RBS

Technology & Innovation Seminar
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RBS

Simon McNamara, Chief Administrative Officer

Christine McPherson, Finance Director, Services & Functions

Kevin Hanley, Director of Innovation

Questions From

Alexandro, Analyst

Alastair Ryan, Bank of America

James Irvine, Soc Gen

Alvaro Serrano, Morgan Stanley

John Cronin, Goodbody

Rohith Chandra-Rajan, Bank of America

Jenny Cook, Exane BNP Paribas

Aman Rakkar, Barclays

Chris Cant, Autonomous

Transformation and Innovation Overview

Simon McNamara, Chief Administrative Officer
Welcome everybody and thanks for coming in. And hopefully you'll get a chance if you haven't been in here before to enjoy one of our new facilities. So, welcome to the new centre of our business here in London, 250 Bishopsgate.

We're going to spend the next wee while talking to the progress we've made, but importantly the platform we've laid for our technology for this organisation. And obviously we'll have some time for questions at the end.

I'm going to be accompanied by two of my colleagues, we're three, a very small representation actually at the end of the day of a very large part of the Bank's organisation, but with Kevin Hanley, our Director of Innovation and Christine who's our CFO for this part of the organisation.

So, all three of us are going to present over the next, let's see how long this takes. Let's say an hour. Famous last words, right? It might take a little less.

So, I'm going to open up. Christine's then going to talk to the financial highlights, which means actually getting into the finances in a little bit more detail than I'm going to go. And then Kevin's going to talk to our Innovation Agenda and then I'll do a wrap-up and then we'll come to some questions if that's okay.

So, it's a very grand slide. We all know that the business of banking is changing. In fact it's been in a constant state of change through certainly my experience and time in this industry. I joined as a technology graduate with an interest in economics and statistics; I did a first degree in that many years ago.

And what we're seeing is actually the delivery of new and disruptive capabilities and new emerge at a rate that we've not seen before in the industry. So, what I wanted to do today was to really reflect on our response to that.

Now I stood on a stage not far from here, actually 280 Bishopsgate five years ago. Ross had just gone into the job as Chief Executive and I'd just joined the organisation to be the Chief Administrative Officer. And we were presenting in the first results session and laying out the plan for the next five years.

I got a chance at the time to say we were going to do four things with the platforms of the Bank. The first thing I said we'd address was their resilience. Now, coming on the back of some of the challenges we've had in 2012 that was an obvious focus for us.

The second thing I said we'd do is simplify things.

The third thing I said we would do was to deliver more efficient outcomes for our customers and for ourselves.

And the last thing I said, and I whispered, was the word innovation.

And at the time actually a number of people said to me - you're not here to do that, get back in your box. And you'll see some of what we've done by ignoring that feedback and that advice. There's a theme there.

This evolved to the four threads with our strategy here. And there's not one at the expense of the other. These are the four dimensions of how we have nurtured and enhanced the platform for this Bank over the last five years.

As you'll have seen, the cost base of this organisation has reduced quite substantially over the time which Ross has been in the seat and I've been in the organisation. But some of the things you might not have seen are actually the quantum of investment through that time, which has been quite substantial. It's about £7bn, which is what we said we would spend.

And that really has gone into transforming this Bank and giving us a platform now that we think is a strong platform and a strong foundation.

You'll see a couple of the metrics here just in terms of how the dynamics of that spend has changed over time as well, and we've gone from, I guess, more of a focus in the mandatory and regulatory investments into a greater focus in what I consider to be discretionary over time.

That's yielded some real outcomes and I quite like this slide because it captures on one slide, if you've ever heard the term - walk and chew gum, this is the virtuous outcome of the investment that we've made over the last few years, so those four dimensions of investment.

Firstly, back in 2014 we saw over 300 outages to our core infrastructure that impacted our customers during that year. Right? In the last 12 months we saw 13, this year to date there have been 3. By the way, you haven't seen any of those I think this year. Yeah? That's a dramatic improvement in terms of the availability of the service.

Now, we've done that through investment. We've done that through the simplification of the estate here, so another metric I've put up on this chart is actually we have less systems now than we had back in 2014. We've gone from around about 5,000 to I think the slide here says, what, 2.3k. It's closer to 2.1k now and we're on a path ultimately to closer to 1,500.

So, you'd like to think we're probably doing less than we were doing before but actually we're doing considerably more than we were doing before. There are applications in this estate now that didn't exist at all, so this is the net outcome from a significant investment that has created new capability at the same time as we've actually rationalised the estate. We've gone from multiple solutions to some problems to single solutions.

We've also enhanced what we term here the control environment through that period. So not only have we stabilised the platform and simplified it, it now merits a rating which is shared externally from a control perspective which is markedly better than it was. And we said it was a three at the outset. We have a grading scale here of one to five. One is unattainable perfection, not really where you want to be, as a price pointer that doesn't make any sense. But we've now got a satisfactory of exceptions control environment for this platform that we didn't have back in 2014.

Interestingly as well, and I say this is a virtuous cycle or outcome, the volume of change going through this estate has increased as well. So it's up about, what is it, 20%? So more change going through the environment.

Change typically and historically has created issues but we've seen a dramatic reduction in the lack of availability of the service, or an improvement in the availability of the service.

Not only that, the cost of this platform's come down. So, to run this platform back in 2014 as I said has cost more than £1.1bn, closer to £1.2bn a year. It's now around £900m. So, volume of change up, cost down, control environment improved and the performance and availability of service markedly improved.

Now, we could have spent less and yielded a different set of dynamics. We could have actually introduced less change. That would have definitely reduced the volume of issues I had, but we didn't. Okay, so it's a virtuous outcome across those dimensions. And why is that? Because actually what we have now is a managed service and a managed estate.

And there's just one other stat I'll put out there. Back in 2014 we had 550 projects running in the Bank at that time each of which had met, and you guys will be familiar with this, some financial hurdle, we said there was going to be a return on them and so on. The problem was they had nothing to do with other 549. Okay?

We now run a single portfolio and have done for over five years. And there's a benefit to that continuity, so we've steered this through time and the emphasis over time has gone away from the mandatory, it's gone away from the refresh and it's gone into the new.

One aspect of security, sorry one aspect of the resilience of our platforms is the overall security and the availability of those services. I'll tell you this story because it was a very stressful point in our time together, Ross, wasn't it? And it was a Friday night and it had been a pretty full-on week here and we were seeing, as you saw, and exhibiting more than one significant outage on a daily basis.

And it was a Friday night and I was at the end of the week going with my wife out for the evening in Edinburgh, which is where I live, and Ross was in London going with his wife, Steph, for the evening and I got a call to say - actually our mobile platform's not available and there's been a DDoS attack and it's not available again. By the way, 34 times in that first year our mobile platform wasn't available. Not all for DDoS attacks but in that particular case it was.

And Ross said to me - what's it like talking to the shortest tenured CEO of all time? And I remember saying to him - actually what's it like talking to the shortest tenured CAO of all time? But it was pretty stressful that once a day I was having to call Ross to say - actually there's a service that's not available. And not in all circumstance but in many circumstances, it was due to external attack.

We went through the whole of last year without a minute lost despite the volume of external attacks on this platform, so DDoS attacks up by - well, a significant volume last year. The quantum of the scale of those attacks is like a hundredfold of the scale of those attacks back in 2014.

So not a minute lost through the whole year. And why is that? Because actually we decided to invest in the capability. By the way, ahead of the competition, so we were the first here who've seen others follow our lead subsequently. But we chose to take the proactive step to secure this environment to protect us from those DDoS attacks.

We've also and have decided that we were going to invest in our fraud capabilities. Now there are two ways of funding fraud. One is to give it to the fraudsters by actually replenishing every day everything that our customers lose through fraud, whether they're at fault or not. The other complementary way is to actually reduce the volume of fraud in the first place. So we've been very focused on investments that we could make that reduce the fraud that we have seen for the Bank here.

Now, this is an ongoing arms race in many respects. So the more we do the more that's thrown at us. But we've seen a marked improvement in terms of fraud performance through that time and some of the stats are here despite the volume of fraud within the industry increasing.

And the last thing I just wanted to call out here is in the last 12 months when I sort of made this case I've had to talk to an airline, to a hotel chain, to a Telco, all of whom are part of the system that ultimately make up the financial system of the UK, because they take data from our customers and they take payments and a number of them have been compromised.

There is a certain amount I can do to secure our perimeter, but we have to work with the broader community. And so Alison and I back in February hosted an event for our customers to come in where they thought they were going to have a bit of a lecture, and what we did was actually run a scenario where they'd been compromised. And we ran them through the next two hours what they would do in that circumstance.

They were to a person resounding in their appreciation for what had been run for them and their sense to, because it's not until it's happened to you that you really feel the pain of the compromise of that data. And that's happened as you say, with increasing - so there's a certain amount we can do for ourselves, and there's a certain amount we're doing for the industry.

We're also working with some of our peers in the other banks to build a community to further protect our customers.

Moving on. The world of Cloud. We've gone from no Cloud to everything in the Cloud. Neither of those statements make any sense nor are they ever true. We've been deploying Cloud capabilities internally and externally for some time. The volume of those capabilities will grow, continue to grow.

You can see here we've mapped out how we anticipate an increasing proportion of those applications, the 1,600 that we're tracking towards, will be hosted in a combination of our mainframe, other traditionally distributed infrastructure but importantly the build in both external and internal Cloud.

Now, that has an advantage from a cost perspective for some of those services, but not all. So where it makes sense, we'll do that. From a resilience perspective there are inherent advantages in for example some companies supporting their own applications through an integrated solution. And for us the cost and the time to spin up new environments.

Back in 2014 it would take me on average six weeks if we wanted to embark on a new initiative to spin up the environment that allowed our developers to start working on that in a material way and to deploy new capability for the organisation. It now takes me less than 30 minutes.

Now I might think 20 minutes is better and 10 minutes is better, 30 minutes gives you enough time to get yourself a coffee, get your head together and get on then with producing and using those capabilities. So that’s the transformation that we’re seeing of our capabilities in delivering new services for our customers.

I quite like this slide. I hope you do too. It shows you on the bottom of this slide the volume of change that we have had to deliver that has been decided for us in the last, what, three/four years. By the way, it’s just the tip of the iceberg in terms of regulatory challenge. But I’ve put those out there because these are some of the more substantial external demands on out time.

Now, we could have been completely consumed by that work, but we haven’t been. What I’ll show you on the top line are all the things that we've done in terms of deliverables for this Bank that have enhanced our platform during that same window.

