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FINACLE CONNECT

Connecting the banking world

The Banking Renewal

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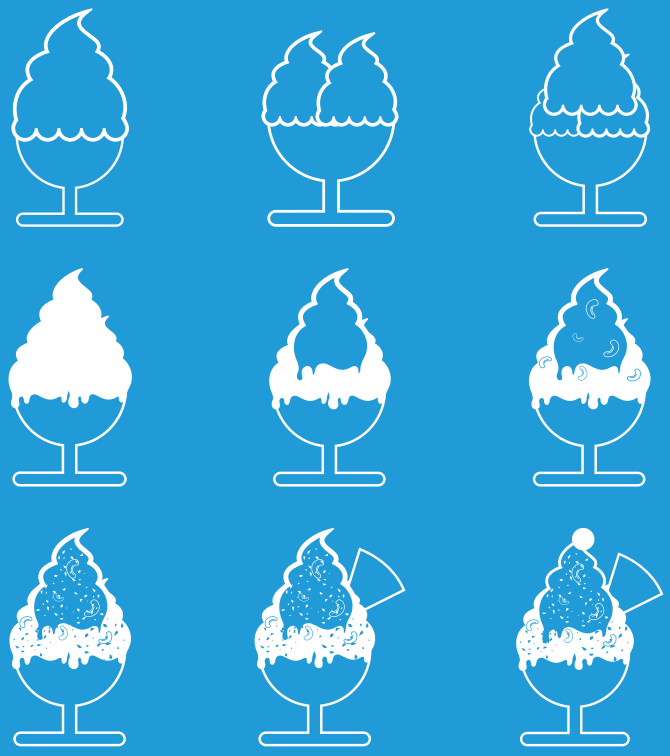
'Direct'ing Innovation: Discover Financial Services

Big Bet

Renew and New in Banking: 2020



REFRESH YOUR BUSINESS MODEL AND SERVE UP BANKING IN MANY NEW FLAVORS

LET'S SIMPLIFY BANKING

This thought powers the innovations that make Finacle the most advanced universal banking solution. Serving 16.5 percent of the world's banked population, we know what it takes to simplify banking for you and your customers. That's why our componentized offering lets you choose and add capabilities. So you can sculpt new revenue streams while becoming more agile.

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The banking **renewal**

As our industry continues to battle disruption in a world that is becoming increasingly digital, there is a pressing need to rethink the business of banking, and to find innovative ways to get things done. Therein lies the great opportunity of our times – the opportunity to leverage technology to simplify banking, amplify capabilities, and deliver great banking experiences.

To me the dual strategy of new and renew will be critical in this era. It is a strategy that calls for leveraging modern technologies to add new capabilities that will open up greenfield opportunities for growth and profitability, as well as renewing existing systems, processes and policies for higher efficiencies.

FinacleConnect, this time around focuses on this concept of banking renewal. The cover story takes a look at what a new and renew strategy looks like for a bank of today that's advancing to evolve into the bank of tomorrow. How can a bank align with realities of the digital age? Will it mean a complete identify reform? The feature this time focuses on digitalizing banking for the digital age. Next, turning the spotlight to customers, we have an article that defines a renew and new strategy for building customer connect.

A look at global consumer demographics reveals that by the year 2020, there will be an entire generation that has grown up in a primarily digital world. The Big Bet in this edition takes a look at what is in store for banking in 2020. In our kaleidoscope section, we explore the fascinating Middle East and the impact of the digital revolution on this part of the world.

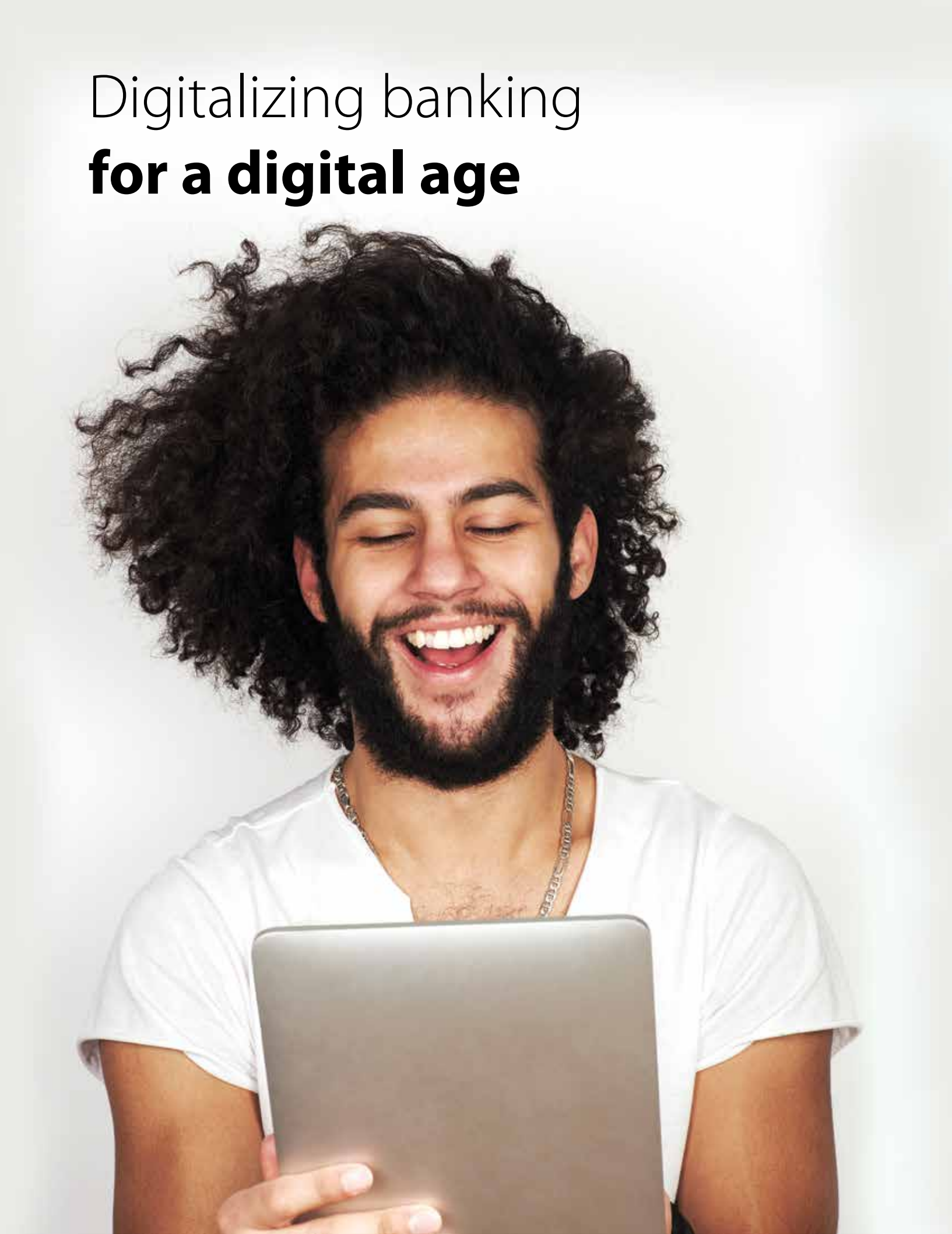
Our case study this time features the story of Discover Financial Services' (DFS) transformation. This case study is part of Celent's report profiling model bank initiatives. In addition we also have an interview with Glenn Schneider, Executive Vice President, Chief Information Officer, DFS, to find out what makes Discover one of the most successful direct banks today. We have two more insightful interviews this time, one with Murat Çelik, Digital Generation Banking EVP, DenizBank, and another with Deepak Sharma, EVP & Head - Digital Initiatives, Kotak Mahindra Bank. And our technology focus this time covers the much-talked of open APIs in the context of banking, and their role in both innovation and growth.

