detect if you're on a site that's known to be malicious, there are specialised spam filters trained on millions of phishing emails, banks have even tried to introduce their own anti-

phishing measures. Bank of America uses a personal photo that the user has sent to BoA on all of their login forms with the implication being that if the photo isn't there, the form isn't from BoA. The evidence however, is that it has little effect on users' behaviour.

Phishing is a thorny problem because there is a weak point that is out of the banks' control. It's therefore understandable that there is so much fear and apprehension around open banking. The argument goes that if you increase the number of people who might plausibly be asking you for your password, you increase the number opportunities for passwords to be given out accidentally. It's a fair argument, but it's also short-sighted.

First let's tackle the main fear - that people will be duped into giving away their passwords and will consequently have their money stolen. I doubt that the introduction of open banking in the UK increases the risk of this happening in any significant way for two reasons. One - technically the APIs don't work that way. If you enter your password into the app of a regulated third party they don't see it. The Open Banking APIs use authentication tokens not passwords. If you log on through a third party, you're actually logging in through your bank. The password goes straight to them without ever touching the third party's infrastructure. Two - even assuming something has gone wrong and someone has hijacked your login, they're still (quite rightly) limited in what they can do. For example, the APIs don't let you transfer money to accounts that you haven't pre-authorised with your bank. Even if a third party was compromised it would be immensely difficult for the hackers to make any kind of material impact on your finances.

Secondly, the argument doesn't take into account what third parties with access to financial data can do to prevent phishing and similar frauds. Financial aggregators with access to an individual's complete financial record can form far better algorithmic pictures of what "normal" activity looks like than individual banks who only have a fragmented view. Aggregators with scale could use the data to train AI to spot fraudulent transactions, APIs can be used to connect these anti-phishing tools to the network and it can all happen in fractions of a second.

Through open banking, the process of stopping phishing can move from being a function within a bank to become a fledgling industry, I guarantee its a problem that institutions would pay to solve - they are already doing so. In an interview with The Banker in October 2017, Gill Wylie of Lloyds Banking group talked about using machine learning models that can identify the difference between a bona-fide user logged into to internet banking and a fraudster or bot using the same services. This is definitely the way forward and open banking will only accelerate this process.

Unfortunately, solving phishing (and its derivatives) will not be the end of the banks' security headaches. There is serious doubt about the long term validity of some kinds of cryptography currently in use, particularly those approaches which focus on the difficulty of calculating factors of large numbers. These equations are very difficult for a conventional computer to solve but, according to the UK's National Cyber Security Centre, could be easily solved by a new breed of Quantum machines. A recent report from the NCSC highlights the RSA algorithm that encrypts HTTPS connections as being vulnerable to computers that could be feasibly built by 2030 (albeit, at a projected cost of a billion dollars per machine,) and even the block ciphers currently in use will require banks to ensure a suitable length of the cryptographic keys in use.

In the end though, I'm optimistic that the institutions will stay ahead of the game. I was surprised, whilst researching this piece, by how consistently some of the underlying themes that describe the progression of financial security lead us in the direction of open banking. Since the time of the lock box, the security around our finances has evolved to be substantially impervious to external / systemic threats whilst we have been so vulnerable to human factors that punishments for financial crimes have been designed as atypically cruel and unusual deterrents. These crimes have flourished only where there is a reasonable expectation that the criminal will a: be successful and b: will evade detection; so it seems to make sense to me to look at open banking as an elegant way of a: introducing the same kind of asymmetry around human factors that we

already have in cryptographic ones and b: of increasing the likelihood of fraud detection.

Both of these factors play to the strengths of a more connected ecosystem and it's the realisation of that ecosystem that open banking will start to play its true role in the security of our finances. As more parties connect to the wider network, we introduce stronger checks and balances, more innovation and a faster collective response to new threats. From my perspective, this is the most exciting prospect. Security threats are a collective problem, now at last we have the beginnings of a collective response.

Part 2:

Platforms, how they work and why they're important.

8.

The Economics and Strategy of Platforms:

Competing in the Era of Open Banking

- Dr Markos Zachariadis, Prof Pinar Ozcan, and Dize Dinckol.

Editor's note: This chapter is a summary of the recent work coming from the lab of Markos and his colleagues. It is a wide ranging and thorough exploration of the fundamental drivers behind the platform economy. For a more specific look at how platform strategies interact with the Open Banking movement, you might want to skip ahead to the chapters by Julian Cork and Julio Gonzalez. If you do, come back once you're through as this is probably the deepest dive into the economic aspects of Open Banking in the book.

Introduction

In the last couple of decades, we have witnessed the rapid emergence of platform firms such as Amazon, Google, Uber and Airbnb who managed to disrupt their respective industries and outperform their incumbent rivals with their unprecedented growth and economic efficiency.

Behind the success of such ventures, lies the platform business model that moves away from the traditional vertical integration of the firm (also known as the pipeline business model) and introduce a flatter, more inclusive and innovation-centric approach to economic organizing and value creation (Gawer 2009). Central to the platform business model is a platform that often "uses technology to connect people, organisations and resources in an interactive ecosystem in which amazing amounts of value can be created and exchanged" (Parker et al., 2016).

This organizational formation can facilitate value-creating interactions amongst consumers (demand-side) and external producers (supply-side), and produce a multisided market (Rochet and Tirole, 2006). While the idea of the platform has existed for years and loosely used in businesses such as shopping malls, the recently developed digital platforms have the advantage of being "editable" and "reprogrammable" (De Reuver et al., 2017) which could make them more agile and responsive to incorporating complementary modules from third-party developers in order to extend functionality. Fundamentally, this makes them more scalable and cheaper to run but also allows them to leverage the large amounts of data that is captured while at work.

But how can a platform bring about such radical changes to an organization or even an entire industry?

Gawer and Cusumano (2002, 2008), who studied the emergence of platforms in the hardware and software industries during the 1990s and 2000s, observed how firms such as Intel and Microsoft transitioned from a simple microprocessor maker or software developer to orchestrators of innovation in their entire field. This was achieved by developing a core value proposition

or infrastructure in the form of a product, service or technology on which a large number of firms can build complementary products, services, or technologies, thus creating a loosely assembled business ecosystem for innovation (Gawer and Cusumano, 2002).

Following up on the examples above, two key functions that platform leaders aim to deliver are 1) bringing together disparate resources and knowhow from different firms, and 2) matching and connecting users with producers of products or services.

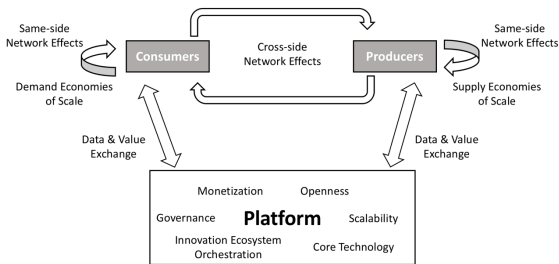


Figure 1. Platform Business Model: Matchmaking and Network Externalities

Firms such as Apple, Google, Microsoft, and Linux in the tech sector but also Airbnb, Uber, eBay, YouTube, Facebook, VISA, MasterCard, etc. in other sectors, have been using these two principles to build successful digital platforms and take advantage of an entire ecosystem of suppliers and users.

For example, Apple, with its iPhone platform, made its features available to an entire community of developers through open APIs. Through this strategy, they managed to unlock new sources of value at a much higher rate both in terms of quantity (number of applications) but also in terms of speed (short average time-to-market allowed them to scale much faster) and scope (significant variety of value propositions).

Considering the above, there are two crucial economic

theories in a platform business model that are worth exploring in more detail as they are the main reasons that platforms thrive over traditional "pipeline" business strategies. These are the transaction costs theory and network effects.