It would have been very easy because regulatory and things you're told to do are a lot easier to do. You can just say - well actually I've got to do it. Yeah? The other stuff we had a choice about.

Two things I'm particularly proud of, the quality of the work we've done on the bottom line there. Our APIs were delivered on time for open banking. Now you might say that’s obvious, well that’s not true of every participant. In fact it’s true of only a small subset of the participants. So delivered on time of the highest quality. Future clearing, we've been ready and ahead of the rest of the industry.

And Brexit preparation, I’ll tell you a story. I got a call a week before the deadline, the second one in April. And I was asked by somebody who works for another financial institution in the UK what we were planning to do in terms of the migration of our customers to an entity somewhere in Europe to transition our payments. And were we going to do a big bang on that day in April or were we going to actually not be compliant for a period of time and just phase in the first important ones and then run it over time?

And I said to them - actually we’re done. We moved all our customers to that gateway a couple of months back, so actually all I had to do on the day is to change the label. Yeah, but all the engineering’s been done.

So we delivered Brexit on time, which is more than certainly the Government has and certainly you can see in the comment I've made that the approach of some of our competitors wasn’t as well prepared I’d suggest as the work that we've done.

So, the other thing as an overlay to this, remember we were the bank that actually had the even more special treat of the overlay of Williams & Glyn. So while we were doing all this, we were having to deliver a new bank and as you're all aware that was a significant overhead on the organisation.

I personally was consumed in looking to steer and to navigate that with a very big team within the organisation looking to stand up what made no sense, as we've said before just in terms of the scale of that, I mean a brand new broad based bank.

So that was the overhead at the same time all of this was done.

And by the way, that top line there, you haven't seen a single disruption to our service through the delivery of - did you hear about people not getting paid? It's a pretty material change putting a new payroll system out there. Did you hear about actually us struggling to get the numbers out? So we put a new ledger in. Bankline, which we delivered for our customers. All of this has been done to a high quality. And by the way, it sort of works. Right? People quite like this stuff. I'll say some more about that.

When we launched the programme back in 2014, we said they were the four dimensions I mentioned earlier. We also said we were going to invest in six areas.

Firstly, distribution, and you can see that with our new Bankline and with our mobile platform for example.

Secondly, the simplification of our estates, and you can see that in the metrics that I've put out there.

Thirdly, in the area of data, and I'll come back to that.

Fourth, payments, the simplification and the enhancement of our capabilities there.

And two other things. One was our base infrastructure. Now it's not often that gets called out. People like to talk about things other than that but actually we're seeing a dividend for the investment that we made in the base infrastructure.

But the last thing we said we'd do was invest in workforce enablement, we called it.

Now my first day in this job, actually just before I started, I was living in Singapore and I decided to go and meet some of my new colleagues in RBS in Singapore. So I went into the office and I said - so how do I get onto the network? And they said - we don't have one. And I said - you're joking. I actually used the guest network of ANZ downstairs to actually access the services the first day.

There isn't a part of this bank now that doesn't have - not only Wi-Fi but has the highest quality Wi-Fi. Our entire branch network and our entire Indian operation because we need the bandwidth for the services we're now putting through.

Four years ago the only company on the planet that used Facebook at work were a company called Facebook. And actually Kevin and his team, at my suggestion actually, walked through the front door of Facebook and said - you're using it to run your company, we've got all these things like Yammer and so on that actually to be honest people don't use outside of the workplace. People are already using Facebook around work with closed groups and so on; it's inevitable you're going to end up in the workplace, why don't you work with us?

And then somebody actually, Sean Ryan, who's one of the senior executives in Facebook who said actually he was told to meet Kevin and the team for breakfast in London to discuss this proposition. And he tells the story that actually at least he thought he was going to get breakfast. All right?

Out of that meeting we became the first significant company on the planet to deploy - Facebook at Work which became Workplace. We've got 75,000 people using that platform and I'd suggest that one of the drivers of the engagement schools in the organisation is by the way, not a minute's training in terms of the delivery of that platform. So 75,000 people being able to share in a positive sense what they want to within the work environment.

We can livestream and do from anywhere to anyone and not only Ross, myself but actually anybody in this organisation. So, we don't control that, we don't say you can't do it. We let people actually be grownups and determine what they think makes sense for others and if people don't listen then…

The virtual desktop on here. The end of the winter last year I think it was we couldn't actually get anybody into the building, certainly in Scotland. Back in 2014 it would have been an absolute disaster. You had no access to any services at all.

Now 75,000 people essentially in this bank can work from home. Now obviously if you need some of the access to some of the services in the call centre not everything is done from home, and the same with the branches for good reason as well. But that day there were about two of us in the office in Gogarburn. Literally the whole organisation didn't miss a heartbeat and people could work from home. So using that infrastructure to actually continue to run this organisation.

Zoom, which you may have heard of is now the tool of choice here. By the way, we do this stuff for the whole bank. We don't have different departments doing it. Hopefully you get the sense that this is one programme of work for one organisation, and that's a key differentiator. 38,000 Of our colleagues, it was none at the beginning of this year, can now access Zoom and can actually structure meetings that allow them to meet with their colleagues across the organisation. It will be the same 75,000 by the end of this year.

That has allowed us these initiatives and the many more on here to reduce our property footprint quite substantially as you've seen. I remember when I arrived here, we had Bankside 1 and 2, Aldgate Union's gone, Premier Place has gone, 135 Bishopsgate's gone, 280 Bishopsgate's going. So we're literally coming down now to here and a building in Islington that used to be a cash centre. That is where we do a lot of our innovation.

So the property costs have come down quite substantially and we've seen a dramatic reduction in our T&E expense. And actually that's continuing, it's actually picking up pace. We say here 13% T&E costs. I've actually reduced my travel expense, not my personal one, yeah? Well actually even mine as well, but actually my organisation's travel expense by 50% this year on the run rate for last year. These are material improvements in our cost to deliver through the delivery of technology across the organisation.

I've talked about the simplification of our portfolio and from 5,000 applications now to 2,100. What you see here are some of the new things that we've done. So these are some of the ante of things. You know, the first paperless mortgage in the UK. By the way, the NPS scores of these new capabilities is substantially above some of the legacy. You know in the 50s and the 60s that is what we expect.

I mentioned earlier Bankline and the investment we've made in the mobile platform there. We are the only bank in the UK that provides a mobile based service for commercial businesses that allow them to authenticate and approve payments without having to go to a desktop and actually use their mobile device. So that's a differentiator and actually something that we know is highly valued.

I'm going to talk more about Mimo, but Mimo is a new service that we've delivered to an increasingly large number of our colleagues and customers that uses our data to serve our customers in an enhanced way over anything that we've done historically. I'll say a little bit more about it later.

Now, I often get asked about our core platform because apparently, it's spaghetti, it's a piece of old junk and actually we should just throw it away and we should replace it with some beautiful thing out of the cupboard. The reality is it's not. Right? It is actually a - on the whole - brand new set of hardware with a brand new set of software. Some of the software might have been written some time ago, but it's current versions of that. Yeah? And actually it's a very modular environment and one that we continue to enhance what was a very complicated and more integrated platform historically through the introduction of new capabilities, particularly the APIs, we're opening up to an evolution of performance and capability.

What this diagram shows is one that Kevin and I put together about three years ago, maybe a bit more actually, was that we expected to be in a world where we weren't the only interface ultimately to the customer out there and that what we were going to have to do increasingly was to, and this was ahead of open banking actually and the delivery of those APIs, but we were going to be delivering the services of others through APIs to our customers and that we'd be looking to deliver services through others and their APIs to their customers. And that's essentially what this shows.

And what it shows is our banking platform supporting all of that. And there are many details, and I'm happy to touch on more of that later, of interest in terms of how we're using our core platform to service not just our so called legacy but actually the future capabilities that we're building.

So no need for some wholesale re-platforming of this bank. We can be as agile and clearly as robust and resilient as others through the enhancement of this platform.

One thing I will call out though is that it's a job that's not done. So what I get the chance for my team to focus in on is addressing the challenge we have currently of the focusing of pricing around the needs of our customers.

Ultimately where would we like to get to? We'd like to get to a situation where the pricing reflected the needs of 19 million individuals as opposed to what we have currently, which is pricing, which is disbursed through our systems and therefore we're in the process of extracting pricing from the underlying systems, our core and others, into a utility that will allow us to price connected to our data with intelligence. So that's really targeted. That's not basically a wholesale replacement.

There are so many aspects of the core system that just function, to replace them would be a large expense to get back to where we are today, and in some cases, a worse situation.

By the way, one of the other observations I'd make around these core replacements is just the trail of global challenge around the delivery of these platforms and then the, for some the regrets from the lack of focus on every other aspect of the estate because pretty much everything stopped for them when they went to replace their core. And they are in the process of if and in many cases made no progress on their core and just burnt through a lot of cash.

Now, I talked about our APIs. I was told to explain what an API is. Who knows what an API is? Nobody? Ross does. Ross is a - go on Ross, what's an API mate? It's an Application Programming Interface. There we are, there's a very clear definition.

One - if you can imagine, if this helpful that - and somebody gave me an analogy recently actually and I've tried a few. But you know, if you're in a restaurant and there are many customers and there are many chefs as there are in many restaurants, the way in which we once operated was essentially as the customer at that restaurant I'd read the menu, I would then go and find the chef ultimately who's going to prepare whatever my option and choice was on that menu. So just imagine a very large restaurant, lots of chefs and lots of customers.

The introduction of a waiter transforms that experience. So I as a customer look at the entire palate and gamut of what's available to me and I conclude I want the Chicken Kiev. I tell the waiter. I don't have to worry about which chef's going to produce it; I just know that the waiter's going to be able to perform that function for me.

The waiter then goes into the kitchen and he finds the appropriate chef. The chef produces the appropriate meal. He gives it back to the waiter, because it's not the chef that brings it to the table, it's the waiter, and you get the meal that you wanted.

So rather than the point to point, customer to chef, I've gone to a customer to API, to a provider of service. Hopefully that helps. If you all knew that already that's great, and if it didn't help, I'm happy to be advised otherwise. But that's a sense of what we've done. It's a reengineering of the way that we access the services that we serve up to our customers.

You might have also heard of the term, micro services. What we had historically were larger conglomerations of services and as we engineer through this environment, we're breaking those out into smaller services. So rather than a meal, it's a Chicken Kiev. There we go, I won't take this analogy any further.