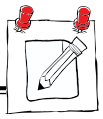
All of that and more is in store in this edition of FinacleConnect. I hope you enjoy the articles we have put together for you.

Happy reading!

Michael Reh
Executive Vice President – Infosys

Digitalizing banking **for a digital age**





At the core of Atom's (soon to come into) being, lies the belief that customers want a bank "… that really doesn't act like a bank at all." This, in my view, reflects a deep, instinctive understanding of what it means to be a digital bank in a digital age.

Before we get into what a digital bank truly is, let's set out what it's not. A digital bank is not the same old banking business model enhanced with digital technology. It is not about giving legacy processes a digital facelift. And it is certainly not an entity that puts the business of banking ahead of its customers.

Our conversations with clients show that most progressive banks have grasped the essence of digitalization. But those who are still finding their way around the idea and its execution might find it interesting to know what a digital bank should look like in a digital age.

The digital age has several characteristics, of which the following three stand out: It will mark a gradual transfer of power to the end points, or in other words, to banking customers. It will see the banking ecosystem grow in importance. It will consider insight its most valuable resource.

Customer above all

So, as customers become more assertive and influential in the relationship, banks must defer to their increasing power by recasting their business models to put the consumer front and center of everything. And henceforth, all business processes, strategies and decisions must validate this shift. For instance, even something as routine as an account opening process could be completely redesigned to suit customer account opening behavior and preference, and implemented with the help of the latest digital technologies and tools, such as digital signature, video chat, biometric authentication on mobile and so on. Or take the example of mobility, and its derivative geo-location capability. Digitalization calls for exploring totally new ways – besides fraud detection and location-based promotion – in which these technologies can be used to enhance banking processes to deliver tangible value to customers. Commonwealth Bank's property guide app, which prospective home buyers can use to "scan" a property they like using their mobile to receive data on ruling price, sales history, suburb profile, rental yield etc., is a manifestation of digital age thinking. This is not because the bank has created a nifty app that does new things, but because it has thereby managed to advance the point at which it enters the mortgage engagement cycle.

Banks planning to digitalize must therefore rethink their entire business, their organization, indeed their very identity, to align with digital age realities.

And that really, is the essence of digital banking – to leverage digital technologies to create stickiness in a banking universe of increasing fragmentation and diminishing loyalty by entering the customer consumption lifecycle way before the point of sale and payment. The digitalized bank will integrate seamlessly with its customers' lives, instead of existing as a stand-alone service.

Ecosystem before bank

In the digital age, consumers will bank with an ecosystem rather than a single banking institution, thanks to an increasing fragmentation of services, already very visible in the payments space. Success will belong to those banks, which get the ecosystem to perform many of their functions on their behalf. That APIs will be key to enabling this is amply demonstrated

by the success of new age organizations like PayPal and Bitcoin. Therefore, we can expect that forward thinking digital banks will learn from these experiences to open up a wide range of offerings (besides payments) to a much broader audience, including other banks, by offering specific service APIs on the cloud that users can access and build a business model around. What a game changer this could turn out to be: for instance, these banks, which previously used to invest vast resources to recruit agents, could now simply publish an API online that any interested party could use to enroll on their own. Over time, the ecosystem of agents would take the API viral and deliver unprecedented return on investments.

Insight ahead of everything

Insight will be the most valuable resource in a digital bank of the digital age. Banks have never been short of data, but now, they have the advanced analytical capability to access the enormous information existing both within and outside the organization and convert it into keen, granular, real-time insights into customers, operations, markets and more. Digital banks will hone these data abilities further to produce insights that will not only help their understanding of events past, but more importantly, enable them to take personalized, contextual decisions and actions in the real-time present. The successful digital bank will shun generic commoditized offerings in favor of insight-driven products and services differentiated by how relevant, personalized and contextual they are.

The digitalized bank will integrate seamlessly with its customers' lives, instead of existing as a stand-alone service.

In anticipation of the digitalization of banking

While most participants recognize the force and inevitability of digitalization, a few cite the slow beginnings of P2P lending or cryptocurrency as evidence that hype is not the same as happen. But a closer examination will reveal this is nothing new. Historically, disruptive technologies have always ridden on the favor of a few early experimenters, whose experiences help the technologies to mature, at which point they gather critical mass to enter the mainstream.

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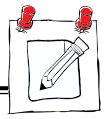

With banking disruption at the hands of a variety of digital "non-banks" a certainty, the only way incumbent banks can win is by playing the same game: relooking at the business afresh, upending legacy practices, and generally thinking like a startup. Banks would need to be bold and take their chances, yet must take care not to do anything rash. As momentous as the digitalization of banking is, it is something to be achieved gradually and thoughtfully. The approach should be to build on existing strengths of scale, reputation, brand, trust and customer relationship, and in parallel, experiment with new technologies, innovations and business models befitting the digital age. Along the way, there will be trial and failure, innovation and success, improvement and iteration, all as necessary as they are unavoidable. None of this will happen overnight. The shift from conventional to digital is undoubtedly big-bang transformation, but more in idea than in implementation.

Author: Puneet Chhahira
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Strategy for
Banking ReNewal

Banking changes and challenges

In a mere seven years, a telecom company helped transform the financial services landscape of an entire country by enabling 67% of the bankable population to gain access to formal banking services, where a mere 26% had it earlier. Over the next decade, peer-to-peer lending platforms are expected to reroute more than US$1 trillion in loans around the traditional financial system, and make a play for other asset classes. Today, the block chain technology powering a cryptocurrency with a modest global circulation worth US$ 3.5 billion is showing up the inefficiencies of some of the foundational processes of modern banking and promising to transform them.

And there are other challenges.

Margins and profitability remain under pressure. More and more banks are embracing continuous innovation in order to maximize revenue, minimize costs and enhance return on equity. An increasingly stringent regulatory regime is compounding the cost, effort and complexity of compliance. Today's informed, connected and sophisticated customers are demanding products and services hyper-personalized to a segment-of-one.

The rapid evolution of technology is disrupting the way consumers interact with banks. Adoption of technologies like mobility, big data, artificial intelligence, social, cloud, and the Internet of Things will deliver significant competitive advantage and determine the leaders in the banking business. Banks are aware of the imperative to gain the first mover advantage but many are hampered by the constraints and complexities of their legacy systems.

Traditional business models are disrupting and entry barriers are coming apart, especially for new competition from the tech, retail and telecom space. New innovative, agile and cost-efficient business models are challenging the value propositions of traditional banking offerings. To retain competitive advantage, banks must respond with accelerated innovation cycles, new engagement models and value-based partnerships with other ecosystem players.

A new kind of transformation

Clearly, challenges of this scale and magnitude require a transformation that impacts almost every aspect of the banking enterprise. The good news is that the fundamentals finally seem to be aligning up to favor this. In 2015, global GDP growth is expected to grow at 3.5% and improve marginally over the next year. The banking sector also finally seems to have come out of its extended recovery phase. Therefore, the time is right for banks to launch a fresh transformation strategy that will take them beyond this current inflection point into an exciting future ripe with opportunities.

For banking leaders, currently focused on addressing the structural shifts in the banking model, the need to anticipate and manage change has never been greater.

We have named this strategy "New and Renew" because it calls for adding new technological capabilities that will open up greenfield opportunities for growth and profitability, as well as renewing existing systems, processes and policies for higher efficiencies. Broken down, a "New and Renew" strategy for a bank of today (hoping to evolve into the bank of tomorrow) would require a five step approach:

Build insights into technology usage and business performance

In most large banks, the technology ecosystem is a snarl of applications, systems and technologies built over years of organic and inorganic growth, localized enhancements and quick-fix integration. Redundant, duplicated and rarely used applications not only

In 2015, global GDP growth is expected to grow at 3.5% and improve marginally over the next year. The banking sector also finally seems to have come out of its extended recovery phase.

increase operational cost and complexity but also impede performance and agility. The infrastructure is typically optimized for periodic spikes in demand, which means that a significant portion is not used for bulk of the time.