Transaction costs economics

In economics, transaction costs are the search costs, the coordination costs, the negotiation costs and the information asymmetry costs an organisation faces while making choices about its production process. Nobel prize winning economist Coase (1937) found that business activity will be organized inside the firm when the cost is lower than the cost of contracting someone from the market. Generally speaking, this "make/buy" decision is moderated by the transaction costs involved: if the sum of all of the costs, including production and transaction, is cheaper inside the firm than outside, then we get firm boundaries within which business activity is organised (i.e. the firm produces the good, owns the means of production, and has control over employees and their performance). In contrary, if the total costs are lower externally, then the firm sources the means of production outside in the market.

According to transaction costs theory, economic institutions have as their primary function the optimisation of transaction costs, however, there is always going to be a trade-off between "markets and hierarchies" (Williamson, 1975) that will be difficult to control.

A platform strategy can potentially be better than a hierarchy or a pure market transaction because it can further reduce the searching, matching, negotiation, and contract costs as well as lower information asymmetries (moral hazard) that are a potential risk to both consumers and suppliers. For example, you can think of many reasons why you may want to use a platform like Uber to consume transportation services over hailing at a black cab or even renting a car (the "market and hierarchy" alternatives). You can end up spending more time trying to stop a cab or negotiate your ride based on the taxi driver's preferences and location at the time. Also, pricing can be unexpected as there is less transparency. A platform like Uber can take all

this uncertainty (i.e. the transaction costs) and repackage them more effectively in a way that creates more value for the consumer by providing a better service: Uber driver arrives sooner, already knows your preferred destination, and charges you the agreed amount without any delay when the trip is over. Bottom line, Uber's platform business model is mostly about "selling reductions in transaction costs" (Munger, 2015) as it does not own any of the cabs or hiring any of the drivers.

The power of network effects

Network externalities or network effects describe how the increasing number of network adopters can have an impact on the benefits (or utility) that each user enjoys on a platform (Shapiro and Varian, 1999; Farrell and Saloner, 1985; Scott, Van Reenen, and Zachariadis, 2017; Economides, 1996; Zachariadis, 2010). Network effects can be found in almost any platform and can make a real difference in the value that users gain. For example, consider a social network such as Facebook. As the number of people joining the network increases, so does the value you extract from using the network as you can gradually contact more and more users.

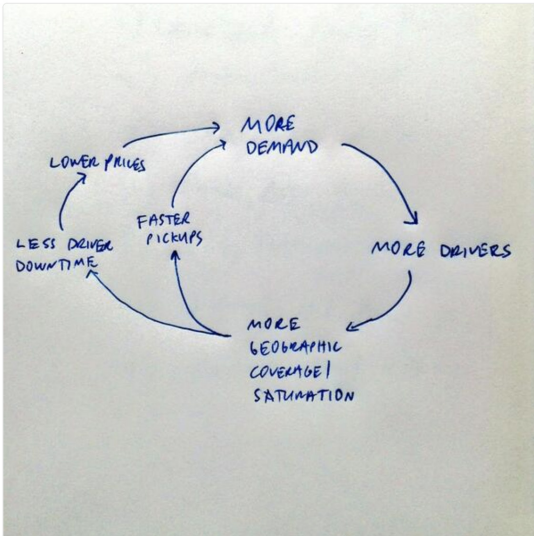
This type of network effect (called same-side network effect) can also have a real impact on how quickly the network will grow. However, in a multi-sided platform arrangement, cross-side network externalities can have an even more important effect on user welfare but also on the value of the platform itself. An example used frequently in popular press is Uber as a two-sided platform that matches drivers and customers seeking transportation services. As the number of drivers on the Uber platform increases, the better service customers can get because pickup times are reduced and prices are more competitive. This attracts even more customers on the platform, which in turn attracts more drivers who enjoy less downtime between rides. This "virtuous cycle" is also depicted in David Sacks' (Yammer co-founder and member of the "PayPal mafia") famous napkin drawing in a tweet where he tried to explain Uber's positive network effect.



David Sacks
@DavidSacks

Following

Uber's virtuous cycle. Geographic density is the new network effect.



1:34 AM - 7 Jun 2014

Figure 2. David Sacks tweet on "Uber's virtuous cycle".

In his blog, Bill Gurley, one of Uber's early investors, also refers to Sacks' illustration in order to describe how such a network effect can have a real impact on the valuation of the company. driven by positive network effects is a fundamental characteristic of platform strategy and can be used for the advantage of the entire ecosystem.

Having said that, network effects are not always positive and growth of users on an open platform can lead to situations where value is being subtracted from the network instead of increased. For example, consider a smartphone platform like iPhone. Most of the time, the growing number of applications would result into a positive benefit for

consumers; however, it can also lead to frustration if there is increasing difficulty in finding the best match or if a big number of applications on the platform are of poor quality. This can put off users who can decide to migrate to another platform or reduce their usage. To avoid such situation, the platform leader will need to moderate entry by applying filters, controlling and limiting the access of users onto the platform and potentially even their activities and connections (Parker et al., 2016). This process known as platform curation will safeguard the level of quality of service platform users enjoy and will uphold the two factors that make a platform valuable: the maintenance of low transaction costs and nurturing of positive network effects.

Data, data, data

While it can be difficult to strike a balance between effective curation and increasing numbers of producers and consumers that will result into more matches, digital platforms come with an important ally on their side. As the number of users (producers and/or consumers) increases, so does the amount of data recorded about them. More data means that the platform owner will be able to work out better matches and potentially intervene in the curation process. Data feedback loops from other consumers on the quality and usability of the various offerings will also help to distinguish between good and bad services and eventually discontinue or discourage those that have mostly negative ratings. Data and the various metrics one can produce around key interactions and performance, are used routinely in digital platforms and can have important spill-over effects influencing even the pricing of services.

The significance of data (and of the technologies that handle data) in platform business models is further reinforced with the idea of demand economies of scale (Shapiro and Varian, 1999). Demand-side economies of scale are present when platforms are more valuable to their users (on any side of the network) as they scale their operations. Unlike supply-side economies of scale that benefit mostly "pipeline" organizations because of increased production efficiencies (usually by reducing marginal costs), demand economies of scale give an advantage to larger platform businesses as they take

advantage of new innovations in collecting, managing, analysing, and communicating data to their users, thus making their decision making more informed and transparent and the services they consume of better quality and price. As a result, they are the foundation of positive network externalities and often the reason why users of platforms can be "locked in" to a particular network.

Platform Competition in Banking

It goes without saying that the newly-introduced regulatory frameworks – PSD2 in the EU and the Open Banking initiative in the UK – offer a unique opportunity to apply some of the concepts we discussed above across the entire banking sector in Europe. Opening up the APIs of banks and instructing them to share customer data provides an opportunity for a platform business model to be implemented and its effects to be realised in banking. This move which has been coined by a few as "Banking-as-a-Platform" (BaaP) describes the premises upon which banks can adopt a platform strategy model and change the rules of competition.

In doing so, banks will need to revisit their role as financial intermediaries and prepare to become re-intermediaries by providing "online automated tools and systems that offer valuable new goods and services to participants on [all] sides of the platform" (Parker et al., 2016; p.71). In competing with other bank platforms in the sector, the leanest and most attractive experience for both developers and wholesale and retail customers will prevail. In doing that banks will need to cultivate and manage growth in all sides of their platform whilst keeping and investing in some core applications central to their value proposition. The formation of such an ecosystem will increase the possibility of transaction costs staying low and ripping the benefits of network effects and data feedback loops.

In an environment where open data drives flatter rents and lower prices, the ability to engage customers with better experiences through more valuable applications may act as counterincentive to move to a different platform. The more the opportunities to create value for customers on a particular platform, the less inclined customers will be

to leave, thus creating a customer "lock-in effect". In this context, openness can be managed in order to maximize positive network externalities and win more customers (Van Alstyne, et al., 2016). For example, banks should be able to match customers' demands with respective services and user experiences that cannot be found in other platforms. Failing to do so will decrease consumer confidence in the particular bank. To avoid such frustration, platform banks need to use customer data more effectively to track preferences and engage their clients with products they are likely to use. This is of particular significance in financial services where consumers can be price-sensitive and likely to move once a better opportunity appears (e.g. better interest rates for ISAs or deposits, and mortgages, etc.). While banking customers may often exhibit a degree of "stickiness" and inertia due to information asymmetries, introducing more transparency and openness in the market will encourage movement and eventually change the pace of the competition.