But - so we decided some time back, actually when we'd launched this whole programme five years ago that investing in what we called our enablers, that the APIs was where we needed to invest. And that was a decision on behalf of all of us. All right?

We got ahead of the curve with open banking. Open banking has been helpful in the fact that it has forced the industry as a whole to adopt some of these approaches in technology. Why's that helpful? Because actually it allows us now to aggregate the accounts of the other banks for our customers, for example, through those APIs. What we have and as you see here produced some high quality APIs.

One of the advantages of downsizing your and our investment bank or markets business was the access to some of the talent that we didn't need on the scale that we had historically.

So we've kept a number of resources that previously were in our markets business that have been the builders of these APIs for our firm. That's led us to, when you see the recent CMA ranking of the overall quality of these APIs, that we had three of the top five places. Those three banks were the Royal Bank of Scotland, NatWest and Ulster Bank.

Now, you might think everybody's produced these, but they haven't on time, and they also haven't produced them to the same quality. If our quality rankings were in the 90s there are other banks out there that have quality rankings in the 30s. It makes them almost unusable in terms of those API's. That makes us a partner of choice. That makes us somebody you might want to work with, the fact we've got these engineers. And these engineers are top quality. Why are we able to attract people increasingly from the FinTech community to come and work in this place? Because of the quality of the engineering talent in this organisation and the fact that people see that.

289 Operational APIs to date. There'll be 580-odd by the end of this year. I can access elements of our core banking system through these APIs as opposed to binding our new capabilities tightly to the old if that makes any sense. So a partner of choice, high quality work and we are a leader in that regard.

Now, I said I'd mention data. It was one of our six priorities back in 2014. At the time we said we'd do three things. We said we'd clean up our data. We said we'd connect it up, which was to make it available effectively. And then thirdly we said we'd use it and to use it to more effectively than we have been doing that.

It's clear that the major differentiator for an organisation, certainly one that has 19 million customers and transactional history for many years and a lot of other data, is the ability to use that data to effectively service our customers.

There isn't a company that's been built of any substance in the last ten years that hasn't built its proposition around the intelligence it derives from the data, not always well, but profitably for those organisations to date.

So two other dimensions that we've put into that portfolio of the what was to clean it up, connect it up and use it, is to use it at a high standard of ethics. So where you're publishing a set of standards by which we want to be held, which we're calling Safe, which is about the value and how ethically we use ultimately that data.

And then the fifth element is education. If this is so central to the future intelligence of this organisation and its capability, we'd better have an organisation that fundamentally understands that. So we've launched a data academy.

We've also set up with Edinburgh University in the Bayes Institute to build out our capabilities, our initiatives as well. So 2,500 of our colleagues are going through education. In fact we're doing some work ourselves later this week as my team to better understand the data agenda.

And importantly as well, we're also invested in a tiering. So we have very capable people in this organisation who are acquiring data science and analytic skills as part of this academy as well. So, there's the 2,500 who really fundamentally understand the ethics, the insights and how to get the best out of the data, and then those that are going to engineer that being trained as part of this academy in conjunction with some of the best universities.

So that's our data agenda, which has led to - I'm going to talk about one example of bringing all these ingredients together. You may have heard of Mimo, you may not. Mimo is the new what we call personal financial assistant that we're building for the 19 million customers that we have.

It uses the intelligence and the insights from the data that we have to better support our customers. It provides nudges, it provides insights. It actually watches your income flow and informs you intelligently. It looks at your outgoings and informs you intelligently.

We used to leave that for you to discover for yourself. Actually, so it's a pre-emptive advisor, informer, assistant to the management of your financial needs around your transactional account. So it uses the data, but how does it deliver it? It uses these APIs. It uses these APIs to access this information.

So we've spun this up, a new capability in a matter of months using the underlying data, the old legacy as we've described it but it's not, the APIs, and we're delivering with a very ambitious plan new quality insights for our customers.

By the way, it also has a set of services in there which we're just scratching the surface with we believe. We talk about ecosystems and what attracts people to those, if we can provide that intelligence around existing relationships with these customers, we'd put a switching service in. So MoneySuperMarket is a switching service that allows you to switch your utilities. We can see when your utilities become due. We can give you, and by the way, you're in control. We're not going to do this to you. We're providing a supportive assistant to allow you to better manage your finances.

Also, we've used Direct Line as a provider of home insurance to those customers because we can see where people are buying property. We can see where people have housing insurance that's coming up for renewal. We're looking at what we can do from a life perspective, we're looking at what we can do from a pet perspective, we're looking at what we can do from a car perspective.   These are all services, and all of these can potentially drive revenues to new levels.

Our personal bank this year believe that they've driven about £87m worth of new income from insights driven through intelligence driven from the underlying data of our existing customers. All right?

So, I just wanted to show you and bring to life Mimo if I could a little bit more. So roll video.

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Video Played

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Simon McNamara, Chief Administrative Officer
So there we are. Any of you who are customers of NatWest, feel free to sign up. But that's a service coming to you.

And with that I'll hand over if I can now to Christina who'll take us through the numbers in a bit more detail. Thanks.

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Financial Highlights

Christine McPherson, Finance Director, Services & Functions
Thank you, Simon and good afternoon everybody. I'll have a drink for a start. It's my goal for the next sort of five/ten minutes is just to bring to life what Simon said in terms of financials.

So just starting off I think it's well known we've reduced our costs significantly since 2014 and we've actually taken 30% out. We've not only taken that out of our legacy businesses but our go forward businesses have also significantly reduced, and I'll come on to talk about some of the changes in staff costs, property and technology.

I'm also going to cover are some of our capitalisation rule sets and bring that to life for you all.

So it's the same slide that Simon had up earlier, but I've added some additional stats to the bottom. We've consistently invested over £1bn in our business but what has changed is the mix of that spend.

So back in 2014 our spend was dominated by mandatory and reg programmes and the non-ring-fenced bank. That's significantly changed, and we've flipped that ratio with now less than 40% spent in that category. That's enabled us to invest in the new technology that Simon's referred to and really change the innovation and where we invest.

So if you look at something like mortgages back in 2014 it was all about MMR and getting ready to fix our GMS system that we'd underinvested in. What we're now spending in mortgages is new capability such as paperless and different propositions for customers.

We've funded that in part through a reduction in mandatory spend and I think the trend will only continue in the mandatory spend of reducing costs there, whether that's the investment that we've done to date, the further investment and the technology transformation towards Cloud, but also that we've got far less systems to decommission than we had before. Mortgage Manager is an example of something that we've moved off; therefore we no longer need to continue investing the same in decommissioning.

So, in terms of how some of this activity plays through into our financials. If I start with the franchises, we've invested heavily in turning our business into digital first. So in terms of PB, back in 2014 only 26% of our sales activity would be digital, not through branches.

Today, over the last year that stat has increased to 46%. Of course in terms of customer's ability to self-serve on mortgages for example, that's also increased. So back in 2017 only 53% of customers transacted online to switch their mortgage, last year that'd increased to 61%.

Simon was highlighting we've also invested in data. Simon talked about how that improved things for customers and created income opportunities, that's also enabled us to reduce our costs, being more targeted in our approach and combining with mobile to contact customers, that helps us reduce our costs of activity.

Looking more at the commercial bank, Bankline, the activity there is also significantly up. Back in 2015 we only had 1.4 million transactions per month. Last year that increased to 2.6 million.

I think these are some of the drivers that have helped us really lower staff costs that you can see on the slide and I would anticipate this journey to continue. Our investment hasn't slowed. Customer's demand to do things for themselves rather than visit branches isn't changing.

It's fair to say we've not only reduced our staff costs but also the costs that are the infrastructure of our business. If I look at property, we've significantly reduced the scale and cost of our property footprint. And this is despite headwinds in terms of some inflations on our costs. You can see we've dramatically reduced the cost.

I think that trend will definitely continue. We're exiting more buildings in 2018 and some that cost us considerable amounts of money.

Simon's mentioned the footprint that's dropped in London, and I think the evidence that we're here today and not in our previous building of 280 is a key point in what will change our cost base again in 2020.

And the scale of cost reduction in property has been mirrored in technology, the activity that Simon described doesn't just make us more secure and able to innovate, it's also significantly reduced our cost base.

I think costs will continue to fall in our technology space but probably at a slightly slower pace as we continue to invest in technology and the landscape of our cost base changes slightly.

Lastly, I'm just going to bring to life - or burst some myths in terms of what we do in capitalisation. I think there's two criteria that really bring to life what we capitalise and why is the number quite low.

So our first test if you like is the type of spend. We broadly only capitalise technology spend. Technology spend, it varies year to year, but probably 65%/70% of our investment spend is technology. So as a first gatepost not everything is available to be capitalised.

And then the second test is only technology that is spent on a project where it has a positive NPV, an accumulative spend of more than £5m will we capitalise. So although this slide says in this year, we're planning to capitalise just shy of 40%, that is only for our technology spend.

So actually in totality of our investment spend each year we probably capitalise something in the region of 25% to 30%. So I don't believe we're building up a significant headwind for the future, I believe we've got a really sensible approach.

And I think another fact that brings that to life, we test every quarter what we've got on the balance sheet and is it appropriate for it still to be there. Last year in terms of the numbers that we believed were no longer appropriate it came to a sum of £37m. Given the level of spend we've been doing on an annual basis, a very small amount.

So I've no doubt when we come to Q&A there may be some more questions but hopefully that gives you comfort in terms of we've been spending a lot of money but we've not been building up our headwind in terms of our future profitability. We've been dealing with the costs as and when we spend them.

And I'll now hand to Kevin who will talk to Innovation. As most of you can see, Kevin is on crutches so he may take a moment to get to the stage.

. . . .

Our Innovation Agenda

Kevin Hanley, Director of Innovation
Nicely done. I was looking at Simon very enviously as he was moving about the stage here. I've got mobility envy, is what I have. I have to be propped up by a stool. It's funny, my doctor, as he reattached Achilles three weeks ago said three things to me. He said - stay off your feet, don't go to work and avoid large public gatherings. So I've managed to avoid all three pieces of advice.

But what I really wanted to do was just to bring to life some of the Innovation agenda. As Simon says, we've probably been at this for about five years now with real focus and attention.

I still remember my very first conversation with Simon in the job when he joined five years ago, and he talked very eloquently about how if we wanted to up our innovation game then we needed to immerse ourselves in the world's most innovative ecosystems. I think his phrase was - you can't do that sat in Bishopsgate, you need to go and do something about it. And that's precisely what we did actually, and I'll talk a little bit about it.