The first step, therefore, should be to build deep insights into the usage and performance of the existing technology and applications landscape. Apart from identifying operational inefficiencies and cost leakages, the emphasis should be on identifying gaps between technological capabilities and enterprise objectives.

Going forward, insight-based management of infrastructure, systems and applications must become a "standard", continuous process. Today, advanced automated IT operations analytics platforms, like Finacle Assure, can help banks proactively monitor and manage the technology ecosystem across the enterprise. These solutions can help in the early detection of application performance issues. They can also help banks extract better ROI from expensive infrastructure investments by optimizing capacity based on usage insights and leveraging techniques like cloud bursting to dynamically manage unforeseen peak loads.

Simplify infrastructure, applications and processes

A keen understanding of usage and performance can help banks simplify their technology ecosystem to achieve significant cost efficiencies. According to one estimate, simplification can reduce application and infrastructure costs by up to 50 percent, and total IT spend by as much as 30 percent.

Simplify infrastructure – Leveraging cloud technologies to make consumption elastic is the easiest way to optimizing infrastructure investments. But regulatory compulsions and data concerns make it a less than easy choice in the context of banking. Still, banks need to start building a path to the cloud by selectively deploying its dynamic scaling capabilities and shifting less critical activities, like development and testing, up there.

Simplify applications – A study conducted a few years ago concluded that businesses in the United States and United Kingdom were spending more than US$ 15 billion annually in maintaining software they didn't use. A long tail of superfluous applications is a drag on performance and efficiency. A componentized approach to application rationalization can help bring down costs and increase agility. Enterprise-class components can enable banks to centralize business operations across product lines, thus boosting operational efficiencies and reducing technology management costs. This approach also enables the plotting of a customized path to simplification by allowing banks

According to one estimate, simplification can reduce application and infrastructure costs by up to 50 percent, and total IT spend by as much as 30 percent.

to pick and choose components on the basis of their business priorities.

Simplify processes – Many traditional banking processes must be significantly re-engineered – if not reinvented – to help banks stay competitive in the digital order. It is also critical that banks continuously redefine and improve processes in line with competitive shifts in the marketplace. Banking solutions based on components and APIs give banks the flexibility to redesign processes and create unique and engaging experiences for their customers. End-to-end automation can further streamline banking processes by eliminating manual intervention and minimizing duplication.

Build operations on componentized modern platforms

Banks would need to shift operations from monolithic applications to componentized modern platforms, not only for reasons of efficiency, but also to keep pace with disruptions in front-end technologies like mobile and wearables. Decoupling back-end capabilities from the front-end would help them accelerate innovation in customer-facing technologies.

Componentized platforms with an expanding set of exposed APIs will play a central role in transitioning banking systems into the API economy. The API model allows banks to reuse, share and monetize their core services while focusing on developing completely new services, processes and business models that open up new revenue streams. APIs also help banks significantly accelerate innovation cycles by opening up their systems to external developer networks.

In a componentized future, banks will be able to pick and choose components and APIs based on their individual business priorities and preferred pace of modernization.

Design experience-oriented processes and applications

From the perspective of today's digital customers, experience is the only true differentiator in banking. Having set up a technology foundation as discussed above, banks must now train their focus on building exceptional experiences for their customers.

This focus needs to be embedded into the design strategy behind banking processes and applications. A good design strategy, therefore, will have to be based on a deep understanding of customer usage and behavior patterns. Incorporating key customer insights into the design of processes and applications will enable banks to continually renew services at the front end without having to disrupt the back-end.

Here again, enterprise-ready analytics platforms can help accelerate the journey from big data to big insight. Today, open source data analytics platforms have simplified and streamlined big data adoption by delivering enterprise-class solutions with built-in access to easy-to-use development tools. Some of these platforms come with the added advantage of integrated banking-specific data models and use cases that make it extremely simple to operationalize data assets for designing insight-based experience-oriented processes and applications.

Build intelligent applications

The final step in "New and Renew" is to build intelligent banking applications that not only enable new engagement models and create new revenue streams, but also deliver the first mover advantage for banks.

Componentized platforms with an expanding set of exposed APIs will play a central role in transitioning banking systems into the API economy.

The strategy should be to build unique systems of engagement that deliver completely new experiences catering to completely new customer needs and segments.

Take for instance the youth segment, comprising the millennials and Generation Zs, who represent both the opportunity and the challenge for the future of banking. Within this broad segment, the 12 to 18 year olds who are still mostly unbanked represent a huge relationship building opportunity for banks. But engaging with these digital natives with their unique financial needs and aspirations requires a solution that is tailored to their lifestyle. An example is the Finacle Youth Banking solution, which is designed specifically for this demographic. How? By featuring a simple three-step onboarding process, multiple interactive features like 'goals management' and 'do transactions', and an integrated gamification platform for infotainment.

Banks will have to constantly explore the possibilities of launching innovative and intelligent applications designed to deliver customized experiences to unique sub-segments. Apart from serving as a differentiator, these applications will also help banks to increase technology ROI by leveraging investments in existing systems to open up new revenue streams and markets.

Conclusion

The banking industry is at an inflection point. A combination of technological advances, evolving customer expectations, disintermediating competition, demanding regulations and profitability pressures is subverting traditional banking processes and models. It is becoming increasingly clear that banking has to be completely reimagined for the demands of the digital age. To do that successfully, banks have to adopt a "New and Renew" strategy that will help them revitalize the core of their business as well as equip them with the capabilities required to strike out into new frontiers.

The final step in "New and Renew" is to build intelligent banking applications that not only enable new engagement models and create new revenue streams, but also deliver the first mover advantage for banks.

Author: Michael Reh
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The "New" Banking Ecosystem: **Where Foes Turn Friends**

A few years ago, if you were a universal bank, you pretty much held all the aces. Not so much in today's unbundled banking landscape where fintech startups, Internet giants, retail companies and telecom firms are jostling for space with banking incumbents big and small, eating into niches with faster, cheaper and more efficient offerings, to almost disintermediate banks from some parts of their business.

So what we have is a vast ecosystem of financial services providers that is ironically as much a source of new opportunity to traditional banks as it is of new competition. Where new entrants are unhindered by legacy processes, systems, culture and structure – that's basically the secret of their sauce – they have none of the advantages of market access, deep pockets and customer data that banks have accumulated over decades. Clearly there's a huge opportunity to reassemble the pieces of complementary strength and weakness in this ecosystem jigsaw into an entirely different picture to create real, new value for all constituents.

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And that's what we will explore in this article – the ecosystem as a lever of "new" in banks' Renew and New (R&N) strategy.

Let us start that exploration by understanding what "new" means in the R&N context. If something, a technology, idea, innovation, process, initiative or partnership creates value for the organization that it didn't have before, well then, it basically qualifies as a "new" lever. What is this value we are speaking of? I define it as a significant benefit that manifests in any or many of the following ways:

As new revenue coming from new markets, customers or products.

Note that I am not talking of a small bump in sales in existing markets and product segments, or a topline incremented by a price increase. For revenue to count as new, it must be totally fresh, meaning it must arise from a customer segment that the bank had never served or a geography where it had no appreciable business. A great example of this comes from the Walmart and Green Dot Bank partnership to offer "GoBank", a free checking account available only at the store. The tie-up allows the Bank immediate access to a vast number of unbanked and underbanked customers – their prime targets – as well as unhappily banked customers looking for a change. For Walmart, this is mainly an opportunity to push further into the financial services business, but non-customers entering their stores for the checking account, are a welcome collateral advantage.

But perhaps the most ingenious leveraging of the ecosystem for new value creation is the Dwolla-Veridian alliance, which offers Veridian Credit Union customers mobile and online payment services through FiSync, Dwolla's online/mobile money transfer network and the double benefit of instant transfer and saving of credit card fees. For Dwolla however, this is nothing short of a coup, because it circumvented the need for obtaining a license by "renting" Veridian's. This example also shows that ecosystem partnerships are not exclusively big bank gigs.