In addition, banks will need to make sure that the quality of external services provided onto their platform is adequate to earn customer's loyalty. Poor quality or unreliable services will damage the reputation of both the bank and the respective FinTech. As platform owners, the banks will need to absorb any transaction costs from the various FinTech interactions and take responsibility for the reliability and security of the service. This is very close to the fundamental responsibilities of platform owners who broker transaction costs and charge a premium for the matching between the demand and supply side. This will give banks a new role of "re-intermediation" which essentially will be to not only facilitate transactions but also provide trust between the two sides of the market – e.g. the FinTechs and end customers – the same way iTunes can guarantee quality of products for those who purchase music from their platform or UBER to those who use transportation services through their app.

The open vs. closed dilemma is another challenge to tackle. While having an open platform may create difficulties in monetising the benefits, reduce the switching costs and so the possibility of locking customers in; a closed system

may stifle innovation and lead to seclusion. There are plenty of examples where firms ended up "on the wrong side of history" such as Nokia, Myspace, Blackberry, etc. because they did not let in outside innovators to add complementary products and tried to do everything 'in-house' with limited resources.

A hybrid approach where platform owners invest their resources on a small number of core applications can be a healthier option to provide balance and guide competition. However, platform owners will still need to decide what their core competencies are and what key features they should invest on before opening up the platform to external competition.

External Threat: "Platforms-as-Banks"

When considering platform competition within the banking industry however, we need to take into account possible challengers that may emerge from different markets. Existing platforms that have "overlapping user bases and employ similar components" (Eisenmann et al., 2011, p.1271) can be notable contenders. In such a scenario, "platform envelopment" strategies could be deployed in order to pursue entry (of a relevant platform provider) into another's market by combining its own platform's functionality with that of the target's that leverages communal user relationships and mutual components.

This tactic which we describe here as the "platform-as-a-bank" strategy is being observed as predominant platforms, e.g. from the social media industry, are moving towards the banking domain taking advantage of the share user relationships and combining their functionalities – for example a messaging service – with banking services such as payments.

The effectiveness of such a strategy will be exacerbated as these "outsider" platforms are gradually becoming the go-to platforms for FinTech startups who are keen to provide their services on top of their network. For example, Facebook, managed to incorporate onto its platform peer-to-peer payments between messenger accounts. While they implemented this service only in the US, they also

managed to obtain an e-money license in the Republic of Ireland paving the way for messenger payments in Europe.

Prevalent technology companies can be an emerging threat for incumbent financial institutions and FinTechs alike as they enjoy a large user base and often come with a good reputation and trusted brand. Some of these platforms already function at the fringes of the financial services sector. For example, Amazon already operates a payments service and a lending business to SMEs that sell products on its webpage – thus enhancing further cross-side network effects and gaining business. Banks will need to compete with these existing firms and learn how to operate on a platform and ecosystem basis in order to remain competitive.

It is possible that such competition will lead to a multi-platform bundle where multiple platforms sit on top of each other (vertical stacking) trying to explore inefficiencies in the existing banking system and extract value from customers. While, it is expected that this will bring certain benefits to customers in the mid-term, it will also rearrange the banking services' value chain and re-distribute market-share and profits in the sector. Depending on the market response, this may have an effect on the banks' pricing strategy and customer premiums.

Summary: 7 Basic Rules for Providing a Competitive Platform in Banking

Drawing from extant studies (e.g. Adner, 2012; Gawer and Cusumano, 2014; Ozcan and Eisenhardt, 2009; Parker et al., 2016; Van Alstyne et al., 2016; Zachariadis and Ozcan, 2017), we lay out some fundamental elements that aspiring or existing platform providers in banking will need to consider when competing in the new landscape:

1. Strong core proposition:

Investing in infrastructure and innovating on the core will help maintain a central position in the ecosystem. Firstly, ensure the reliability and security of the platform. This also involves having the right modular architecture and providing easy to use APIs with detailed documentation, community

and access.

2. Effective integration:

In a platform-based model, integration is key. Think of a physical platform like a shopping mall. The selling point is to create a "one-stop shop" for all customers' shopping needs. This includes being able to search through the services easily but also having comfortable access close to amenities and other value-added services which may be core to the value-added proposition of the mall. In other words, the leanest and most user-friendly platform that provides the best user experience (for FinTechs as well as customers) will prevail.

3. Lower transaction costs:

Transaction costs have multiple faces and need to be addressed in all sides of the platform. In an open banking setting, the most important thing would be to provide easy "on-boarding" (frictionless entry) for FinTechs and reduce the risk of use for the end-customer. Uncertainty on who is liable if things go wrong during a transaction can damage the reputation of the platform and discourage consumers from using the services. Transparent sharing of the risks with FinTechs need to be outlined upfront or as part of the contracting through APIs.

4. Cultivate all sides of the platform and curate a vibrant ecosystem:

Creating a platform vision and culture is essential in order to expand the ecosystem and build reputation. Being proactive to identify and recruit FinTechs that could become complementors is key. The advantages of the platform and technology used will need to be highlighted so that the benefits are clear. In many cases, platform banks will need to advertise FinTechs attached to their platform to increase customer engagement and participation. Keep in mind that the network effects are not necessarily positive when the platform's complementors (e.g. FinTechs) are many but not all of high quality.

5. Cooperate with your “complementors” but let them compete:

You should cooperate with them to make the pie as large as possible for everyone. At the same time, create a competitive environment for them with several of them competing within each category. Competition among “complementors” increases quality and innovation and reduces cost.

6. Ensure buy-in and synchronise all critical partners:

Sometimes this may entail shifting value from consumers to partners. Amazon did this by launching the Kindle e-reader as an extremely closed device, reducing value for end users but safeguarding the participation of publishers, whose fear of the threat of piracy was the deal breaker in every prior e-reader effort. Also, ensuring your collaborators are ready before you launch your product matters greatly. Rushing your innovation to market before your co-innovators are ready can result in a costly delay at the starting line.

7. Find the optimal balance between open vs. closed:

This enables the platform both to benefit from external competition and innovation as well as ensure quality and lock users in by increasing the switching costs through leveraging their demand economies of scale.

9.

Open Banking & the role of banks

- Julio Martínez

All of finance starts with a shared belief in the value of something. Whether that is a Mesopotamian clay tablet from the 2000 BC recording barley loans, a gold ingot, a \$100 bill or a line of computer code describing ownership of an asset on the blockchain, it all starts with the twin beliefs that the thing we have in front of us has value, and that we have a shared understanding of what that value represents.

The notion of value as a social construct is intimately related to trust. For a representation of value such as a bill to fulfill its social end, we must remain confident in its convertibility into other goods over time and in having ownership protection. In other words, for the fiat paradigm (currencies backed by governments) to work, one would expect for example that our savings, be they represented by wads of bills under the mattress or by a balance in

your bank's app, can be turned into a similar amount of, say, milk over time. We also need to trust that we can keep those savings safe, protected not only from theft but also ownership uncertainty (I cannot entertain any dispute that the exact balance in my bank account is mine) and privacy infringements (nor can there be any doubt that I'm in control of who has access to the information).

Trust rests at the core of our financial system. It underpins our ability to transact – if we accept this then it is easy to see why events that threaten that trust can be so damaging to the system. The 2008 crisis at Lehman Brothers (went under bankruptcy protection), Bear Stearns (sold to JP Morgan Chase) and AIG (massively bailed-out), to name just a few, are good examples but they are far from being the only ones. They sent waves of unprecedented impact across the financial community, challenging trust in the system, and the result was a decade of severe impact on global growth.

Building global trust in the financial system is not an easy task, especially considering how critical and strategic this sector is for the real economy to thrive. We all want payments to be error-free and frictionless, our savings to be safely stored, and credit to flow so that people can afford houses and companies can fund promising projects, but fulfilling these requirements is seen as a baseline. In this kind of environment, how do we safeguard something as fragile as trust?