But we've put ourselves out there. We've learnt from some of the smartest on the plant and we've contributed to the ecosystems that we've been part of. We met a whole load of smart people in smart companies, and we're increasingly doing things with those people and companies that we meet.

So let me just try and bring this to life. I guess what we talk about internally around innovation assets, and I know a number of you have seen this slide before, the right hand side of this slide I'll talk about first. So again, if you go back three, four, five years we focused heavily on establishing our scouting and research capability around the world. And that includes things like putting a small team on the ground in Silicon Valley. That team has been there for about five years.

Now that team alone, just to give you a sense of what we do there, that team alone I think met something like 1,000 companies in its first year in the Valley. We meet with everyone from start-up companies to the bigger companies on the West Coast, the educational establishments on the West Coast whether that be the likes of Stanford or Singularity University, which is the think-tank on the NASA Ames Field on the West Coast that looks at exponential technology and disruptive technology and how it's changing business models around the world and how you deploy and use that technology to solve some of the world's grand challenges.

But we meet with organisations, institutions like that, all of the VCs on the West Coast that back those companies. And we've started to build - we've built over the last three, four, five years an enviable network of relationships that we leverage today.

Another example, we're heavily immersed in is the Israeli ecosystem, a different engagement model. We don't have a team on the ground there, that's a much more curated, facilitated engagement process working with the likes of the UK Israel Tech Hub, which is the government agency that helps act as an introduction agency between our needs and the companies that are in Israel.

Simon and I were talking about it a little bit earlier actually. Simon, Ross, Alison and others were in Israel earlier on in the year and we were hosted by the British Ambassador, which, if nothing else, gives you a sense of our standing in the community. But we were talking there to the people in attendance about our Israeli track record and we just put some stats together for that.

And in Israel I think we've met over 300 Israeli companies but, more importantly, we've done 30, what we call proof of concepts on minimal viable products. And then more importantly we've taken 11 of those proof of concepts and I could talk about 11 pieces of Israeli technology that we have in production at the moment and we are scaling for the benefit of our customers.

And when you stand in Tel Aviv and tell those kinds of stories to an investment community, to a start-up community it's probably why that invite to the British Embassy was there. It was so called the hottest ticket in town for this year.

So I guess it's a reflection of rather than just put boots on the ground or put a badge above a facility we get measured by what we do and how we do it, rather than just a number of people on the ground. So Israel, a big location for us.

Our Open Experience Centres, these are the physical locations where we have, I guess, unapologetically borrowed/stolen, I'm not quite sure. We've certainly leveraged the configurable adaptive creative spaces that you'd see in places like the d.school at Stanford. It's our physical locations in London and Edinburgh where we work with the partners and the companies that we meet with around the world and this space literally can be reconfigured as some of the opportunities I'll describe in a moment, grow and scale.

Simon's mentioned the engineering capability. We've got dedicated engineers that let us stand up our work quickly and I guess with a speed that's enviable.

All of that's great. I actually think that lots of the secret of our success lies in what probably looks like the dull, but I think the most important left hand side of this slide. I think we have established that anyone that's kind of looked at the world of innovation, the ability to act at speed and get the sponsorship of senior management is massively key to success.

And what Simon and Ross did, I want to say three years ago now, I think was establish the innovation forum. And this is the monthly forum within the Bank that's attended by the Bank's most senior people. It's attended by Ross. Ross has never missed one actually. In three years he's never missed an Innovation Forum, Ross, Simon, the CEOs of each of our franchises. But it's the monthly forum where it's always hosted by one of our partners.

We spend the first part of the session discussing, sharing our views on innovation with the people that are hosting the session and then literally they leave the room and we spend the remaining four hours of the session managing, overseeing, sponsoring, funding our innovation portfolios.

As you see there, we have a dedicated innovation fund, for the opportunities that come to that forum we have the ability to fund those immediately. Now as I say that sounds dry, but what it does mean is literally when we meet some of the companies I'm about to describe, we are never more than four weeks away from getting funding and sponsorship to start an innovation project within the Bank.

And, as I say, I could give you examples where we meet a company. I could talk about Soul Machines, that many of you will know, which is the company that we work with to stand-up the world's first digital human avatar.

We met that company in Auckland on a wet Wednesday in October, and within three and a half weeks we'd been to the Innovation Forum and received funding for the pilot work. And within 12 weeks we'd stood up the world's first digital human avatar that then went - that was a globally publicly newsworthy story about 18 months ago. I get excited about the speed with which that happened as much as the technology that we were deploying.

So, I think the left hand side of this is massively important in what we've done over the course of the last couple of years as well as we benefit massively from the Technology Advisory Board that we put in place.

So again, leveraging the network on the right-hand side as we meet smart people, smart companies we often badger them to join our Advisory Board so we have some of the world's smartest people advising us on a quarterly basis, and that's everyone from the Polish Businesswoman of the Year through to global leaders in the AI space, recognised global experts in ethical hacking, start-up CEO entrepreneurs, somebody that's been on the board of the BBC and has had great responsibility for running line technology organisations. It's a mixture of all those capabilities I think that makes a massive difference.

And then internally as a subset of the Board we've formally set up a Technology and Innovation Committee to make sure that the story that we're telling here gets sufficient governance and oversight and input from the Board.

So, I think the left hand side is massively important. It was, not that we ever needed any reassurance, but again some of us were talking earlier. We had I think there was a group of about 25 of Simon's peers. So the CAOs of European financial services organisations with us at the beginning of last year actually. And we were going through sort of a week-long version of this story where we were all sort of sharing our innovation stories. And without exception the one thing that everyone said at the end of the week was that they wished they'd had the left hand side of this slide.

Now, literally did they mean they wanted an Innovation Forum fund, I'm not quite sure. But they absolutely meant that they recognised that the amount of time and effort and sponsorship and the ability to move at speed that we have through the forum and the fund is massively advantageous to us.

Taken together I think those assets provide a really strong foundation, a really strong platform for success in the innovation space. And also experience, as it takes time to do all of that. So what I'm describing here I don't think is easily replicated, at least not quickly.

The net result I think of all those innovation assets is that we have developed a rich network of - I'm going to prop myself up on the stool for a moment now - a rich network of companies that we partner with, that we collaborate with around the world. There's a selection of them on this slide.

Actually the criteria for making the slide is it's not just a company that we've met. Every company that's listed on that slide we have worked with, are working with, have a formal relationship with. And you can see the breadth of what's mentioned there.

I think just to go back to Simon's point earlier when Simon talked about the future shape of the organisation, if you believe as I do that the future success of this organisation lies in combining our assets and services with the assets and services of others to do new and unique and insightful things that are valued and trusted by customers that's all well and good. But unless you have the network and the depth of relationships with some of the players here then it doesn't amount to an awful lot.

So the real secret sauce is in not only understanding these companies and having a relationship with them but the ability to do something with them. And as you see it's a broad spectrum of companies ranging from investments in quantum computing software companies through to collaborations with Soul Machine through to biometric security, through to artificial intelligence through Watson. Simon mentioned Facebook, Singularity University, etc. The beauty lies in its breadth and depth.

Maybe before we move onto a few examples I think just something I want to mention here, I'm sure we'll come back and talk to it either in Q&A or subsequently, but one of the things we also do which I think will ultimately be really beneficial to the organisation is that we measure innovation across the organisation. This is something that we've been really focused on over the last six months.

Many of you in the room have prompted our thinking as well. And we recognise that there's no singular measure for innovation that tells the whole story. We need to look at a bundle of measures. We need to look at a collection of measures to paint the picture.

I actually think that the logic for the way that we think about innovation, the way that we measure it is kind of quite valuable in prompting really valuable conversations within the organisation as well.

So if we go back to our definition, for something to be innovative it needs to fall into a definition that's got three components. So for something to be innovative in our language at least it needs to be a new idea, it needs to be executed and it needs to have meaningful impact.

So did we have a new idea? Did we do something with it, and did it have meaningful impact? Those are the three elements that make something innovative. If you do one or two of those things, it's useful but not particularly innovative. So you can have a new idea but unless you do something with it it doesn't amount to anything. You can have a new idea. You can put something into production which is kind of nice but potentially irrelevant and you kind of need to do something at scale is where the real value is. It's a combination of the three that is important.

Just to give you a sense as well, we track in effect the progression from left to right across the screen. And I could give you lots of metrics but the one that I will give you is if you look at 2018, we had over 475 items that we classified under the ideation category. So 475 ideas, 41 of those progressed to proof of concept or minimum viable product and 11 of those progressed to impact at the scale as we would call it. So, 475 into 41 into 11.

And Simon and I and others have spoken to many VCs around the world actually where they talk about the way that they kind of think about financial investment. And the comparison doesn't quite work but if you imagine a VC kind of looking at the number of bets placed or the number of items considered and the number of bets placed and an eventual success, when you look at our ratio of 475 to 40 to 11 I think that's a ratio, or we're told, that's a ratio that stands comparison to any of our peers certainly.

So the ability to progress things into production and to do things at scale is the goal. All that is good, what are we doing about it? What are we doing about it, what's coming up?

Maybe before I talk about some of these if you go back and think about the Innovation Portfolio, the Innovation Portfolio is comprised of probably at any one time something like 25 smaller experimental proof of concepts and so on and so forth. But we're also making bigger bets and seeking to scale a number of our new businesses.

Many of these or some of these will be known to you. Simon's mentioned some of them as well. Let me maybe just touch on a few that we haven't mentioned so far. Maybe on the right-hand side first actually.

Esme. Many of you will know actually. Esme launched last year, it's our new direct lending proposition to small to medium sized enterprises, making loans available of up to £150,000 within ten minutes. It's simple, it's paperless, it's digital. Entirely digital actually.

Customers love it. It's safe, it's secure, it's underwritten by NatWest. It scores really well on their promoter scores. I think the last time we looked at that which was the end of last year/beginning of this year NPS scores of around 76. I think to date we have probably we'll be coming up to our 1000th loan and we've probably lent over £60m to new business in the UK since its launch. It's the world of Esme.

Where shall we go next? Path. I think Path is exciting. Path is in Beta testing at the moment. Path is the new way for small to medium size enterprises to manage their employees, their data and all of their HR processes and do that in a safe and secure way, keeping up to date on legislative changes.

It is most valuable. I guess the sweet spot of SMEs that it's targeting are probably SMEs with about 50 employees that are probably using spreadsheets to kind of manage that process at the moment and they need advice and help on staying up to date with the latest compliance legislation.