As new profit.

Again, this is not about that extra buck made by cutting cost or charging more. New profit is created when the organization acquires an entirely new source of profit altogether. Like when a purely retail bank starts to offer SMB loans, netting higher margins on that business to improve overall profitability. Or consider Equity Bank's unique tie up with Airtel for their Mobile Virtual Network Operator strategy, which in effect enabled the Bank to mirror their offerings on mobile phones, without any infrastructure investment.

Interestingly, it is no longer just "banking" levers that are driving new banking profitability. In a digital economy, data is the predominant currency and also investible capital that can earn smart returns. Many of the top U.S. banks have made money off their data on customers' shopping habits, not by selling it outright (!), but by allowing marketers to send deals to (the banks') select customers via the banks' channels, and taking home a commission on resulting sales. The banks don't handle the mechanics themselves, relying instead on intermediary providers of card linked marketing solutions that do the job for a share of the commission.

As new innovation or IP.

Here, it is not necessary that there should be immediate monetization; even a work-in-progress innovation deserves the tag, if it is likely to yield unprecedented value in the future. And the ecosystem is just the place for it.

In the recent past, banks crowdsourced, co-created and open innovated, or they invested in fintech startups to energize their innovation agenda. Between 2012 and 2014, global investment in fintech companies went from US$ 4.05 billion to US$ 12.2 billion. This was a win-win that allowed banks to offer innovative products, services and experiences to customers, while at the same time providing startups with the two most important things they didn't have – funding and a market they could pilot innovations in. Biggies,

Interestingly, it is no longer just "banking" levers that are driving new banking profitability. In a digital economy, data is the predominant currency and also investible capital that can earn smart returns.

such as Citibank and Bank of America to name just two, are among those who have incubated startups, providing them with an environment, knowhow of banking and regulation, funding, and of course, access to their markets. Many such relationships between bank and tech are deepening, morphing into new business models.

At the same time, we're also heading into the API economy of opportunity. As banks mull over offering controlled data access to developers in return for accelerated innovation, some, like Spain's BBVA have already marched ahead. In their inaugural hackathon, organized two years ago, BBVA gained nearly 150 apps and about €3 million worth of development time. The API is possibly the harbinger of a new era in collaboration, but it also threatens to upend most of its rules with an open-door policy that will see banks ceding at least some control over who is innovating for them, and what.

As enhancement in reputation or goodwill

While intangible, this is no less important than the other manifestations of value. Remember how their

As enhancement in reputation or goodwill. While intangible, this is no less important than the other manifestations of value.

reputation for ethical behavior and trustworthiness enabled some sustainable banks to outperform other institutions at the height of the financial crisis.

Now there's an ecosystem of such "crisis-resistant, sustainable banks" called The Global Alliance on Banking Values. Members can draw upon the Alliance's knowledge resources as well as get funding from a GABV initiative called SFRE, which is the first global open-ended investment company dedicated to deploying long-term capital to support sustainable banks. This is one example of how the ecosystem can help individual institutions fulfill their missions and garner immeasurable value in terms of goodwill. Another instance comes from India, where ICICI Bank, the country's largest private sector financial institution has not only lent its support to the Prime Minister's Swachh Bharat Abhiyan (Clean India Initiative), but MD & CEO Chanda Kochhar has also reached out to the ecosystem of peer organizations to enlist their participation in the cause.

The business of banking has changed almost beyond recognition in the past few decades. Now the scope of

Technology has brought outside players into what used to be a high-barrier business, to disrupt and fragment.

change has outgrown the operational boundaries to encompass the business model itself. Technology has brought outside players into what used to be a high-barrier business, to disrupt and fragment. However, these very changes have also given rise to a rich and diverse ecosystem of providers, each of whom fulfill some, but not all, needs of customers. Traditional banks are facing the heat of new competition, but in this ecosystem, they are also discovering new opportunities for collaboration and co-operation that can generate real value for all concerned – incumbents and upstarts. Financial service providers of every stripe should, without question, explore these opportunities to take and give back new value to the ecosystem. But some important considerations must be taken into account before deciding whom to partner with, and how far.

For banks, the preeminent consideration is experience – any tie up must make banking more enjoyable for customers – followed by access to new consumer segments and innovation acceleration. On the flip side, they must consider the risk of ceding customer engagement responsibilities to the partner, and being left with the back office to manage. This could be a good or bad thing depending on the bank's current context; for instance, a small bank with a limited customer base might actually grow its revenues via the back office.

On the other hand, startups must leverage alliances with big banks to gain quick entry into markets where they can pilot and test innovations. They could also turn to them for access to funding and customer data.

Given the right decision and choice of partner, there's every likelihood of the ecosystem delivering the new value that it promises. To big banks, startups, and everyone in between.

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A renew and new strategy for **building customer connect**

The urgency to build new age digital capabilities that are aligned with the needs of next-generation customers has been a key refrain in the banking narrative for a few years now. But there was some dissonance last year in the high-tech pitch when it was revealed that over 95% of the world's ATMs were running on a 12 year old operating system whose long term support had just lapsed.

Now, digital transformation and innovation are critical levers for driving growth and profitability in the banking industry. But it is also imperative that banks simultaneously focus on keeping their existing customers happy by consolidating current strengths even as they make continuous improvements to enhance customer engagement and experience. Banks therefore have to focus on a dual strategy that is as much about renewing what customers already like as it is about adding new features and capabilities that attract more customers.

Banks therefore have to focus on a dual strategy that is as much about renewing what customers already like as it is about adding new features and capabilities that attract more customers.

In our view, these are a few Renew and New considerations that banks should focus on as they work towards building customer connect.

What's renewing

Replacing existing systems: Evolving customer expectations, competitive dynamics and regulatory mandates are constantly challenging banking system functionality and capability. Being in an industry that is constantly in flux, it goes without saying that banks should regularly upgrade their systems and processes. But this is a context that could lock them into a permanently open-ended upgrade cycle unless they embrace the possibilities of extensible design. Extensible design provides banks with the flexibility required to upgrade system functionality and reconfigure architectures, processes, business rules and products within practical metrics of cost and time.

Refining processes: Customer-facing processes have been the focal point for the first wave of digitization in most banks. But in order to enhance customer experience as well as operational efficiency, this must be followed through by the refinement and acceleration of back-end business processes. Automation will play a central role in enabling banks to refine and extract more value from their business processes, and they should adopt an enterprise-centric automation strategy that will help them build a highly automated operating model that maximizes performance and value.

Managing security: Banks are in a constant battle to secure themselves and their customers from threats in the real as well as cyber-world. The primary challenge then is to ensure foolproof security without compromising customer experience. But now advances in biometric technologies have opened up a range of new possibilities for ensuring customer security. Banks need to constantly explore the potential of these new technologies, from voice and heartbeat biometrics to fingerprint and iris scans, to enhance protection as well as experience.

Refreshing branding: According to a 2012 study, financial brands rated quite low in terms of engagement and desirability among consumers. The study also revealed that a traditionally conservative approach has meant that the industry has ended up with the least branding diversity. In an era of intense competition and

Banks need to constantly explore the potential of these new technologies, from voice and heartbeat biometrics to fingerprint and iris scans, to enhance protection as well as experience.

customer sophistication, a bank's approach to branding will impact its performance on customer acquisition and retention. The battle for customer equity will no longer be decided solely on the basis of deposit rates or service quality; banks need to update their brands and make them more relevant for the digital consumer without diluting their relevance to existing customers.

Rejuvenating loyalty: Incentivizing and rewarding customers to switch banks is becoming quite commonplace in the industry. But unless this effort is balanced by rewarding the loyalty of existing customers, the long-term outcome will at best be zero-sum. To stay relevant in the new model of banking, loyalty strategies must be delivered as a personalized, cross-channel program that goes beyond rewarding transactions to actually driving engagement. Banks can also use loyalty programs to influence customer behavior and incentivize activities that deliver more value for their customers and their own organizations.