Here is where banking regulation comes into play, ensuring trust and its defensibility. Regulation provides requirements and guidelines for banks, rendering them subject to strict controls that will ultimately increase trust in the system. Bluntly put, modern banks' ultimate competitive advantage is regulation. It protects the core function that banking performs for society (lending) and ensures that deposits are safe. Importantly, it acts as a wall around the industry. The licenses that govern banking-related activities represent significant barriers for entry to the sector. Arguably, new entrants such as large tech companies (e.g. Google, Amazon) are in a position to obtain those licenses and enter the sector. However, retail banking has always been a business of efficiency, and regulatory proliferation, whilst building trust

and protecting customers, is also a costly burden that makes banking economics less attractive.

We are witnessing players with a huge user base such as Amazon tapping into parts of the banking value chain, but not primarily motivated by stand-alone unit economics. The factors driving tech titans to enter the banking market are much more focused on creating a better and more comprehensive service for their customers, and consequently accumulating more data. For instance, when WhatsApp globally releases the peer-to-peer payments functionality, which is currently being tested in India, it is likely that their motivation will relate more to staying relevant to their users than straight monetization. These tech titans, such as WhatsApp, will be comfortable competing on price and, in the process, will reduce the value that banks used to obtain from certain parts of the value chain.

There is an exception to this. Traditionally, we have considered regulation to provide a protective barrier around the banking industry – obviously not an unsurmountable one, as evidenced by the many fintechs that have secured a full banking license (e.g. Monzo, Klarna, N26). However, how does Open Banking fit into the broader regulatory framework? In a way, Open Banking regulation and the sequels to come will reduce the barriers to entry, speeding up the penetration of new entrants into certain parts of the retail banking value chain. The goal is worth it: standardization of technologies such as data aggregation, the ability to seamlessly embed payments into any customer experience, and the capacity to improve a banking offering based on data can dramatically improve people's relationships with their finances.

Even though regulations can, generally speaking, be considered a competitive advantage for banks, Open Banking regulations represent a challenge as they further blur the frontiers of the banking sector. At the end of the day, let's not forget that banks' core business is processing data. In other words, banks' capacity to charge interest and fees to their customers ultimately depends on the banks' capacity to be trusted to store sensitive data and effectively process it for people to transact.

For most of its six-hundred year-long history, banking has

essentially been a process of keeping records, or to put it more accurately, processing data. In 1202, Fibonacci published his *Liber Abaci* and introduced the Hindu-Arabic numerals (1, 2, 3, 4...) to Europe. Most notably, he showed how to apply the decimal system to commercial bookkeeping, currency exchanges and interest calculations. As a result, the basics of banking were put in place and the "banks' book" took the central role in the running of the business.

Initially, the amount of data to be processed was not that much – enough to be processed by officials sitting in a bank. However, transaction volume increased dramatically over the following centuries and so did customers' demands. Technological advances made the processing of this ever-growing amount of data more efficient, and as these two evolved, the processing power and expertise necessary to handle all the data became the crucial factor that allowed banks to defend their positions. From an operations perspective, banks had become large centers for processing data – the only place with the requisite processing power to handle all the banking and insurance business complexity in one place.

Information (or in other words, data) together with client relationships were and still are banks' key business levers and Open Banking is affecting both by increasing the already severe risk of disintermediation that banks face. Of course, the banking industry is not going to suddenly decide that now is the time to stop evolving. If we accept this, then the real question about Open Banking becomes how, as opposed to whether, banks will adapt. In this part of the book I will be looking at the process of adaptation that banks will have to address and specifically focusing on the changing nature of their relationship with their customers and implications of an ecosystem-based world.

Evolution of the banking relationship

If we take a step back to gain some perspective, I have the impression that banks have always followed a mantra: the closer to your clients, the better. Early European banks could be found almost exclusively either in trading hubs or in royal and aristocratic enclaves. This is not surprising.

Banking was, and to a great extent still is, a relationship business built through regular contact, physical proximity and access to critical strategic information (data) related to commercial flows, and both political and personal interests.

From the Medici family in the XIV century, the Rothschilds in the XIX century to bank branch managers in small towns across the world as recently as the very late XX century, the banking business has been based on developing local, trusting relationships that allowed bankers to capture relevant data and better understand clients' needs.

In Sienna, there is a branch of the Banca Monte dei Paschi, founded in 1472 and considered the world's oldest bank still operating (amidst difficulties derived from the Great Recession). In the XVI century, it was (conceptually) a place to build local relationships, a local repository for important data and a local processing centre for that data. If you were to go into that bank branch in Sienna today and analyse the activity that is going on there, I doubt you would find that the nature of the activity had substantially changed.

For centuries, bank branches have been headed by representatives that focused on building local relationships, becoming the main character in the banking experience. Banks used this format to scale and expand. As with any other retail business, having lots of physical stores in the best locations was synonymous with business dominance. As a matter of fact, bank branch "capillarity" has typically correlated with market share, and this is still the case in most European countries when it comes, for instance, to attracting deposits.

This is changing now. Banking is of course heavily impacted by digitization, which decouples physical presence from market share and revenues. Exponential technologies have triggered the collapse in price of storing and transmitting information and have fundamentally changed our world – banking has not escaped. If you go to a fintech conference these days you will constantly hear phrases like "disruption", "paradigm shift" and "incumbents' reaction", as well as many repetitive conversations questioning whether these recent technological advances are a "challenge or an opportunity" for banks. Candidly, I believe that the banking industry is

seriously trying to reach for the new frontiers that digitization has opened up. In the process they are embracing the new banking relationship model that the soon-to-be most numerous generations demand. Let's face it: the closest and potentially most effective way to reach a customer is through their mobile. Your bank at your fingertips.

I would argue that we are transitioning out of the first wave of disruption now. Digitization's impact so far has been profound in one sense but it has been limited to affecting the way people consume the same analogic products. "Customer experience" continues to be king and we have to admit that many players, often banking incumbents, have a long way to go before they excel at it. That is to say, despite all the change brought about by digitization, many banks and fintechs are pushing forward the same old product. The only difference is that it is now wrapped in a digital paper. For instance, you have been always able to contract a loan in your local bank branch by accepting the hassle of paying it a visit – nowadays you have it available at your fingertips, ready to be contracted in 3 clicks. Yes, it's easy, fast and smooth, but it's the same old loan.

It is worth remembering at this stage the first wave of disruption has been driven by the innovators' capacity to deliver a substantially better user experience at a fraction of the incumbents' cost. This may not always be the case and there are fintechs still in search of a sustainable business model. Building scale is not an easy task – customer acquisition is especially expensive in the financial sector, switching costs are high and trust plays a critical role.

This is not to say that it has proved impossible. I have been profoundly impressed by how certain players have created a great user experience while maintaining a wholesome ambition to compete in costs too. For instance, Transferwise, a well-known European unicorn that reached break-even in early 2017, has been able to scale up whilst leveraging its technology to continue decreasing its cost base. Similarly, Stripe, an online payment service provider to merchants and individuals, has thrived by focusing on a niche, expanding quickly overseas and totally excelling in service delivery with a controlled cost base.

I believe we are now seeing dynamics that correspond to those of a transition phase towards a second stage of disruption. A clear signal is that innovators are leveraging technology to add new features to products that had not evolved for a very long time. For instance, in the insurtech arena both Trōv and Lemonade have pursued an insurance atomization strategy which, combined with an unbeatable user experience and killer prices, results in a phenomenal value proposition. This is not the same old product but a fundamentally different approach to insurance.

We are starting to see the tip of the iceberg as we enter the second stage of financial services disruption; banking's digital journey from products to services. If we could revisit the small town bank branch that we mentioned before back in the late 1990s, we would soon realize that banking products were, at the time, effectively turned into services through the personalized human touch that a physical distribution network allowed. Banks' factories were conceived to create and release products, but the relationship-based distribution made them feel like services. As the digital realm further dominates banking, incumbents find themselves in the race to become truly client centric and learn how to create digital services.