It will launch, this is where I get into trouble, it will launch certainly to the wider market in H2 of this year, so keep an eye for that.

MiMo, Simon just spoke about, but the companion app for our NatWest personal customer is offering a range of insights.

And CurrencyPay on the left hand side, CurrencyPay is taking our NatWest Markets FX business and really bringing it to bear for our retail and corporate franchises, I guess, in a really powerful way. So it places an international payments engine directly in the middle of a current account or business banking workflows.

But I wanted to spend a little bit of time just diving into maybe just some of the others in a fraction more detail.

Let's look at Mettle first. Mettle, I think Simon mentioned, new standalone digital banking proposition for small businesses. Again, specifically designed for entrepreneurs and growing businesses to manage their finances. It combines a current account with invoicing, payments chasing, bookkeeping capabilities wrapped up in a single app and debit card.

Actually you may have seen we've just announced the new CEO of Mettle. The first CEO, a woman called Marieke Flament joins us from Circle in Q3 of this year and I'm going to say that Mettle will be in an app store near you sometime in August. Our Comms Team just scowled at me as I said that so - but no, August I think for Mettle.

Tyl, we've probably been relatively quiet about so far. I think it's going to be a big news story in the second half of the year. Tyl is our re-entry back into the merchant acquiring space designed to make life easier for customers and businesses to run their small and larger businesses. It makes customer on-boarding really straightforward, provides a sophisticated card acquiring capability. And frankly it helps, or it provides them the tools to help them manage and grow their businesses and give back to the communities that they serve.

I'll just say a few words about APtimise before we run the video but APtimise is, I guess, another in the bundle of capabilities that we're providing. And this is increasingly how we look at the world of what we do in the innovation space. Rather than think about these discreetly, if you think about how sort of how some of these capabilities combine and come together to better serve our customers, they start to get really powerful.

APtimise as you'll see in a moment is the UK's only end to end accounts payable solution for small businesses and helps small businesses spend less time processing invoices and more time growing their business. But let me just show a short video and then we'll wrap up this section.

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Video Played

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Kevin Hanley, Director of Innovation
Okay, so maybe just at the risk of repeating myself I think if you look at things like APtimise and accounts payable, you look at lending through Esme, you look at the business banking capability of Mettle, the ability to manage employees and their needs, Path, I think when you start to combine those I think you start to get a really powerful

portfolio of capabilities that support our SME marketplace, and I think provides them with the tools, the advice and the access that they need to start and scale-up and grow their businesses.

I want to say one more story, I know that we are slightly late, one more story. Bó will be a big story in the second half of the year. I know that many of you will be familiar with Bó already, the companion banking account from NatWest for both existing and new personal customers. Really designed to appeal to people who, I think the tag line is - appealing to people who need to do money better, who need to take control of their own finances.

We did some customer research very early on in the process and found out that 50% of all of our customers spend what they earn on a monthly basis and then an additional 25% of customers spend more than they earn on a monthly basis, which frankly means when you combine those two stories the ability to take control of your finances through behavioural insights that are offered up through some of the data that Simon was describing earlier. If you can offer up behavioural insights that can be actioned to put people in control of their finances, we believe that that's ground-breaking and particularly valuable to our customers. It is in private Beta testing at the moment, but we will be making much of a noise about it in the second half of the year.

This thing is flashing at me, so I am going to stop there. There's lots more that I could have talked about. We could have talked about AI. We could have talked about chatbots, we could have talked about the voice work that we are doing with Google in particular. We could have talked more about digital humans. I could have talked about distributed ledger technology. I could have talked about biometrics, but maybe that's for Q&A or for another day perhaps. But maybe let me hand it back to Simon for wrap-up and then we'll do some Q&A. Thank you.

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Concluding Remarks

Simon McNamara, Chief Administrative Officer
Thanks, Kevin.

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Kevin Hanley, Director of Innovation
It takes me a while to move away now. I can't hobble as quickly anywhere.

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Simon McNamara, Chief Administrative Officer
Well you just stand there. You stand there, mate.

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Kevin Hanley, Director of Innovation
I'll stand here. Just talk around me.

. . . .

Simon McNamara, Chief Administrative Officer
I'll come with you. He's going nowhere. It's on my clicker. You're all right.

So there's plenty of other things he didn't talk about but obviously we can come back to that in the Q&A. We'll get there in a second. But just before we do that, I just want to put this slide up because I wanted to be very clear on these three things.

Firstly, we don't need a core replacement. You know, we've been reengineering this core over the last five years and we will continue to evolve it.

Are you all right?

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Kevin Hanley, Director of Innovation
I was getting out of the way of the...

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Simon McNamara, Chief Administrative Officer
Oh no. [*Chuckles*] Be quiet about it if you…

So, no core platform replacement needed. We will continue to evolve our core and we can focus in on the pieces that will make the difference as opposed to actually address things that really won't make a difference.

Our legacy platform's an asset, 19 million customers is a good thing. Yeah? Having all that data and all that information is a good thing. All right, so you can talk about legacy, but legacy can be a good thing.

And lastly the comment that has been made behind our peers in our agility and our ability to make changes rapidly, hopefully you've heard some of the things, but we spin up these solutions as quick as anyone. Some of that decision making is more agile than you'd see because actually the funding's available to us.

You know, some of these other guys have to go out and actually find the funding having come up with a good idea. We've got access to those resources for example, so we're not laggard in that regard.

So, to summarise firstly we have a resilient and agile platform, alright, that's an asset. Two, we use data, the APIs and innovation. I'm glad we whispered innovation because you can see what it's yielded.

We're increasingly spending less, if that's the right phrase, on our mandatory work and investing in discretionary and new capabilities. The Regulatory Agenda has been a big challenge for us, but we've actually addressed what we've had to, and we've done it well.

Our strategy is about driving costs down whilst enhancing customer experience. They're not mutually exclusive things and you've seen the result of that today, a lot of new capability that's actually delivered as we've reduced the overall cost base.

And lastly, I'd consider our platform, our people, our customers, our partnerships and you saw some of those, our data and importantly our track record for delivery it makes us one of the leading digital banks in the UK.

It's interesting in the last week, and it was rather nice to read a couple of reports from a couple of you in the room that started to call that out as a differentiator existing in the top quadrant, the magic quadrant, delivering capabilities that differentiate us and who should you worry about. Yeah? And seeing actually that these capabilities I've just laid out as being actually where you might want to invest.

So that's really all I had to say. Hopefully that was informative for you all. We're very happy now to take any questions you might have on your mind. We've obviously thrown quite a lot of data in the room, myself, Christine or Kevin. Yes?

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Questions and Answers

Alexandro, Analyst
Thank you for your very informative presentation. Indeed RBS is a smart company. You created an ecosystem which is based on open infrastructure with APIs. You are ahead of the pack in creating a bundle of capabilities. However, you measure your success in the context of the banking sector and the real threat is really not coming from banks but potentially from BigTech. So I'm just wondering whether you can comment on the recent announcement of Facebook?

I see the proposition as very enticing, potentially as a key application. The payment system is embedded in the messaging services. We've seen these products of service already very successful in other jurisdictions in Asia. I believe BigTechs are better than banks in creating digital services. They also have a larger customer base, you mentioned 90 million, potentially these companies have billions of clients.

There are on the other side some warnings and some issues. One is credibility obviously. The second one is regulation. We can also mention concentration of power within a limited number of large corporates. So I'm just wondering, what is your thinking then we can move the conversation forward?

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Simon McNamara, Chief Administrative Officer
Yeah, I might have said something Alexandro just as a starter. But I think, you now, obviously we watch these developments with interest. I think we've certainly got ourselves, hopefully you've seen, embedded in the system, you know, Facebook are not only potentially a competitor but they're clearly a partner of ours as well and that's true of a number of these BigTechs.

I think the important thing for us is actually being in the game. And I think, you know, one of the statements often made is, you know - keep your friends close and your enemies closer. And we don't know in this environment exactly who's who in the mix. What I would say is that actually going to the engagement with any of these whether they be the SmallTechs or BigTechs, having a credibility and a capability that clearly can be perceived to have value in any arrangement I think that's our calling card. And I think actually that's working well for us.

So, our engagement at the present moment with all of these organisations, you know, is quite a healthy one. Right? But obviously there's a threat in there as well. So, yeah, I think it's a very interesting development. It's not un-flagged I suppose. It's one of a number across those organisers, there may be more to come. So, but as I say, I think we're in the game, we're in the mix and we're working with pretty much all these companies in both, you know, sort the historical delivery method but also in some creative way.

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Alexandro, Analyst
Sorry, do you think Libra will be open to banks as well in the future?

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Simon McNamara, Chief Administrative Officer
It may well be, who knows?

Probably best directed at Facebook but I think, you know, as I say I think, you know as I say, I've explained the relationship we have with those guys. We sort of know them and they're a large organisation like we are. But actually I think one of the advantages of us having the footprint that we have and the focus we have is actually the ability to work as one with any of these organisations. And we do bring the whole organisation to the party when we actually do get together with these other organisations, which I think works very well.

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Kevin Hanley, Director of Innovation
I thought Mark Carney's on Libra were spot on this week. I thought it was a really nicely balanced kind of view that's said Libra could have all sorts of advantages, not least of which for the underbanked in society. There's potential for real scale with sort of some of those that are already onboard. So if it's got the Ubers, the PayPals, the Spotifys, the MasterCards, the Visas of the world are already sort of founding members, it's not just a Facebook thing and it's got the potential to be significant but there's a long way to from a regulation and a legislative perspective in terms of how that plays out. And I've got breakfast with Facebook at 8 o'clock tomorrow morning. So -

. . . .

Simon McNamara, Chief Administrative Officer
And we know what happened with the last breakfast.

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Alastair Ryan, Bank of America
Yeah, thanks, just to press you on the core platform then because you've been quite definitive, so I invite this guy to follow me in. But are you really saying you can't foresee a set of circumstances in which the data architecture puts you at a disadvantage?

So it’s clear that you don’t feel that’s the case today but at some level is there an evolution that you can't manage? So is there a point in the future at which it becomes a disadvantage?

Or perhaps on a second way at the same question which is have you found that you can do anything that you want with your core platform but the cost of running it is higher than it would be if you had something else?

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Simon McNamara, Chief Administrative Officer
Yeah. No, so I think there's a couple of aspects there. So, I think there's an ability to inhibitor us doing things that we want to do. I don’t foresee that. That doesn’t mean to say that we wouldn’t have to engineer capabilities into that platform or around that platform.