What's new

Building a path to the cloud: The future of enterprise technology architecture is going to be cloud-based. In banking, however, the transition to the cloud has been slowed down by challenges of compliance and security. Still, the prediction is that by next year a majority of banks would have moved a large proportion of their transactional processes to the cloud. While that's a start, banks need to define an enterprise cloud strategy that looks beyond the obvious cost benefits of the new IT consumption model. A cloud-based architecture will provide them with the flexibility and agility to respond in near real-time to any changes in market dynamics. It will also streamline the integration of new applications and technologies and make it much easier to ensure business-IT alignment.

Innovating with mobility: Mobility is currently the most important innovation theme in banking today. But even as banks focus on leveraging the innovation possibilities of the smartphone, the horizon has already expanded to include a whole range of new wearable devices, from Google Glass to smartwatches. Banks are already experimenting with these new formats, like Spanish Bank, La Caixa, which has a Google Glass-specific banking service and ICICI Bank that has launched its iWear application for smartwatches. Though initial iterations have largely focused on transactional applications, it is hoped banks will further explore the native capabilities of these new touchpoints to deliver services that are not only marketable but also monetizable.

Unifying underlying processes: Customers expect a seamless and streamlined cross-channel banking experience, and hence the industry-wide emphasis on omnichannel strategies. But most often, the integration at the front end is weakened by the presence of channel-specific back end applications and processes. This not only dilutes customer experience but also creates operational complexities and inefficiencies. A comprehensive channel integration strategy that emphasizes process unification is essential not only to enhance experience but also for banks to build a unified understanding of each customer.

Big data and analytics: Business intelligence and advanced analytics will be the number one priority of banks this year, even topping security initiatives, says

Mobility is currently the most important innovation theme in banking today. But even as banks focus on leveraging the innovation possibilities of the smartphone, the horizon has already expanded to include a whole range of new wearable devices

a study released earlier this year. One of the primary mandates for big data analytics will be to identify and prevent security threats in real-time. In addition, these technologies will also play a critical role in enhancing the utility and performance of online and mobile offerings, to meet the expectations of tech-savvy consumers. As the technology itself matures, banks must focus on delivering easy-to-use self-service analytics capabilities across the enterprise to enhance and accelerate decisions, many of which – personalization, targeted offers and so on – will directly impact both retention and acquisition of customers.

Banking on IoT: Banking is a data-driven business and as such a network of smart sensors delivering huge customer-related data implies a whole new realm of opportunity. The additional data streams will help banks develop a more nuanced understanding of their customers and deliver highly customized, contextually relevant financial solutions that resonate with customers' current life stage. To leverage this opportunity at scale, banks should build partnerships with players from other sectors who can help them create integrated profiles of their customers.

Innovating with new applications and technologies: Conventional banks have typically looked at the growing popularity of cryptocurrencies with something like wary disinterest. Now, the technology underlying one of the largest cryptocurrencies in the world promises to help transition banking processes designed for the paper era into the digital age. Many banks are already experimenting with the technology to accelerate transactions and strengthen security. Payments is another space where the sheer pace of innovation threatens to disintermediate traditional banks. Here again banks have to adopt a multi-modal strategy that combines setting up in-house innovation labs, incubating fintech start-ups and forging partnerships with other innovative players in the ecosystem.

Mobilizing the workforce: As the industry transitions to a mobile-first model of banking, it becomes imperative to apply the same principles to empower employees. By enabling real-time access to information and applications, mobile technologies can help raise employee productivity, service levels and customer engagement. Needless to say, BYOD will be a key driver of this cultural shift and banks have to find ways of harnessing and managing the

Business intelligence and advanced analytics will be the number one priority of banks this year, even topping security initiatives, says a study released earlier this year.

opportunity by putting in place a clearly defined BYOD policy that mitigates the risk of unauthorized devices accessing enterprise networks.

Adopting new business models: The digital revolution in banking has resulted in a number of new business models like internet- or mobile-only banks to peer-to-peer lending networks. A few banks (such as BNP Paribas) have already invested in creating distinct entities (Hello bank!), designed from the ground up for the digital age. As the digital ecosystem opens up new models of customer engagement, banks need to be constantly alert to opportunities that can be leveraged for growth and profitability. Take P2P lending for example. As a concept it is designed on the principle of circumventing conventional banks. But current trends indicate that more and more of these networks are aligning with formal financial services institutions. A new hedge fund-backed investment trust called P2P Global Investments is specifically structured to buy loans from P2P networks like Crossflow, Funding Circle, Ratesetter and Zopa and offer them as readymade high-dividend loan portfolios.

As the industry transitions to a mobile-first model of banking, it becomes imperative to apply the same principles to empower employees.

Design Thinking-banks will have a better chance of keeping old and new customers happy than most others.

Thinking design thinking: There is no debating the fact that the digital model will eventually challenge some of the most enduring structures of traditional banking. Technology is indeed a key driver of the shift. But banks will also have to embrace new ways of thinking that allow them to extract unique and sustainable competitive advantage from the endless possibilities presented by digital. In the new digital marketplace, merely solving problems will not be enough to ensure sustainable or strategic advantage. True innovators will be those who can find real problems that are yet to become part of mainstream consciousness and then solve them creatively. Design thinking presents a cognitive approach that will enable banks to take a new approach to innovation by placing the human experience at the center and then iterating across technological viability and economic feasibility to arrive at a perfectly optimized solution. Design Thinking-banks will have a better chance of keeping old and new customers happy than most others.

Conclusion

There is little doubt that the business of banking is being completely disrupted by new technologies, innovative engagement models and non-traditional competition. A strategy that emphasizes digital transformation and innovation will be crucial to ensuring that traditional banks are qualified to compete in the new age of banking. But at the same time, banks need to ensure that they retain and reinforce their existing connection with customers by augmenting competitive strengths and addressing shortcomings. A strategic Renew and New approach to customer connect will help banks manage profitability and performance in today's context even as they build the capabilities required to succeed in the future digital paradigm.

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Renew and new in **Banking: 2020**

Over time, every industry undergoes evolution. This evolution leads to new ways of operation, adoption of new technologies, industry transformation, new competition, disruptive innovations and collaborative working not only between the industry players but also across industries.

Banking as an industry too has seen technology transformations. From the erstwhile mainframe days and manual processing to the age of networking, personal computers and automation, to the proliferation of the Internet and Cloud, banking has seen disruptive technology changes drive the way the business is conducted. Likewise, the industry has also seen phased shifts in consumer preferences – from the good old branch banking and call centers, to Automated Teller Machines, to Internet and Mobility devices, to Social and Wearable technologies – bringing transformative changes to how end consumers want to consume banking services.

Through this journey, we can recognize a gradual and consistent shifting of power from the banking enterprise towards the end consumer. Rather than banks coming up with a model for offering services, it is now consumers who are dictating the terms of consumption. This is nothing short of a paradigm shift, and banks have no option but to comply.

This calls for renewing the way banks offer services, as well as finding new ways of doing so, in tune with changing consumer lifestyle, behavior and preference.

Renew and New in Banking

A look at global consumer demographics reveals that by the year 2020, there will be an entire generation that has grown up in a primarily digital world. Computers, the Internet, mobile phones, texting, and social networking are all second nature to them. And their familiarity with technology, reliance on mobile communications, and desire to remain in contact with large networks of family members, friends, business contacts, and others will transform how we work and how we consume. This is the demographic group we call Generation C – the "C" stands for connected, communicating, content-centric, collaborating, computerized, community-oriented, and always clicking. Most of these people were born after the 1980s, and were adolescents in the 2000s. In the developed world, Generation C encompasses everyone in this age group, while in the BRIC countries, it consists primarily of urban and suburban youth. By 2020, Gen C will make up 40 percent of the population in the U.S., Europe, and the BRIC countries, and 10 percent in the rest of the world, to constitute the largest group of consumers worldwide.