The institutional memory built up by banks through centuries of relationship-based banking is both a blessing and a curse. On the one hand they have become adept at understanding and meeting the deep financial needs of their customers: the need for stability, the needs for a sense of control, safety, financial wellbeing and human understanding, on top of the need for housing. The relationship model helped them to understand their customers and create service-like experiences around their products. The best banks will use this expertise to ride out the coming wave of disruption.

On the other hand, this relationship model is dematerialising. Financial products are already commoditised and institutions are finding success where they are able to embed financial services into more meaningful experiences. The use of a financial product is typically contingent on an end: nobody wants a mortgage or a loan. They want the house or the product that they buy. Financial products are often

meaningless in themselves, and it is very likely that we will end up consuming them far more frequently when they are packaged together with an experience – it seems to me that the emergence of a concept I would label as “Experience Banking” is well underway.

The deep human need for material security finds its most powerful modern expression in the need for financial control; a single touchpoint that concentrates your relationship with your finances in one place. Banking products are becoming ubiquitous and in order to handle this proliferation effectively, we will need to have a one-stop shop that offers a 360° view of our finances. In doing so we will unlock the capacity to do far more – to use smart data to cut through the noise, provide digital expert advice for retirement, invest according to an appropriate risk profile, obtain debt based on our real capacity and insure effectively to mitigate risks and enhance security. Clearly, we may consider banks well positioned to be trusted to offer this single view service, but Open Banking is here to stay, and the fact is that it allows any player to compete in this critical space for the consumer.

Open Banking and rise of the platform model

Open Banking fosters this competition and, in the process, renders financial services much more exposed to the snowball effect that platforms represent. We must face up to the fact that a relevant share of banking products may be soon distributed in broader marketplaces and platforms bundled with end products. In this sense, Open Banking entails a clean cut between the distribution of financial products and the manufacturing of the same, placing more competitive tension on the first.

“Vertical disintegration” has become a very common expression in banking. It describes the process through which intermediary industries spring up in the middle of a previously “integrated” industry’s value-chain. Banking is such an industry. Historically, in many countries it has owned the whole process from the conception of a product, the manufacturing of the same to its distribution and eventual purchase by a customer. For decades, it all happened inside

the same metaphorical four walls. This is no longer the case and the phenomenon is not uncommon elsewhere in the business world; for instance, it happened to the car industry when independent franchise dealerships became the primary point of purchase for most new cars.

Vertical disintegration can be hazardous for the banking industry, especially under current competitive dynamics. Platforms own an increasing share of mind for the customer, and have emerged as potentially the most dangerous intermediary for banks' relationships with their clients. In other words, as platforms (and potentially other players) get to know their customers better, financial institutions run the risk of becoming unnoticeable for their customers and being relegated to the least lucrative role in the value chain: manufacturing commoditized products. Playing a low margin game that requires an extreme focus on efficiency jeopardizes profitability and is not exactly the business that bankers dream of. Financial institutions' competitive answer should consider becoming platforms and ecosystem drivers themselves – clearly not an easy task.

Discussing the ever-expanding platform model demands a reflection on data usage and privacy. As evidenced by the scandal surrounding Facebook's data issues with Cambridge Analytica in April 2018, it is clear that the relationship between people and their data is quickly changing. Across the world there is general realisation that personal data is extremely valuable, that the value should be owned by the person that created it, and that trading that value in exchange for services may come with privacy consequences.

Individual ownership and full protection of personal data may take some time to become mainstream but we should not underestimate the effect it will have on the financial industry when it does. The winners will be those banks that manage to deliver value back to the customer in exchange for their data; those who can merge financial data with other types such as social media and geolocation to create genuinely personal experiences; those who can leverage data not only to customize an optimal basket of products to each category of clients but also fully integrate financial

products and services with customers' lives through digital coaching and support. The value proposition of a personalized digital financial concierge that proactively adds real value is what banks need to become. There are not many banks that look well positioned to meet the goal of embracing "Experience Banking"; those that do not hit this target will face the prospect of being relegated to the status of provider, shipping transactions to and from someone else's applications. Again, the threat of banks as utilities and infrastructure providers.

This new data paradigm is giving rise to a whole new category of business. The concept of "banking as a platform" is not new but as a model I believe it will prevail in the near future. I reiterate here that I am talking about the model, not the companies currently adopting it. The idea that any new provider can create an essentially modular financial services experience by simply cherry picking the best-in-breed products from a number of suppliers is attractive but it faces a serious challenge, namely scalability. As Alex Rampell at Andreessen Horowitz said, "the battle between every startup and incumbent comes down to whether the startup gets distribution before the incumbent gets innovation".

It seems to me that it is easier for an existing player to adopt a new model than it is for a new player to achieve scale. However, I still hesitate on how the photo finish will look like in light of the tremendously successful scale-ups such as N26 and Revolut, as well as the remarkable support Venture Capital firms provide fintechs (i.e. \$44.7bn in 2015-17 according to CB Insights).

Recent rhetoric in the kind of banking industry reports that tend to set common opinion points at "Big Tech" as the major threat in the sector. Fintechs, according to the popular narrative, are players that will need to collaborate with incumbents in order to achieve success and that seem not to pose a real systemic risk anymore. I understand the point that many fintechs (and by the way many startups in other sectors) have struggled to build scale in a traditional consumer facing model (and sometimes pivoted to selling to other businesses). However, I firmly believe that there are successful fintechs that are well placed to painfully erode

the incumbents' status quo. Banks' competitive reaction to emerging fintechs is key for them to thrive in the future, and it is not surprising to see remarkable examples such as Marcus (by Goldman Sachs).

On the other side of the competitive landscape, the entry of Big Tech companies such as GAFAs (Google, Amazon, Facebook, Apple) into the financial industry could be potentially devastating for incumbents given the huge user base and brand power these players command. The danger for banks is compounded by the fact that GAFAs are genuinely more at home with experience design than the banks are. For evidence we only need to look East: Alibaba and Ant Financial, Tencent and WeChat, Baidu with its breadth of financial services (e.g. Wallet, financing, wealth management), Kakao Bank, Jibun Bank, Jenius, etc. The penetration of financial innovation in an unbanked mass market resulted in the best of consumer facing fintech taking place in the East, as evidenced by their capacity to scale and monetise. In a sense, I believe that fintech is to the East what advertising technology (Adtech) was to the West.

Finally, I believe it is worth reflecting on the profitability challenges that the platform model poses. Digitisation often triggers a steep decrease in an industry's total revenue base and its subsequent profitability, simply by transferring value from incumbent players to their users. For instance, streaming and digital downloads significantly contributed to reduce the music industry's retail revenues. This has already started to happen in financial services and will continue to do so as wide access to information fosters constant price comparison in aggregators and platforms. It only increases the feeling that many product categories have been commoditized. Differentiation in manufacturing and production will come through specialization, or in other words the capacity to add real value to users in certain niches. This dynamic only reinforces the "the winner takes all" outcome a platform model produces. Those players that manage to capture more data and learn how to deliver value on it will gain a superior share of value across different industries.

Open Banking accelerates the financial services industry's

transition to the platform paradigm. If customers agree to it, banks will expose their financial data via Application Programming Interfaces (API) so that any player (including the GAFAs and fintechs we have been discussing) can bring it together with data from other sources. Those same players will be able both to create the experiences, empowered by their newfound access to data, and to deliver on them thanks to payment licenses that will be part of the regulatory shift. The faster a player can acquire data, the better the experiences they will be able to deliver, the more customers they will attract and the faster they will acquire data – it is a powerful cycle and each time around will be faster than the last.

To wrap up

Jeff Bezos, founder and CEO of Amazon, stated that “the balance of power is shifting toward consumers and away from companies... The right way to respond to this if you are a company is to put the vast majority of your energy, attention and dollars into building a great product or service and put a smaller amount into shouting about it, marketing it”. In other words, customer centricity is the only way forward. Banks are mindful that in the new competitive context, building a value proposition that places the customer at the centre will be critical. To that end, many banks are redesigning their “factory”.