And that’s what we've done. I mean, we didn’t spin up our mobile platform embedded within the core platform as was, but we provide a real time mobile capability to our customers that seems, you know, to work well for them, so. But I don’t think it’s an inhibitor from that point of view.

I think as you look at the cost base, you know clearly, we’re running on our mainframe platform, that’s pretty effective for us for the volume of customers we have on there currently.   As you’ve seen we've quite substantially reduced our cost base over time, so I think the ongoing simplification.

So I think we could make it a burden for ourselves, I think we intend to very much make it an asset and to basically manage the expense base, the cost base in total. And I think it has some advantage there. So, but it’s not a done deal.

And the other thing is if you look at what's happening with those that get new to the technology as they build on it, I mean how did we end up with all the systems we have. We used to have one and then we had two, and then we had three. And then we had 5,500, right?

So, how you steer that over time and as you look to the tech companies - I'm careful what I say but some of the large tech companies don’t have a uniformity and an architecture that actually works as well as it could do considering they’ve only been around for ten years. So, you can see the evidence of the learning of the same mistakes.

I think the fact that we've already learnt a number of those mistakes and I also think coming back to the first question that’s also the potential benefit of these partnerships, which is if you take those ingredients you’ve got a powerful combination as well. So, hopefully that sort of answers your question.

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Alastair Ryan, Bank of America
Yes.

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Jason Napier, UBS
Just a question. I appreciate the Group is almost in its final strategic shape under Ross in terms of international expansions and so on. But I just wonder whether there's anything in the new brands or the products that you're rolling out in the UK that makes them inappropriate for putting them in other markets you've got the licences for parts of Europe, could you quite easily transfer them to that environment?

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Simon McNamara, Chief Administrative Officer
We could do, so then that's a strategic choice. There's nothing inherently in what's been created that means that they couldn't operate in other jurisdictions. You obviously have to tailor things, you always had to to those markets, but I think - so yes, you can. And in fact we are working to find a method by which, you know, some of these could find their way to other markets with partners.

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Jason Napier, UBS
So in industry sort of terms the collaboration is not geographically specific?

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Simon McNamara, Chief Administrative Officer
No, not at all actually. I think ...

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Jason Napier, UBS
... You can use it anywhere you want?

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Simon McNamara, Chief Administrative Officer
No, and I think, you know, clearly our customer base as it currently stands is very clearly defined, and also the service we provide into it. And that's actually very helpful for those that want to partner with us as well to be honest. But it's not constrained that way. And so we've found it very, because we can bring the organisation together very quickly and very clearly into those opportunities with any of those partners if that makes sense.

Yeah, it's your -

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James Irvine, Soc Gen
Hi good afternoon. I've got two please. The first is I was wondering if you could say a bit about branding please? So you've got lots of kind of new sub-brands it would appear like you know, Bó and so on. How clearly from the customer's point of view are they going to be linked into RBS and NatWest and how many of them are just going to be standalone?

And then the second one is you've talked a lot about insights for the customer using their data. How much can you harness that for your own purposes for underwriting? I mean is this that your capabilities are going to make your underwriting abilities much better than they are at the moment?

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Simon McNamara, Chief Administrative Officer
So, we'll take the two. So the - do you want to have a go at the first, Kevin? Just in terms of ...

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Kevin Hanley, Director of Innovation
The branding thing. So I mean in my mind I'm not sure it's the official party line. I think we almost want the best of both worlds. So I think the separate branding recognises the standalone significance of some of what we're doing, but it's almost fuelled or powered by NatWest.

I mean lots of the propositions want the safety, the security, the service that's underwritten by NatWest, so I think it's you want the best of both worlds and I think that could play out really powerfully.

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Simon McNamara, Chief Administrative Officer
But I think, you know, we are a multi-brand institution currently. All right? A lot of thought has gone into those brands and their purpose. I think it's nothing different and new in terms of the thought that's going into how the brands that we've created, or sub-brands that we've created and their relationship to the core.

So I think it'll be a different call, you know, for different propositions depending on specially for what we're looking to achieve with the customers with that. So, but I think its level of intelligence and thought that goes into it as opposed to, you know, this isn't sort of a dispersion of focus. It's actually it's building a proposition. It's giving it an identity and then as part of that determining what its relationship is to what we have already if that makes sense.

And that's both in terms of how we brand but also in terms of how we leverage the technology. One of the things that I maybe didn't get over is that actually this is a portfolio and it's a stable and a lot of the underlying capabilities. So what we've just deployed for Bó is about to be used the entirety of the Bank. That's a rather nice thing to do and Bó has been a beneficiary of work that's been done by the Bank to date.

On your underwriting point, I think there's a lot more opportunity there in terms of emerging and, yeah, or additional methodologies in terms of the determination of the suitability of those that we do business with, put it like that. And I think our risk organisation is increasingly focused around how we - not just the data that we have. I mean this is the important thing as well, when we talk about data, I do have the data that's available through the 19 million customers I have here. I also now have access to a bunch of data from the other CMA banks that have, you know, eventually have opened up through open banking. That's only going to increase in terms of portfolio, so there's a broader set of data.

I then have data that sits beyond that in terms of the data that comes in and other members of this system, and therefore that's why I think it's so central, the intelligence, the curation of the management of that data. And even back to the previous point about, do I see that as an inhibitor? I think thinking through data and doing a good job of it is going to be a differentiator.

I don't see an inhibitor there, but you could make a real mess of it and therefore you do need to think about data beyond the traditional perimeters in terms of both the underwriting point but also in terms of other aspects of how you drive your model and how you drive insights.

Yeah, sorry, we'll come in a second.

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Alvaro Serrano, Morgan Stanley
On the technology spend I think you in one slide said £900m technically to run the costs. The technology spend am I right in my calculator it's about closer to £1.5bn or something like that?

And when you think about the more discretional amount that you can spend you've increased to, I think you said, 16% but when you look forward, are we at the peak of investment given a lot of the initiatives you've run us through? Do you think that's going to continue growing/shrinking? Just give us a flavour of where we are in the development cycle.

And maybe, and excuse my ignorance if it's probably a stupid question, but Bó on my understanding, is it running the mainframe platform or is it completely separate launch?

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Simon McNamara, Chief Administrative Officer
No, it's like a lot of the services we have that's running on a Cloud platform that's set up for that purpose, as a lot of the other platforms are for example.

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Alberto Solana (?), Morgan Stanley
So yeah, but when I look forward years from now is the fact - I just want to understand the rationale for launching it that way versus what sort of the legacy or the current bank and if we're going to in a perfect world, I mean is there an angle from - I mean I know you've just said that you're not going to change the mainframe and there's no need to change the mainframe but ...

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Simon McNamara, Chief Administrative Officer
I didn't say I wasn't going to change it. I said I wasn't going to basically have a wholesale replacement of our core banking system, which is clearly not what we're going to do. But as soon as you stop developing any aspect of your infrastructure it starts to, you know, potentially atrophy. So you need to continue to manage all of these elements of the estate.

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Alvaro Serrano, Morgan Stanley
Maybe I'll rephrase it. Once you're cleaning up all the layers and simplifying as you said ...

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Simon McNamara, Chief Administrative Officer
Which we've been doing, yeah.

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Alvaro Serrano, Morgan Stanley
... At one point maybe the layers are clean enough that you can ...

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Simon McNamara, Chief Administrative Officer
I might go to your first question actually because I think any thought that we're going to get to the end of the race, and it's done and draw a line under it is just not credible. Right?

If you look at where we started which was the percentage of our total technology spend 100 years ago was zero, okay. It's on an inevitable trajectory right. The number of people in this organisation as a percentage of the overall spend which is the other major cost is reducing. Property which is the other major cost is reducing. So the percentage of the overall expense of the organisation from a technology perspective is in my mind only going to increase. It's the nature of the evolution of the business.

Now what we're showing is the run costs as we increase that capability actually reducing so that's other characteristic you see of some of these emerging companies. But actually 90% of what they spend is on-going somewhere new and 10% is actually staying where they are. You know we've come from a position where 90% of what we were doing was staying where we were and 10 was actually going somewhere new. So what we're showing you here is actually the changing dynamics of actually moving our spend from an increasing proportion actually being in going somewhere new as opposed to standing still.

But that's a choice. At the end of the day we could improve our cost to income ratio pretty dramatically by taking £1bn out of the costs tomorrow yeah. Be a pretty stupid thing to do. We could call it's the end of the day, race is over, we're done, yeah. It would obviously dramatically improve the financial performance in the short term. By the way that sounds like an outrageous thing to say but I wouldn't actually think that you haven't seen some organisations out there in the past that have absolutely starved the investment to drive a financial performance in the short term that's come home to roost.

So in terms of the characterisation of the costs and so on they're going to continue to – I think we're going to get more efficiency out of the technology, we're going to get better – the cloud for example provides a real opportunity there and it's already doing that for us. The reason we went to a set of capabilities that we together, mashed up for want of a better term, to create Bó is because we wanted to bring those capabilities together in short order and we could do that. It's how we're spinning up new capabilities in the organisation.

Now I could do that with the mainframe for some time but that's not actually where those tools that we wanted to put together were existing. Bó which is one of the tools we're using, we're going to use for the whole bank, I don't need to put it on a mainframe, it won't be on a mainframe. But as the books and records of 19 million customers it does a bloody good job, the throughput, the payments, we don't miss a beat.

And that's the challenge that you're seeing with some of those that are learning that lesson as they go right. It's not inherent in these new environments that they have the resilience, the stability or actually the ability to manage those. And you're seeing that in terms of the availability of some of those services over time. So you're going to see an evolution of all the participants, you know those that are growing and acquiring new capabilities. Hopefully they don't build a 5,500 application solution that basically one day somebody says you know how did we end up here, because that's the opportunity lost. But it's a feasible outcome.

I ran a little software company once by the way and we started off and we did derivative software and we did integrated derivatives and then we said what are we going to do next? We said well let's do equity derivatives, commodity derivatives, we did the FX derivatives and by the - let's do the hedge and you built this thing out over time and before you knew it you actually had something that had a level of complexity that was far greater than where we started. We sort of curated that reasonable well but that shows you the risk.

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Alvaro Serrano, Morgan Stanley
Just a follow on from there, some banks, some of your competitors are saying that if the revenue environment sort of obviously softened which given the flatter curves is very possible or likely they would sort of pull back or slowdown investment. Are you saying that wouldn't be a smart thing to do or you can't afford to do it given the competitive changes or you weren't being that explicit? How would you manage?