By 2020, Gen C will make up 40 percent of the population in the U.S., Europe, and the BRIC countries, and 10 percent in the rest of the world, to constitute the largest group of consumers worldwide.

The advent of Generation C and its related behavior will drive fundamental change in most industries and create substantial opportunities and threats for all involved. Across industries, we can recognize a series of "eras" triggered by the sequential rise of critical new technologies. The Era of the Smart Cloud, for instance, will enable significant portions of the Generation C lifestyle in the coming years, to be succeeded by the Era of the Sensor Economy, which the Cloud will help trigger. At the bottom is a series of specific events keyed to and dependent on the arrival of the various

eras; thus the Era of the Internet of Things will enable auto manufacturers to build cars with full machine-to-machine connectivity.

- **RENEWal of Banking:** Banking is not immune to this phenomenon. Historically, banks and financial institutions have followed, rather than led, other industries in recognizing technology developments and changing consumer behavior, and in introducing new and innovative services to address these changes.

  Banks have to also address the phenomena of industrialization, shifting of power to the end points, "less banking – more consumer experience", increasing regulatory and compliance controls, cross industry collaboration, growth of SMAC technologies, and the Internet of Things composed of devices, wearables, drivables and sensors.

  As a result of these changes, banks need to relook at their service offerings, and renew them to suit changing consumer lifestyle, behavior and need.

- **Emergence of NEW Banking:** New Banking refers to the future of banking – how the industry will emerge and its services be availed by end consumers.

  This is a world in which we are seeing increasing convergence of Business and Technology. Areas, such as User Experience, Social Computing Platforms, IT Security, Cloud Computing, Data Analytics, Risk Management, Standardization and Interoperability are all being looked at from that perspective.

  This is also a world that is characterized by:
  - Customers redefining the rules of the game – Pronounced shifts in demographics, attitudes and behaviors, in addition to ubiquitous information, are giving customers the power to demand much greater responsiveness and transparency from their banks.
  - Thriving of universal banks and ultra-focused niche players – Large players will generate higher aggregate profits by reaping the benefits of super scale, while niche players will aggressively pursue the most desirable customers by addressing their needs in distinct ways; those in the middle will get squeezed.
  - Changing workforce composition dictates new approaches – An older and increasingly mobile and diverse workforce will raise management complexity and require flexible approaches to compensation and performance management.
  - Intensifying regulatory burdens – Heightened requirements around privacy, security, partnership risk and operational risk will require banks to take a more proactive, enterprise-wide approach to managing compliance issues.

  Let's look at how these trends are influencing changes across specific areas related to banking.

Looking into Specific Areas

- **Industrialization of banking:** Global average banking profitability is currently hovering around 8 percent, nearly half the pre-crisis level. And yet estimates suggest that a potential 20 percent increase in profitability is inaccessibly locked away within banks themselves. The biggest impediment to most banks' digital channel plans also comes from within. Biggest barrier to innovation? Internal. Inefficient, protracted time-to-market schedules? Also due to internal issues.

  All these elements can have a significantly detrimental impact on performance as banks navigate a volatile environment characterized by intense regulation, uncertain macroeconomics, increased competition and uncompromising customers. The point to note is that all these bottlenecks can be traced back to the same internal source – an IT ecosystem so complex as to be inflexible, unwieldy and sluggish.

The reasons for the complexity are manifold – legacy architectures, disparate technologies, autonomous product/channel silos and ad hoc, myopic system configurations, to name just a few. Whatever the cause, the fact is that complexity is a debilitating handicap in a competitive environment that rewards flexibility, adaptability and agility. Simplification and Industrialization of banking, therefore, is no longer just an option but an ordinance; and flexibility, adaptability and agility are three of its most productive outcomes.

- **What can banks renew? :** The industrialization of banking is the coming together of three forces, and these contribute significantly to renewal.
  - The first is the use of technology to standardize and automate the entire gamut of banking processes and operations. While this is hardly breaking news, a class of next generation technologies is opening up a host of possibilities to standardize products, processes and experience across banks, across regions, even across the globe. Automotive giants such as Toyota have perfected the science of setting up a plant, and training staff, to produce the same quality car anywhere in the world. Could we someday hope to have a universal bank account opening process?
  - The second is the outsourcing of non-core activities to external vendors and foreign shores based on the availability of cheaper, efficient factors of production, or specialized knowledge resources – something that the manufacturing industry has mastered. Banks are relative newcomers to this, having traditionally done everything from customer acquisition to fulfillment in-house. But a host of conditions are building up, which are persuading banks to follow the outsourcing example of other industries, from aerospace to retailing.
  - The third, and probably the most influential, force for industrialization is the redefinition of the bank. We can term this effect 'the gang of four' – a collaboration between traditional banks, telecoms, IT companies and retailers, where each member takes ownership of distinct elements of banking based on core capability, to deliver an "industrialized", next generation interpretation of banking.

The industrialization of banking is the coming together of three forces, and these contribute significantly to renewal.

- **What new areas can banks look at?** Many banks and analysts expect the industry to operate in a far more industrialized manner over the next 8-10 years as compared to today. Regular banking business services are likely to get more and more commoditized, while differentiation would come through innovation and early adoption of new technology and consumer behavior trends. This would not only influence areas, such as payment processing and account management, but would also likely impact end-to-end aspects across the value chain by:
  - Moving product design, definition and configuration from silos to "personalized"
  - Offering commoditized off-the-shelf products and services
  - Offering non-differentiating functionality as open source
  - Ensuring the right granularity of business services and optimum configuration of business processes
  - Driving standards-driven collaboration in the banking industry
  - Enabling service offerings across channels to offer ubiquitous services

- Simplifying the bank's Enterprise Architecture by enabling plug & play interoperability
- Leveraging new technologies such as NoSQL databases and Unified Communication infrastructures to bring in new ways of using analytics and enabling interactions

- **Consumer experience:** With more than 50% of the global population below the age of 30, and more than 90% of these people being connected one way or the other through a network or the Internet, it is important to appreciate and understand their expectations. There are more than 6 billion mobile subscriptions and 2 billion Internet users, so it is imperative that Financial Institutions deliver their services everywhere and every time, and not just 'anywhere and anytime'.

  These changes are also influencing the way products and services would be sold to consumers across industries.
  - Selling and shopping would be tightly associated with consumer lifestyle and life-stage.
  - The shopping experience of every product or service would be highly personalized to the needs of a "segment of one".
  - Availability and delivery of products and services would be linked to a logical chain, so that consumers could either procure the entire offering from one seller or just a part of what is required, depending on the need, in that chain.
  - Human intervention in an entirely digital selling and shopping process would be limited to an advisory role.
  - Consumers would have the ability to design, develop and price a product or service by themselves, taking personalization to the extent of branding for the individual consumer.

- **What can banks renew?** Enterprises, including banks, should relook at the way they deliver services to this new consumer generation, and redefine it, if necessary.
  - The omnipresent Mobile Web is revolutionizing the way people and companies interact. As more customers use online and mobile channels, the challenge for a broad range of industries, including banking, is to find clever ways to get in touch with their consumers. The availability of mobile broadband Internet and smart devices and the broadening use of Web applications can be leveraged to invite customers deep into the value chain.
  - Bank to consumer interactions are going from face-to-face to screen-to-screen. This is a phenomenon made possible by huge developments in consumer device technology and adoption, as well as advancements in network and bandwidth availability.
  - Digitization, mobility, changing lifestyles, and e-commerce are the impetus for new approaches in payments and account management. The rise of new methods and the penetration of Internet-connected mobile devices with innovative capabilities – such as near field communication (NFC), which allows users to quickly exchange text, images, URLs or other data between devices, or quick response codes (QR codes), which can store much more

There are more than 6 billion mobile subscriptions and 2 billion Internet users, so it is imperative that financial institutions deliver their services everywhere and every time, and not just 'anywhere and anytime'.

data than a standard barcode and can quickly transfer this information to a mobile device – have set the foundation for dramatic changes in online and offline payments.