My impression is that banks are fully aware that their products are turning into services, and that these need to be designed ‘together with’ and ‘for’ the users who aim at having a holistic view of both financial and non-financial needs. Many financial institutions are set to expand beyond their customers’ financial lives. For an increasingly large section of society, there is an unavoidable link between finance and the experiences that it enables. Becoming a trusted enabler of these experiences is the real goal for banks; becoming a digital concierge that adds value in both financial and non-financial value chains.

This is, of course, easier said than done. In general, large corporations have a lot of cultural inertia and short-term profitability pressures that hold back innovation. I believe

that banks need to decisively solve these challenges in order to stay relevant and to conform to the digital reality.

A new generation of customers newly armed with the ownership of their data will demand outstanding services from their banks. They will demand a new kind of relationship with their money, one that meets the expectations set by the intelligent automation that is happening elsewhere in their lives. They will be looking for services that actively help them to achieve their life goals and that manage to do so whilst reducing the amount of time and effort that they put in. As banks, fintechs and other players such as large technology companies deliver to these expectations, we must all support this transformation. It is a positive development not just for the financial industry, but for society.

10.

Banking as a Platform

- Julian Cork

Sitting at his desk on an ordinary day on Wall Street in 1993, a young Senior Vice President at hedge fund D.E Shaw & Co, was contemplating new investment ventures when he came across a startling statistic: World Wide Web usage was rocketing by 2,300% a month. As a former Computer Science student in Princeton and avid technology enthusiast, the 30-year old from New Mexico was already interested in the Internet as an expansive new digital platform. However, this growth was indicative of more than just another timid window of opportunity; it was explosive and pushed home the boundless possibilities of selling online - the world was in the midst of a major digital revolution.

From a potential cast of thousands of products, he settled on the sale of books. Like Barnes & Noble, bookstores were popular hangouts for all parts of society and sold thousands of titles under tens of genres. Nevertheless, this was but a mere fraction of the millions of titles which could be made available via a 'virtual' store. Making the decision to abandon his success at D.E Shaw & Co, and skip

the promise of a significant company bonus, the young entrepreneur began setting the foundations for what would become known as the 'largest online marketplace in the world,' with his first investment coming from the life savings of his parents. Promising them only a 30% chance of success, Amazon.com was born out of a rented garage – an online marketplace founded by Jeff Bezos with the slogan, 'Earth's Biggest Bookstore' and more than 1 million titles on sale to the world.

Over the first month of sales, Amazon made \$20,000 per week and since then, the company has built a cult following, becoming one of the hottest contenders to become the world's first trillion dollar company. Known as the 'everything store' that sells products ranging from clothing and garden furniture to movie rentals, its own devices (Kindle and Echo) and now groceries, Amazon has become synonymous with choice and consumer convenience - it's no wonder the retail giant continues to have such a loyal customer base.

Through Amazon, Bezos demonstrated the value of an online marketplace, but also the importance of getting to know your customers.

"Even when they don't know it, customers want something better, and your desire to delight your customers will drive you to invent on their behalf," says Bezos. "No customer ever asked Amazon to create the Prime membership program, but it sure turns out they wanted it."

With a broad range of products sold by thousands of sellers, control is firmly placed in the customers' hands. It is the seller who is at the will of the customer, not the other way around, serving to create a fairer retail environment and build a degree of intimacy that has made Amazon indispensable. Alongside intuitive UX design, Bezos' platform offered improved convenience and a fix for traditionally lengthy processes. It has not only made the overall retail experience more enjoyable and efficient, but has also given customers a better service in return for less effort and money. Beyond this though, Amazon's success has had a broader impact. Through its near ubiquity in modern life, Amazon has normalised the kind of

experiences it offers and has, in the process established a benchmark against which consumers can judge providers in other areas.

Today, the creation of online platforms has moved way beyond the retail sector. Technological innovation is delivering solutions and changing the way that people consume services in a wide spectrum of industries, from music to transport. The financial sector is no exception – however change here in the financial technology, “FinTech” space is really just beginning. New digital platforms are changing the way the industry works and facilitating a better service for consumers.

New business models have emerged as a result. One example is Marketplace Lending (MPL), otherwise known peer-to-peer (P2P) finance which involves the channeling of funds from investors to borrowers by means of an online platform. A unique feature of Marketplace Lending platforms is that they facilitate loans which are direct contracts between lenders and borrowers. This sector emerged in 2005 in the UK with the establishment of Zopa and has in recent years experienced significant levels of growth with platforms providing finance across the spectrum of personal loans, small business finance, property-related lending and invoice finance. Since 2010, more than £9 billion has been lent by Peer-to-Peer Finance Association members who collectively comprise around 80% of the total UK Peer-to-Peer lending market. Technology, in the form of online marketplaces, means that borrowers can access funding from multiple sources in one place and investors can directly invest into loans. This efficient structure provides benefit to both sides of the equation – lower rates and higher returns all through the elimination of the middle man – disintermediation.

Foreign Exchange is another area where platforms match supply and demand and thus provide efficient, disintermediated, currency exchange services outside of banking relationships. By linking together large groups, companies such as TransferWise complete foreign exchange transactions not by making expensive international transfers, but instead making multiple local transfers. Individuals wanting to send pounds to euros send

pounds to a sterling account in the UK and the company then sends money out to the recipient euro account from their own euro account which means that the money hasn't actually travelled internationally. As a marketplace exist where funds flow back and forth each local account receives credits and debits and thus can be maintained. This shift in model costs multiples less than banks charge and results in a more cost-efficient solution for the consumer.

Like Amazon, both innovations provide customers with a better service in return for less effort and money simply by matching supply and demand.

Similarly, Open Banking aims to introduce customers to a more flexible and customizable way of banking. The initiative provides the underlying mechanisms to draw together current banking and emerging financial innovations. It does this by using Application Programming Interfaces (APIs) standards – providing links between disparate systems – the 'Babel Fish' for financial communications. Open Banking is shifting the current financial landscape, it gives today's banking institutions the ability to consolidate the variety of financial products and services used by their customers into one place. It also enables other non-banking companies to challenge the current status quo. Today's financial business architecture was designed to work within the constraints of technology – this technology has now evolved and the business models need to adapt to take advantage of what this change brings. Like Amazon, Open Banking aims to create a fairer experience for customers by giving them greater control.

A Customer-Led Revolution

The conversation surrounding Fintech and its application in the banking environment has been growing over the last few years, as a rising number of startup disruptors are welcomed by a crowd of increasingly attentive potential customers.

These customers are simply expecting more from the finance sector. In other industries we see companies, such as Apple, delighting their target market with their innovative technology and designs by anticipating and in some cases actually creating new demand and expectations. In finance customers are asking why they cannot have the same type of innovation – disruption is being driven not by the underlying technology but from what it does to business models and as a result the changing expectations of customers.

This has been seen in other industries, as consumers demand shorter, simpler and more tailored experiences, so disruptor companies jump to meet this need, often ahead of traditional businesses that are hampered by legacy systems and require more time to adapt ingrained processes and traditional management mind-sets. The result is the birth of flexible platforms such as Airbnb and Netflix that have their foundations in a more personal approach and change the way we think about business by making products and services accessible on demand, meaning people can use these products and services wherever and whenever they need to.

Of course, the largest digital platform of them all is the Internet - a platform of platforms – which is responsible for the rise in disruptive activity. In itself, the Internet has always offered the convenience of free, perfect and instant; Internet storage is practically free, digital formats allow for perfect reproduction and, regardless of whether information is transferred next door or to the other side of the world, it is instant. This happy triangle of free, perfect and instant is the ideal foundation for companies looking to capitalize on customer convenience, and as they do so at ever increasing speed, consumers of all ages are turning to their services for all aspects of their lives. Of course the 'free' element of many online services comes at a price of your data, but that is another discussion entirely. Consider your average day, each one of us will turn online for news, shopping, directions, weather, communication, booking, research, entertainment and of course banking.