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Simon McNamara, Chief Administrative Officer
I wasn't being explicit in terms of detail and Christine you might want to talk to more of what our plans are, but I think what I've tried to give is the sense of the basis on which we're thinking this through and actually the sort of general direction. Clearly you have to look at the climate and you have to look at the opportunity. I mean I think it's interesting, there are a lot of organisations spending a lot of money that yield very little return out there at the present moment in time. What I've tried to demonstrate today is actually we've spent that money, we've actually got a return on each of those investments whether it be around the stuff that was actually transforming our traditional capabilities or actually the funnel that we've created that brings new capabilities in the organisation. They have a number of potentially at scale solutions out of that; it's not a bad outcome.

But I think you cut your cloth to the competitive environment that you're in and your goals and objectives, you know we're trying to get a return here of over 12% at the end of the day of what we do in the whole. So you know these are drivers of our decision making. Does that make sense?

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Christine McPherson, Finance Director, Services and Functions
So I think in terms of you're spot on in the 1.6 as our combined technology number but obviously the 0.9, our run cost, is the only bit that is set in stone. In terms of our go forward investments I think Simon will be disappointed but the number may come down a little, but come down a little because the mandatory work, we are significantly through that journey. In terms of discretionary and innovation we have a budget process where we look to see combined with where have we got gaps in our strategy, what will hit the 12% return that Simon has mentioned, how does the payback period work and our overall affordability? So I don't think we've got a direction of travel but we'll make that assessment in terms of what the opportunities are.

I think the big advantage that we've got, if we do decide to sort of soften some of our spend because we haven't got a large chunk on the balance sheet, we then would see the benefit of it. But that's certainly not intent at the moment.

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John Cronin, Goodbody
Hi there. I just want to come back again to the core platform and just understand a little better this modular approach. So I guess are there potential risks attached to continuing to add modules as it were, just like for example drawing parallels between that new schematic and your old systems which were maybe put together after – bundled together following various acquisitions. Are there limitations in terms of how far it can grow? Could it slow you down? Could it require maybe one off substantive spend in the future that we're not seeing today? I'm just trying to understand the risks better around that.

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Simon McNamara, Chief Administrative Officer
No fair enough. I'll talk to that. I mean what we see is something that is working for us well today and something that we're maintaining at a good level. Now as I said there are some opportunities, we've put some money aside to transform some aspects of our core. So what I want to do on the pricing side is effectively the extraction of that capability, not just from our existing core system but actually across the estate as a whole. So it's about the engineering of the totality. You don't look at this core as we call it in isolation.

I've already exposed through I think 57 APIs access to this core. That makes it as agile as anything else that I need. And I could also ultimately change the underlying, that's the beauty of the way that this is structured. It's a much more architected solution. So I can then start to change some of the underlying without having to worry about the fact that it's connected to all these other pieces.

So now there is a danger in it's not modularisation for modularisation sake, it's just basically shaping the totality of our platform in a way that is more resilient, more agile.

So for example we're investing in our debit card capability at the moment. We don't think it's strong enough for where we want to be. Now I can do that without having to change every aspect of my core platform. It's a clear focus for us and we think we can build something that goes on beyond that. So there's - but that's the opportunity.

So it's not as if this core is untouchable as if we've got this thing, it's locked in concrete. It's actually it's the evolution of it over time. And I come back to the point I was making earlier, those that I've seen undertake these massive core investments have changed many things that actually didn't need to be changed, and in many cases actually never delivered on that core replacement. And because of the quantum of investment that's available they didn't get to other aspects of the estate. So you know I was speaking to one bank recently that's actually now trying to fix up a lot of the things that I've had to fix up here through lack of investment.

What happened , just to be clear, is that we had a functioning set of technology that then we underinvested in and we extended and so every penny went into the extension of the business model, so it went into - that would be true of what we did with the property portfolio as well right. And in the process - sorry in not just the core but aspects of our estate that was really looking after those 19 million customers. And so that's what's happened in some other organisations where they have basically got so focused on an element of the core that other aspects of that are now decaying around that and they're seeing real problems in terms of the availability of those services, or actually a big catch up cost to go and address the rest of the estate because they got somewhat obsessed with the core.

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John Cronin, Goodbody
And so it's very clear that you didn't waste any moneys here in terms of the approach that you've adopted but would it be fair to say then on that basis, it's fair for me to conclude that you're not any less agile than you would be had you gone down the Temenos route which is obviously one of the -

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Simon McNamara, Chief Administrative Officer
No. No I mean we actually have a version of that here to support our Private Banking business because that was the platform they chose to work on. I'm also looking at using some of our core capabilities to support some of these new services that Kevin highlighted earlier. So it shows you how future looking some of these pieces are and that they can service some of these new applications.

These are sort of sweeping statements and we have to be careful with them, but actually the most important thing is how you curate the portfolio, the engineer thing, you understand what the collective achieves and that actually you maximise the return where you actually ultimately focus your resources if that makes sense.

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Kevin Hanley, Director of Innovation
We were talking to the Board the other day and just tolerate one more food analogy, Simon used Chicken Kiev earlier, I'm trying to try one because we were talking to the Board about the architectural journey that we've been on. And we were describing in

effect how we've gone from the spaghetti that Simon was describing earlier, and the analogy was spaghetti to lasagne to ravioli, for the non-architectural people in the room, is literally the description of the way that the architecture has evolved through time.

So historically it was a spaghetti of things that were hard to unpick that got lumped together. Then you put in place the architectural layers that let you kind of decompose that is the lasagne step, and you now move to a world that's much closer to the ravioli piece which is the componentised modular ability. I mean the phrase that we use internally is reduced reliance on the core as opposed to the replacement of the core. So you strip functionality from the core, you strip bundles of functionality out to specifically de-risk the risk that you have of a singular plate of spaghetti. You take your bundles of functionality out in such a way that you can then take those bundles of functionality or ravioli, and then share them both internally and externally in a much more adaptive, agile way.

So the journey is to do that as quickly and as smoothly as possible in a much more de-risked way than somebody saying you know what we're going to bet the farm on taking this blooming plate of spaghetti and investing £5bn over five years to kind of turn this thing off and turn something else on. I actually think it's a much smarter, much more a de-risked way of achieving the same outcome I think, if not a better outcome of a lower risk, more adaptive, more agile, more configurable, more plug and play type environment was the non-technical description to the Board the other day of kind of what we're trying to do.

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Simon McNamara, Chief Administrative Officer
Where did the Chicken Kiev come into it?

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Kevin Hanley, Director of Innovation
I know you mentioned Chicken Kiev's earlier, I don't know, it was all about food.

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Rohith Chandra-Rajan, Bank of America
Just wonder if I can ask you from a revenue perspective to what degree do you think sort of the new products and capabilities that you're pushing out are what is required to just retain that 19 million customer base and potentially offset some of the I guess revenue erosion that we might be seeing elsewhere?

And how much is the development of new revenue streams either because you're doing more with the existing customer base, tie ups with MoneySuperMarket etc. that you'd talked about, and how much is new customer acquisition, if you've got any sense of how the work that you're doing might split?

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Simon McNamara, Chief Administrative Officer
Well it's all of the above isn't it? So I think firstly clearly some aspects of what we're doing are defensive, that's in terms of enriching our current toolset. I like the fact that we've used the APIs to build five services now that build upon Mimo being one, the

aggregation of accounts across customers. By the way that's the only one that's embedded within a mobile app, the others are standalone and that's what we're doing which the customers seem to like. So I think there's that defensive piece.

I think we're scratching the surface in terms of the revenue upside. So we're starting to get some stuff out there. I think we have had - and I think as we release more effort from the mandatory portfolio into the more discretionary it will give us more opportunity in the regard. But I think we're going to learn as we go but I wouldn't want to quantify that but certainly that's where we're focused.

And then there's the opening up new segments as such. So not just new revenue streams around the existing customer base but going to the new. And I think we have enough plays in that space. Now they may not all succeed, they may none of them succeed, but we've certainly got as I said earlier a dog in the race or whatever the phrase I used. But I think we are participating in each of those spaces with the potential that then presents and there's nothing to say that we shouldn't have - you know come back to that point earlier, we're less distracted by the means that are necessary to establish a new capability I think than some others. I think we have had a level of distraction as we've tried to fix things up but now actually we make decisions very quickly and we have the resources to be able to fuel where we see that opportunity. So I would anticipate more of a play into the revenue enhancement space whether that be the acquisition of new customers or the enhancement of capabilities for existing customers. And I mentioned a couple of them earlier.

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Rohith Chandra-Rajan, Bank of America
And how is something like Mimo changing customer behaviour?

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Simon McNamara, Chief Administrative Officer
So I think the very important thing for me is that what I'm seeing in the engagement - it's a bit like Kevin said earlier with the Liverpool branch when we put this chat service out there with the avatar, the reaction we got from our so called more vulnerable customers but those or the older customers was actually a very positive one because they felt that it was there for them. And that wasn't what we'd anticipated.

I think that's what I see with Mimo, as you talk to the customers. There's nothing that brings it home more than watching a customer sitting in bed because we've been video diarying some of these people at three o'clock in the morning stressed with the fact that their credit card bill is due the next day and they haven't actually sorted out their car insurance.

And if I can just say actually by the way we'll take care of that for you if you like and by the way if you don't like you can do that yourself, watching the customer's reaction to that I think we've underestimated the amount of stress and strain that we've put into the financial lives of our customers by not providing that level of support. We've looked at the products historically and we've tried to find products that really provide a service for the customer, but actually it's that service around it and support for that that I think we're seeing real resonance with the customers.

So I think there's massive potential there in terms of empathy shown through the technology and the services for the customer in very challenging circumstance. And you know sometimes we underestimate actually how powerful and impactful that is.

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Jenny Cook, Exane BNP Paribas
Coming back to your earlier analogy on open banking and restaurants and waiters, if I think back to a thing I heard a few years ago as a waitress, hopefully I did help the customer but at the same time I'm pretty sure I added quite a few costs to their bill so training costs, ongoing costs, cover serve, service charge, hopefully a tip, what costs do you think Open Banking has kind of added to your ongoing operation, particularly around fraud and security?