While banking industry renewal has been directed at product-centric and customer-centric offerings, the new phenomenon focuses on customer-specific offerings, treating each customer as a 'segment of one'.

- **What New areas can banks look at?** New technologies and social media have opened up new ways for people to get in touch, be it with another person, a digital assistant, such as Apple's Siri or Google's Now, or a shop to buy everyday goods. Devices, such as Google Glass, and technologies, such as Augmented Reality, are enabling new and unheard of possibilities for enterprises across industries, including banks.
  - From banks' perspective, there is a need to provide online and, even more importantly, mobile channels to interact with consumers, which they have been doing to a large extent.
  - However, this is not sufficient, and there is even more to come. Consumers can be separated into two major groups. First, there is Generation Facebook, which consists of heavy social media and mobile web users (digital natives) and the so-called digital migrants, who are older but open-minded adopters. This group is relatively weak from a financial possibilities standpoint – for now. Second, there is the large, financially strong, and attractive group of elderly people with many digital deniers who require different approaches.
  - Social media augments the communication between enterprises and their consumers. Customers can immediately research and compare products and exchange experiences with industries, companies, their employees, products, and services. Equally important, by readily sharing nearly everything about themselves in online chats and blogs, the crowd – including current and future financial consumers – provides an enormous amount of personal information, offering deep insights into customer behaviors, sentiments, and needs, and opens up new possibilities for using customer intelligence. Gamification has brought in an entirely new angle to how consumers get involved in a business interaction or transaction, and this is increasingly being adopted by many industries, including banking. Crowd-sourcing, Micro-blogging and Social Commerce are areas that are breaching all records of consumer interaction.
  - Further, the Internet of Things (IoT) will drive seamless, ubiquitous and efficient processes related to customer onboarding, customer servicing, transaction fulfilment, customer retention and finally, customer attrition, by connecting customer, product, device, Internet, mobility, merchants, service providers, government agencies, educational institutions, laptops, tablets, automobiles, entertainment, media and more in a far more intelligent, automated and rapid way. A big wave of wearables, interactive TV, and IoT and gesture control devices is expected in the near future, for which banks need to find use cases to leverage the development in these consumer technologies.
  - In terms of customer-specific offerings and personalized user experience, the industry is seeing trends of predictive personalization, augmented reality, and 3-D printing.

Regulatory & compliance

Banks drive the economy of a country and are critical to its overall growth. As we have seen during the financial crisis of 2008, failure of banks can bring down entire nations in a single blow. The regulatory and compliance needs have been increasing over the years, and with technology advancement creating more avenues for

handling and allowing money movements, they have increased further.

- **What can banks renew?** Banks have been facing, and will continue to face, these challenges in the coming years:
  - Banks face extensive regulatory compliance demands, both from general regulations (Sarbanes-Oxley Act in the United States, Basel II and III globally, and the Payment Card Industry mandated PCI-DSS guidelines etc.) as well as region- or country-specific directives (United Kingdom's Financial Services and Markets Act, the anti-money laundering provisions of the USA PATRIOT Act, FATCA and Dodd Frank Act in the U.S., and SEPA, MiFid and Transaction Tax in Europe etc.).
  - Adoption of Regulatory Reporting Standards, such as XBRL, is growing across all geographies, and the number of reports supported by the Standard is also increasing.
  - The different approaches adopted by various national regulators for applying global standards will continue to be a particular challenge for the banks, which are looking for consistent interpretation. Some jurisdictions are also going beyond the global standards.
  - Fragmentation of markets is more likely as politics comes into play and governments and regulators try to demonstrate they're protecting local taxpayers and restricting riskier activities.

- **What new areas can banks look at?**
  - Initiatives, such as the additional capital "finish" in Switzerland, the Volcker Rule proposals in the U.S. and the proposed ring-fencing of retail operations in the U.K., will all place an additional and ongoing burden on already scarce resources. They also raise the potential for conflicts between home and host regulators as hosts consider the impact of these proposals on the stability and security of their markets.
  - As with the Australian adoption of Basel III capital requirements, time frames may also vary, so it remains unclear whether rules will be different and, if they are, what that might mean for the structure and location of particular businesses. Major arbitrage opportunities between established financial centers are unlikely, but continued uncertainty is not helpful.
  - Conformance to industry standards has also gained new focus with ISO 20022 striving to bring together several islands of standards that are trying to regulate the banking and financial services industry, supporting convergence and co-existence of SWIFT, FIX, IFX, FpML, TWIST, MDDL, ISO 15022, EDIFACT, RosettaNet and others. A more holistic implementation of standards is something that needs to be adopted by the banking industry and also by banks globally.

Cross industry collaboration

The advent of consumer technologies has opened up the market in a disruptive way and participants across all industries are vying for a larger share of the consumer's wallet. Boundaries around industries and their offerings – products and services – are blurring in the Internet of Things.

- **What can banks renew?**
  - The banking industry is seeing tremendous competition not only from players within the industry, but also from those outside, especially

Boundaries around industries and their offerings – products and services – are blurring in the Internet of Things.

telecom, retailing, entertainment, gamification, hospitality, manufacturing, automobile financing and technology companies.

- Banks need to renew not only the way they compete, but also the way they collaborate with these players. This collaborative competition has given rise to a "co-opetitive" way of working together within the industry and also with outside players.

- **What new areas can banks look at?**
  - We are seeing several new trends of telecom operators offering payments, retailers and automobile manufacturers offering integrated financing options (with or without bank involvement), and technology companies, such as Google and Apple, investing in Digital Wallets and Payments, which call for a more collaborative way to deliver customer experience.
  - An entirely new industry of 'Virtual' has also come about, creating Virtual Communities, Virtual Currencies, Virtual Bankers & Tellers and Virtual Payments over the past few years, and banks are expected to address this market and collaborate in all possible ways.
  - These developments and technologies have the reach and capability to connect many industries with the customer as the common denominator, and would provide a platform for co-creation and white-labelling of innovation in the financial services landscape.

Big data analytics

Across all of the above phenomena, analytics has started playing a tremendous role in shaping up the interactions between enterprises and consumers. All the structured and unstructured data that is generated day in and day out, have resulted in an estimate of 50 times more data being created between 2014 till 2020. Most of this data is unstructured, and lies in social media, hidden in blogs, Facebook pages, tweets and the like. Enterprises are using all means and mechanisms available to them to mine this data and extract meaningful information and interpretation to be used in business scenarios.

- **What can banks renew?**
  - Overall, the use of analytics by banks to monitor transactions and customer behavior is showing an upward trend. Increasing the usage of Business Intelligence (BI) and analytics is not without its challenges. Financial services institutions should evaluate not just the core BI capabilities being offered by vendors, but also their BI strategies and roadmaps.
  - BI tools must be selected to fit underlying applications, frameworks, and architectures already in place. Financial firms must clearly identify where their priorities lie.

- **What new areas can banks look at?**
  - As BI and analytics become more influential in driving business strategies, financial products and services will become more customer-centric, and eventually, customer-specific.
  - The marketing and selling approach is also expected to become more contextual, with directed marketing efforts gaining pre-eminence over the generic ones seen today.
  - Rapid strides are being made in the usage of tools like Business Intelligence, Big Data Analytics and Context Aware Computing

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Systems. The capability of BI platforms is no longer limited to query reporting and online analytical processing (OLAP) functionalities, and now includes a much more comprehensive suite of dashboards, visualizations, and scorecards.