These business models are getting more innovative – they are not simply online replications of established businesses

– Marketplace Lending is revolutionising lending and investment, online Foreign Exchange is reducing transaction costs. The adoption and success of vast platforms, such as Amazon have broadened horizons and encouraged consumers to be more curious and receptive to similar technological developments across other industries. This is starting to happen at pace in the financial services sector as people turn to Fintech solutions to meet their expectations of the industry.

Just like the retail industry in 1993, the financial services industry is ubiquitous; it is an industry that has many complex, administrative and time-consuming processes. Consequently, the opportunities to disrupt the landscape and provide customers with solutions that meet customers' expectations of simple, faster, better and fairer are numerous; that's where Fintech comes in.

Fintech has always been a part of financial services – it is nothing new. Banks have always embraced technological innovation from adding machines, through mainframes and the first ATMs to high speed algorithmic-trading capabilities. Recently however, public interest and awareness of Fintech has increased as the solutions and innovation moved out of the back-rooms of banks and started to deliver solutions that face customers directly and provide engaging services that match their needs and expectations.

Traditionally, bank customers have been limited to managing their financial needs by choosing products from the institution that they bank with. Banks bundled services and drew customers in with loss-leader current accounts. This resulted in stickier customers using other services offered by the brand such as mortgages, savings, credit cards and FX, which are all profitable. People simply didn't move banks or look around for alternatives because it was difficult to get information about available products and a hassle to visit branches. The universal banking model where all services were provided in one branch, linked to one account meant that banks were able to retain customers and maximize revenue from add on services.

This is no longer the case. Today there are hosts of smaller firms which are offering products and services in

specialist areas of financial services that not only directly compete with those offered by banks, but also step beyond the simple bank transaction to help people manage their financial needs. These innovative firms can reach customers directly without branch networks through online applications and network marketing and are eating bank's margins. This means that it is commonplace for customers have multiple accounts, many relationships and an increasingly complex financial services environment to navigate – a modular banking environment.

The problem with this is that customers lose the joined-up view of their financial positions as they engage with a multitude of specialist services. It simply gets more difficult to manage as customers use more services – and this is a price that people are willing to pay today. However Open Banking may be able to help address this. The technology to consolidate, aggregate and manage multiple financial services providers into one place is a reality today. We have seen banks start to embrace this and not only provide their customers access to different fintech solutions but also to other banks. The customer benefit of having a single consolidated view combined with intelligent marketplace capabilities that suggest appropriate products to them given their overall financial position will drive the next wave of customer loyalty for banks. Loyalty which disappeared when bank managers no longer knew the names of the customers visiting their branches.

Ultimately, Open Banking is bringing the marketplace choice of Amazon to the financial sector and giving the customer better control over their financial service needs. And for the consumer of today, it's for this reason that Open Banking is a necessary evolution in the sector.

The Challenges

The move towards a modular financial sector means the universal banking model, as it currently exists, ceases to serve the market effectively. This presents many direct challenges to retail banks, largely in the forms commoditisation and disintermediation.

It is now no longer necessary to be a bank to provide customers with banking services. That means that in addition to the current pressure from challenger banks, retail banking institutions now face competition from smaller companies offering specialist products and non-financial services companies moving into the space.

Banks make money from a process called maturity transformation. Banks 'borrow' short-term account deposits (from the money you hold in your current account) and lend money out for longer-term periods. They manage the risk in liquidity and generate return from the income differential between what they borrow and what they lend - the Net Interest Income (NII). Banks require significant volumes of lending and deposits, coupled with higher margin add on services to be profitable.

Over the last 20 years, as growth in Fintech has accelerated and customers have become more tech-savvy, loyalty for banks has eroded. Customers are realising that they do not have to 'stick' to a single institution, as they once used to, but can pick and choose from a greater choice of specialist Fintech solutions that operate in a way which suits them. This modular approach to finance is serving to broaden the sector more than ever before.

As these specialist solutions and non-bank entities pick up business, banks market share is eroded. Banks face the real possibility of being reduced to a functional necessity – a commodity service to hold money - while newer innovations create the real value and take control of customer-facing business and importantly make the revenues. Of course, this will take time – personal financial management is often not at the top of an individual's agenda - so while the legacy models continue to work today, people will not prioritize moving – however, as it gets easier the velocity will increase.

Technology has now made it easier for consumers to evaluate the finance market at a glance and with much greater accuracy and transparency than ever before. Simultaneously, consumers have become more tech-

savvy and receptive to online finance alternatives, meaning that they are not only better-informed, but also do not need to rely on information recommendations from specialist financial advisors. The direct access to specialist capabilities is taking layers of intermediation, and thus cost from the industry.

With so many consumers now conducting management of their finances online, the digital space has become a hotspot for fierce finance competition and it's not necessarily the biggest brand that wins. The increased transparency of operating online is an advantage to smaller specialist Fintech companies, as it allows them to directly compete with banks and other larger financial firms.

Potential and Partnership

In 1942, political economist, Joseph Schumpeter famously said, 'Economic progress, in capitalist society, means turmoil'.

It is true that disruption, in its fiercest form, has the power to shake industries in an instant. Kick-started in 2008, Airbnb experienced explosive growth, receiving one million bookings by January 2011, more than two million by July of the same year and 10 million in June 2012. From a listing perspective, by 2017, Airbnb had more than 3 million listings worldwide, far more than the largest hotel groups - Marriott International with approximately 1.1 million listings, followed by Hilton Worldwide with 774,000 listings – far more choice for the end consumer and a first call marketplace for bookings as a result. However, economic progress through technical innovation does not necessarily have to result in turmoil. While specialist Fintech solutions have the potential to disrupt the financial landscape on a grand scale, they can also promote progress through collaboration with traditional banks.

A Digital Playing Field

The effect of this kind of independent Fintech innovation is

that retail banks, in their current format, are being pushed off the playing field. To counter this, some banks have already endeavored to acquire first-mover advantage with new mobile applications embracing some of the fintech competition ideas and competing head on. First Direct's partnership with the curators of this book, Bud, is a good example. But it is one of many. On recognizing the inevitable shift towards online platforms, others are also investing in Open Banking initiatives and working to understand ways they can better-connect and serve their customers. However, this all requires an immense amount of time, energy and resources.

Established banking institutions all have a degree of legacy technology to manage. This hampers their ability to compete with fintech startups which operate with smaller scope, simple processes, fewer stakeholders and new technology. Adjusting requires serious dedication to re-train traditional management mind-sets, re-imagine business models, invest in systems and change approaches to delivery. This is no mean feat and something that a lot of management consultancies are making significant revenue from by helping banks implement 'agile', 'cloud' and 'innovation' programs.

Rather than trying to compete directly, banks have a real opportunity with Open Banking to embrace the emerging modular customer centered financial ecosystem. They can position themselves as the aggregation point to partner with and endorse the best-of-breed fintech providers of each service. This means that rather than pouring time and money into re-building their legacy systems to build functions to compete with specialist startups they should focus on building marketplaces and monetize these functions through partnerships. Investment in Open Banking - sharing data and creating a marketplace service architecture will pay dividends.

For banks, working with fintechs would not only allow them to identify with the changing demands and expectations of consumers more easily, it would also put them back on the map as modern, digital and consumer-centric institutions. Meanwhile, for newly launched fintechs, the association

with retail banks is a prime source of credibility, while access to a broader customer demographic is, in addition, the ideal springboard for their business. Through working together, the investment in sharing expertise and capabilities would not only benefit both parties, but it would also mean that effort is combined and directed in a way that is useful for the consumer.

In my view this works for the big institutions who leverage their core capabilities and customer base. They monetise the functional areas where they have been losing ground without the need to invest and re-brand. This works for the specialist startup financial services providers who gain access to wider customer bases while focusing on the service offering and are incentivized to stay relevant and ahead of retail demand to remain in the partnership. And most importantly, this works for the customer who gets to access the best services in one single, simple environment using Open Banking technology to continue to access the right products to meet their requirements.