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Simon McNamara, Chief Administrative Officer
That's a very good point. I think firstly I think as it was launched there wasn't sufficient thought for the security aspects and we were big callers out of the fact that more thought should go. And I think this comes back to the regulatory agenda more broadly which is often there's an intent to do something but actually thinking through the full consequence isn't always there. And I think what was said I think by Carney in the last week just in terms of an ability to orchestrate some of that more effectively is a good thing right.

So then I come back to the most important principle when we do any of these new things is that we don't try and defy gravity. And we come back to the underlying need. So I come back to it better be secure, it better be resilient yeah. And therefore our lens to everything we do has that and we've got a bunch of experience in that. So I think which means that we're not on a sort of a folly. Now there's a cost in that, but actually there's a benefit. There's definitely a piece dividend in here. The fact that I'm not and Ross isn't and this organisation is not debilitated by the fact that things are falling about our ears every day, allows us to focus on and we better do a decent job with it, but actually releases us to do other things. So these things that were perceived often as a cost and an overhead turn out actually in the aggregate in my mind and experience to actually be not neutral but positive in terms of the overall performance of the organisation.

Now there is an overhead in some of these APIs in the fact that you have to construct something that is more robust - better engineered than a point to point connection. I still with the point to point connection have to think about its security, I don't just sort of knock it together and hope for the best. But if I'm building an API and I'm building micro services the principle there is ultimately the fact they're going to be reused, and also the fact that as I change either end of that I don't have to change the whole chain, I just have to talk to the waiter and basically the kitchen. You could change the entire kitchen but the waiter's actually taken that concern away for me, or the other way round. It's a different set of customers each day and I don't have to worry about a different set of customers, I have to worry that the waiter is basically managing that different set of customers and then bringing to me the distilled need.

So you have to get reusability through these because if it was one customer, one waiter, one chef, that's why you often end up in these little restaurants with one chef talking to the customer and - a little place in Scotland I go to right because actually it's only got two or three customers. So the point being actually you need reusability through that and you need value through those APIs through time. And therefore there is some upfront and initial investment to make sure they're fit for purpose, but actually it will pay back over time.

The false economy historically is the mess that we created as an industry not through the application of these techniques. By the way we didn't have some of the technical capabilities we have today to make it easier to do that, but when I went and studied computer science in 1942 right we were taught to basically modularise, to basically abstract the complexity, embed it within and have simple interfaces between pieces right. That's actually the basis on which we're all educated. We then all went to work and then created these things that weren't architected in the same way. So does that sort of - I mean it's a very longwinded answer to your question but essentially yes it does provide some overhead but I think you get that back in multiples properly architected and well-used.

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Kevin Hanley, Director of Innovation
The one thing that I think will happen is I think it's guaranteed that organisations such as ours and anyone else's actually will evolve through time to recognise the strategic importance of APIs, and sort of what we now describe as Open Banking I think becomes a much more strategic, significant kind of discussion moving forward. So I think you see the evolution of both the discussion - I think at the moment the discussion is overly technically oriented both within the organisation and how people think about it. I think the organisation evolves from standing up a technical capability, there is a line function, there's a function within the organisation that needs to be stood up technically to do that, but the real evolution of the conversation that we're having is suddenly I think people will speak less about technical capability and more about, to mix analogies if I've got a set of Lego bricks and you've got a set of Lego bricks and we both conclude that the answer lies in combining both of those to do new and unique and insightful things that no one else has built before, then the strategic overlay on how do you do that, how do you do it, how do you take those Lego bricks and combine them, what are the APIs that you need to stand up to support that, how do you prioritise, what order do you do those things in.

All of that I think becomes massively powerful for organisations moving forward and is of much more strategic significance. I don't think it's an overhead but I think people may have underestimated the strategic significance of the conversation that's being had. So I think you see the elevation of something that's a technical conversation at the moment to a much more thoughtful conversation moving forward.

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Jenny Cook, Exane BNP Paribas
Thank you. And secondly just looking at the expectation for ongoing technology run costs to come down, just wanting to understand the nature of that a little bit. So if look at slide nine I can see that you're expecting say about a 15% reduction in technology applications from 2020 into 2021, and a lot of that looks to be coming from the traditional infrastructure. My understanding of those kind of applications is often they're quite data processing heavy, a lot of physical presence. Are you looking to kind of reduce your physical data processing and storage in line with that? And how much of

this is coming from those physical reductions versus cheaper applications to actually be able to run?

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Christine McPherson, Finance Director, Services and Functions
So I think that's definitely our direction of travel. We are looking - we continually reduce the amount of on premise data that's far more expensive than cloud and that's a journey that we will continue on to the point that we'll actually reduce the number of data centres from where we are now. And I think again just simplifying our general portfolio in terms of applications, replacing old, expensive ways of doing activity with future cloud, more variable where we get the benefit of less maintenance, greater utilisation. That's the direction we'll travel.

I did mention earlier I think as we continue to invest and as the shape of how we do business changes we probably will see our technology costs taper off slightly in terms of reduction but we still expect them to come down.

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Aman Rakkar, Barclays
I was just interested in how much of an interest the regulator takes in your kind of investment agenda over the next three years and kind of getting that balance right between obviously very significant cost saves on a net basis each year with basically enough investment in perhaps the resilience of your firm.

And I'm particularly also interested in the Bank of England is going to be testing banks on a cyber-attack as part of the stress testing process. I'm not sure if we're going to actually see the results of that in terms of being publicly disclosed but I mean I'd be interested - how do you think a bank would react to a failure of that part of the stress test? Do you think the Bank of England perhaps could ask somebody to increase their investment spend with regards to resilience?

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Simon McNamara, Chief Administrative Officer
Look I'm sure they could. Look we work very closely with the supervisory teams and so they're very familiar with our plans. We ran a big programme here Atlas not long after I arrived, actually it was started before I arrived, but actually was to remedy some of the challenges under a section 166. So they had pretty clear visibility to that. We chose to sort of build upon that as a sort of foundation to keep that communication channel going. Obviously what we're doing in the cloud space they're intimately involved with and we with any material outsourcing we have to notify the regulator. They don't decide whether we do it or not but they certainly ask a lot of questions to test where we are.

The one thing I would say is our feedback generally from the regulators is a positive one in terms of their view of where we are. I mean the feedback around the Open Banking APIs as you heard is actually very strong. So I think we put a lot of store in the relationship with the regulators and the informing of the regulators and keeping them up to speed, at the same time take their counsel. They obviously have a concern in the aggregate of taking cost out and seeing resilience fail. There's a lot of pressure politically in that space as well.

The last thing I'd say is we do get intimately involved in the establishment of some of these tests. I think our cyber security team for example here is very much engaged in the determination of what a good test might look like in conjunction with the Bank of England. And I'm not sure where the results go ultimately in terms of that. I probably should do but I don't. All I know is we see them and I would be very disappointed if we didn't perform well in that with the investments that we've made. We've come a long way as I mentioned earlier in terms of the cyber space.

To your last point there's a significant risk here. You're seeing the - what I mentioned earlier in terms of different industries where there's been exposure of data and where they've been compromised right. I think one of the advantages that we do have is the fact that we've always been trying to protect the assets of our customers in a way that meant that the core of this, you know we didn't need people basically making payments unauthorised and we needed to secure that information and data. I think that's crept up on other industries. And I'm not sitting here resting on our laurels, far from it, but I do think it's made us very aware of the risks in a way that they weren't the sort of exposures that some other industries had and they've discovered that through the cyber space.

So it's an ongoing need for investment. The one thing that I'd say about us is that we start our whole investment process by saying what do we need to do before what we would like to do. And I think that's actually a very healthy approach to take and that's one that I know the regulators have had full visibility to and would - which takes away some of the angst. Because if you start from the other end of the lens then you're just constrained to whatever you have left for the things you need to do, then you end up in a mess.

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Christine McPherson, Finance Director, Services and Functions
And I think also as we make the final decision it is a balanced approach, it's not purely financial return. We have different people playing different elements in terms of evaluating the portfolio, whether that be a risk community or whether it be ultimately when it gets to Board.

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Simon McNamara, Chief Administrative Officer
What's the appetite from the rest of the room for keeping going with these questions?

You get a go as long as it's a short one - if you don't mind.

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Chris Cant, Autonomous
It will be a short one. Thank you for taking my question. One on Bó and one on capex. So Bó is the long term goal with something like Bó to ultimately potentially migrate the rest of the NatWest franchise across? I mean is that something you can see happening potentially down the line where a NatWest customer gets an app update and clicks yes I agree and transfers across to Bó and it enables you to - ?

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Simon McNamara, Chief Administrative Officer
Let me just take that question quickly because I think that could be an outcome. I wouldn't say that it's not going to be an outcome but it's not necessarily as an outcome either. So I think we give ourselves optionality in that space. Having said that there are many services that we provide today that Bó is a million miles away from providing around those core accounts. So there's an element of that. So I can certainly see it as a complementary capability for other services we provide, there's no reason why we shouldn't and others do that already if that makes sense.

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Chris Cant, Autonomous
Then the final one on capex. Just thinking about your suite of projects over the last few years, obviously quite a lot of the investment has been going into resilience and I appreciate how when you look at that on an NPV basis satisfying the regulator probably doesn't have a sell in spreadsheet necessarily to make the NPV the right level. But should we expect your capex rate to pick up from here, I mean to the extent that you expect to be generating more revenue positive opportunities in terms of your investment programme. Presumably within your investment spend in aggregate we should see more of that move into capex and that would come through as lower costs on the P&L.

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Christine McPherson, Finance Director, Services and Functions
I think the counter going the other way is a reduction hopefully in reg spend. Reg spend by its nature at the moment is eligible for capitalisation. So I think as it comes down the sort of general mix in terms of what hits the criteria that it may balance out, it may tip up slightly. We're also just working through as we move to cloud how does that affect what type of technology we can and can't capitalise. I don't think it will change our statistics majorly but may move it 5%, but I don't see it making a material impact.

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Simon McNamara, Chief Administrative Officer
All right look thanks very much for your time everyone. Really appreciate, I mean that's two hours in what's a bit of a sauna up the front here. So hopefully you come away from this understanding that we do have a platform that does have some characteristics and very positive characteristics. You know it's resilient; we have an ability of agility that maybe some of you hadn't seen.

So very happy to continue the conversation outside, so we'll go outside into the room, there's some tea, some coffee and so on. We'll be there for about an hour or something so you'll get a chance then. Or anytime afterwards to be perfectly honest, we're quite open to get on the mail or whatever it is if there's something that we can pick up on. But thanks very much for your time everyone. Cheers, appreciate it.

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