Better Together

To facilitate this vision, platforms are using the Open Banking APIs to connect retail banks with the innovation of Fintech SMEs and offer customers the joined-up experience of one fully customised and personalised banking app. Instead of logging into online banking to see a full list of transactions, with Bud, consumers are able to expand on this capability and link the myriad of additional products and services that they use today to their single account. It means that alongside their monthly expenditure, they can obtain personalised insights from a single source and review different aspects of their finances from their pension to the transfer of money abroad.

HSBC and First Direct are two of the first UK banks to partner with a platform like this and address the change in customer needs by improving the relevancy of their services. The pilot allows the bank to integrate third-party providers quickly, providing a variety of product choice and convenience to their customers. The result is the ability for the customers to

review and manage their finances via a single dashboard and wider, updated market insights for retail banks.

While it is clear that Fintech solutions do well at bringing banking processes up to scratch, the change in mindset that facilitates partnerships must come from the decision-makers in retail banks themselves. The rise in modular finance has increased the pace of change in the industry and if banks do not respond to take timely advantage of this opportunity, alternative solutions will develop and Fintechs will compete in strength, by partnering with themselves.

Revolut, the online current account provider is a good example of this in practice. By combining pure fintech services from other providers into their mobile application, they provide a far wider service offering and can, as a result, directly compete with the banking sector. However, it is important to recognise that while there is a widespread movement towards more modern and better Fintech services, trust remains in the established retail banks, demonstrated by the way that the majority of consumers are still anchored to UK retail bank accounts. Nearly everyone who has a challenger bank account also retains their 'real' bank account in a legacy institution. This is something that any new fintech challenger will need to spend a lot of time and effort to replace and supports Open Banking collaborations as a realistic next step in the industry and a fairer and better blend of the old and new.

Challenges to Partnership

Alongside the challenge posed by Fintech specialists that collaborate in disrupting the industry, other trials faced by this partnership model include, uncertainty surrounding third-party data-sharing and the attitude of banks themselves.

In Open Banking, innovative technology allows people to share their transactional information faster and easier; third parties can help people move money around their accounts and customers are able to experience a more transparent service guided by publicly available satisfaction scores and

other service-level indicators. This sounds advantageous for consumers. However, while GDPR has done a lot to address this, the historical ambiguity of online terms and conditions clauses, has lead to any association with third-parties becoming synonymous with privacy issues, spam emails and an increasing frequency of unwanted phone calls from unknown customer service centers – something that no customer wants. Moreover, some companies absolve themselves of third-party behavior, leaving the consumer on their own with the worrying responsibility of dealing with any related third-party issues from services or investment that are made through Open Banking partnerships. As a result, and particularly as many are not directly familiar with the details of Open Banking, the conversation surrounding third-parties could be enough to put many off the concept before they really know about it at all.

The real challenge is to bring consumers close enough to trying Open Banking for themselves to see the benefits rather than reject it outright. One way to do this is through re-education; it's not enough to simply say that Open Banking is 'safe.' By creating short, jargon-free collateral, businesses can highlight the greater transparency of Open Banking and the ease with which people can manage their finances through a more integrated banking ecosystem.

The second challenge to partnership is the attitude of the banks themselves. While some banks, such as HSBC, have been quick to seize the opportunity offered by Open Banking technology, it is not clear how many others are interested in the partnership model as a means of expanding their consumer offering. For now, banks can generally rely on their large customer bases and the custom of those dubious about the value of Open Banking. However, as generations outgrow themselves and Open Banking platforms normalise, so legacy banking activity is threatened by an increasing level of competition, from specialist fintech alternatives and the banks that have already engaged in partnership.

Since Jeff Bezos first brought Amazon to the retail sector, the value of the online marketplace has soared to direct business operations across almost every industry in the modern day. For the finance sector, as consumers become

more precise in their demands for a personalized service and more open to sampling the offering of innovative SMEs, so established institutions, such as retail banks, must work harder to compete with more agile Fintech alternatives that rise to take advantage of this unique business opportunity.

Challenges to traditional banks, such as disintermediation and commoditization mean that industry rules have changed; companies are no longer required to be a bank to offer banking services. Although the increasing modularization of the sector brings consumers a bigger choice of more efficient products and services, it also creates a more fragmented financial ecosystem, rendering banking services even more insignificant, in a crowd of more advanced and agile alternatives.

While there may not be room in society for banks to operate efficiently in their current form, they are still necessary pillars in the economy. Despite the attraction of Fintech alternatives, many people still have a bank account and there is no mass rush to change this. The only real difference between those who simply become money-storage spaces and competitive financial options is partnership.

Open Banking partnerships between innovative Fintech platforms and trusted retail banks is not only mutually beneficial, but also improves the sector for consumers plagued with the multiple accounts (and login details,) of an increasingly complex financial ecosystem. As well as saving banks time, a vast amount of money and resources, partnerships allow fintechs to access a wider customer base in a way which also brings more financial options to consumers looking for a better way to manage their money.

Marketplaces facilitated by technology have changed many industries so far and the Open Banking initiative is the catalyst for financial services. I am looking forward to seeing greater partnership between the incumbents and challengers as together they bring capabilities to the customers who have been expecting more in this space for a while.

About the authors:

All of the authors in this book are contributing in a personal capacity. Views expressed are not necessarily those of the organisations they represent

Chris Skinner:

Chris is an author, speaker and fintech commentator. As well as writing the best-selling books Digital Bank, ValueWeb and Digital Human, he is the Chair of the European networking forum, the Financial Services Club, Chair of Nordic Finance Innovation and a Non-Exec Director of 11:FS

Tao Tao:

Tao is Director of Business Development EMEA of Alipay, the world's biggest fintech company. He worked as many senior positions in TMT sector between east and west, specialised in mobile innovation, B2B & B2C selling and digital transformation. Tao currently leads the strategic partnerships development and builds Alipay ecosystems in EMEA region.

Devin Kohli:

Devin plays an active role in the growth of Investec Emerging Companies UK's portfolio companies, advising management on growth strategy and leveraging his extensive international network of corporates, institutional investors and founders. Devin is licensed as an EuVECA Fund Manager by the FCA and is an alumni of Eton and the London School of Economics.

Alex Matchett

Alex is a journalist and editor specialising in investment and innovation. Before joining Glint, he spent three years as an assistant editor and head of research for Spears. In his current role he curates Glint perspectives, an online magazine focussing on finance and technology.

Peter Mühlmann:

Peter founded Trustpilot in 2007 and remains its CEO today. Under his leadership, the company has grown to employ more than 500 people and handle more than half a million reviews every month.

Oliver Mitchell:

Oliver is the founder of Moneycado, the world's first savings account for travel. Previously he worked in product management at HSBC across Australia, New Zealand and the UK.

Merlin Gore:

Merlin's responsibilities include security and architecture at Bud. Prior to joining Bud, he spent seven years as a web engineer at FGL and founded his own ecommerce business. He has a masters in Computer Science from the University of Southampton.

Dr Markos Zachariades:

Markos is a professor at Warwick Business School and a research fellow at the University of Cambridge. His research focusses on the intersection of economics and digital innovation and has been published in many top academic journals.

Dize Dinckol:

Dize Dinckol is a Doctoral Candidate in Business and Management at Warwick Business School. Her research focuses on the changes in banking industry following PSD2 and open banking initiatives in the UK. She is the recipient of the 2018 Strategic Management Society Research in Organisations Award as part of the Open Banking research team at Warwick University.

Dr. Pinar Ozcan

Pinar holds a Ph.D and dual Bachelors degrees from Stanford. Since completing her PhD, Dr. Ozcan has received a number of accolades including the 2016 SWIFT award for the study of the UK Banking industry's transition into open application programming interfaces (API's).

Julio Martinez:

Julio is CEO of Banco Sabadell's hub for new digital ventures. Innocells brings together the values of the startup world and the experience of Banco Sabadell, helping to form fintech strategy and shape the strategic investment strategy. He has held a number of roles at Sabadell and Citi and holds an MBA from the University of Navarra

Julian Cork:

Julian has more than 25 years' experience in Fintech. Prior to Joining Landay Partners (where he currently serves as a board member and COO), Julian held executive and MD roles at both JP Morgan and Macquarie Group.

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