- New technologies such as Visualization, In-Memory Analytics, Video Analytics and Service-Oriented Architecture (SOA) are simplifying the development and use of BI applications.
- In addition, the profitability and operational efficiency of financial firms is expected to improve, as fraudulent practices, which put a major strain on an institution's cost structure, will be reduced by effectively using business analytics.
- From a technological perspective, the priority for banks will lie in finding IT partners that can help them cope with both the explosion in data volumes and the heterogeneous nature of their systems and databases.
- Banks should strive to identify partners that can offer enhanced analytical banking capabilities and also link them to their underlying transactional banking.

Conclusion

The paradigm shift of power to the end points is a consistent trend across all industries, especially those serving end consumers. Banking is no different, and has been witnessing these disruptions for some time.

Development of technology trends, such as the Internet of Things, brings huge potential for banking innovation, but is also reducing the barriers for outside industry players entering this space.

In addition, banks will discover use cases for a plethora of emerging technologies, listed below, enabling them to present differentiated offerings to consumers.

- Cloud Computing – Cloud Transaction Processing, Cloud BPM, In-Memory Data Grids
- Social – Crowd-sourcing, Gamification, Micro-blogging, Social Commerce
- Analytics – Big Data, Context Aware Computing, Visualization, Video Analytics
- Integration – Context Delivery Architecture
- Devices – Wearables, IoT Devices, Interactive TV, Gesture Control Devices
- Infrastructure – NoSQL Databases, Unified Communication
- Security – RFID, Biometrics, Voice Verification, ABAC
- User Experience – Predictive Personalization, Augmented Reality, 3-D Printing
- Payments – NFC, GPS, Digital Money
- Marketing – Contextual, Bluetooth, Wireless Beacons, GPS
- Collaboration – Standardization, Mobile-Currency Interoperability

This is a time when banks have to renew their current offerings to keep up with the trends, and also find new ways of offering their services to the changing consumers. By the year 2020, the banking industry is likely to see fairly comprehensive adoption of many of these technology developments, albeit in phases. In the coming future, we may see a situation where banking would be relevant, but banks in their current form may cease to be. It is imperative for banks to innovate and not only keep up with the changes in technologies and consumer behaviors and preferences, but stay ahead of them by becoming frontrunners and early adopters.

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The Middle East: In the Middle of Digital Transformation

Historically known as the Near East, the Middle East (ME) comprises 18 countries, namely, Bahrain, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Northern Cyprus, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates and Yemen. The most widely spoken languages are Arabic, Persian, Turkish, Berber and Kurdish. Many countries have large quantities of crude oil. From the perspective of regional contiguity and similarity, the Middle East is not unlike Europe (EMEA) and North Africa (MENA).

The Gulf Cooperation Council

The Gulf Cooperation Council (GCC), established in Riyadh, Saudi Arabia in 1981, is an alliance of 6 countries – Saudi Arabia, Kuwait, the United Arab Emirates (UAE), Qatar, Bahrain and Oman. These countries share common objectives, and have similar political and cultural identities. They account for 49% of the region's GDP, with their wealth largely coming from petroleum resources.

The region's GDP accounts for 6.82% of the global total, and at current prices, stands at USD 3,264.23 billion. The GDP per capita (PPP) was USD 17,433.78, and the Gross National Savings Rate was 36.9% in 2014.

The Middle East has provided opportunities to a large number of expatriate workers mostly from neighboring countries. The products and services offered by the banking and financial sector reflect this situation.

Besides petroleum resources, trading and agriculture contribute to the region's economy. There is an increasing growth in the services sector's contribution, thanks to the Middle East's proximity to other parts of Asia, North America and Europe. For example, Dubai in the UAE, is growing rapidly as a global business destination and hosts events all through the year. The leadership's vision of building modern cities and offering an environment conducive for business is a key factor of growth. Perhaps it was a combination of good banking governance and low exposure to the US subprime market that left this region fairly immune to the 2008 global financial crises.

The banking sector

The region's banking landscape is dominated by Corporate Banking, Consumer Banking, Investment Banking, Asset Management and Private Banking.

The Middle East has a mix of conventional and Islamic banking institutions. Local and foreign banks play a significant role in the conventional banking space, with the pure play Islamic banks providing the necessary alternative. Growth, however, has been spectacular in recent years.

Local and foreign banks play a significant role in the conventional banking space, with the pure play Islamic banks providing the necessary alternative.

The top 10 banks by tier 1 capital are shown in the table below:

Sl. No.	World Rank	Name of bank	Country	Tier 1 capital ($m)
1	115	National Commercial Bank	Saudi Arabia	10,186
2	129	Qatar National Bank	Qatar	8,845
3	142	Al Rajhi Bank	Saudi Arabia	7,622
4	143	Samba Financial Group	Saudi Arabia	7,554
5	145	Riyad Bank	Saudi Arabia	7,544
6	146	Emirates NBD	UAE	7,515
7	149	National Bank of Abu Dhabi	UAE	7,103
8	161	First Gulf Bank	UAE	6,192
9	165	Banque Saudi Fransi	Saudi Arabia	5,959
10	166	National Bank of Kuwait	Kuwait	5,898

Islamic banking assets have grown to USD 778 billion globally, with the GCC's share standing at 33%. ROE is about 12% and CAGR has been in the range of 15 to 16%.

The products and services offered in the retail arena include multi-currency savings, checking, and fixed deposits. Corporate lending and trade finance form a significant share of the asset portfolio of banks. Some banks in the region do offer innovative investment products as well.

Islamic banking assets have grown to USD 778 billion globally, with the GCC's share standing at 33%. ROE is about 12% and CAGR has been in the range of 15 to 16%. The new order is marked by increasing competition to conventional banks from Islamic institutions. Technology transformation has been a key driver of this growth.

Investment in Information technology by banks

Technology is fast gaining ground in the region. The banks have modernized their core banking applications and channels. Internet and mobile banking are on a growth trajectory. Gartner says software spending by the Middle Eastern & North African Banking and Securities Firms will grow 7.4% in 2015. Banking and securities companies in the Middle East and North Africa will spend approximately USD 12.9 billion on IT products and services in 2015, an increase of 1% over 2014 spends of nearly USD 12.8 billion. This forecast includes spending by banking organizations on internal IT services (including personnel), IT services, software, data center technologies, devices and telecom services. Software and devices are the fastest growing segments of 2015, at 7.4% and 7.1% respectively, largely due to banks' customer-centric strategies driving customer insight projects and mobility initiatives that include an increasing use of tablets and mobile phones and improving customer understanding with the help of business intelligence tools and analytics.

The social networking population is estimated to number 358 million by 2017. Users spend an average 17 hours a month online; the global average is 23.4 hours.

The digital generation

We live in a digitized world. Products and services, communication, interactions, transactions, information etc., are all turning digital, and being eagerly adopted by the younger generations. More than 30% of the ME population – or about 100 million people – is between the ages of 15 and 29. The present ratio of youths to adults is the highest in the region's history; 60% of the population is below 25 years of age.

Internet penetration

Internet penetration in the Middle East is ahead of the rest of the world. This trend, which includes

INTERNET USERS IN 2015 IN THE MIDDLE EAST AND THE WORLD

MIDDLE EAST REGION	Population (2015 Est.)	Pop. % of World	Internet Users, 31-Dec-2014	% Population (Penetration)	Internet % Users	Facebook 31-Dec-2012
TOTAL MIDDLE EAST	236,137,235	3.3 %	113,609,510	48.1 %	3.7 %	23,811,620
REST OF THE WORLD	7,028,486,558	96.7 %	2,959,418,683	42.1 %	96.3 %	952,132,340
WORLD TOTAL	7,264,623,793	100.0 %	3,073,028,193	42.3 %	100.0 %	975,943,960

social media adoption, is opening the doors for a solid digital banking and commerce strategy for engaging customers.

In the UAE over 71% of population uses the Internet, that is over 4.7 million users. Saudi Arabia with 60% of population has 8.5 million users. The social networking population is estimated to number 358 million by 2017. Users spend an average 17 hours a month online; the global average is 23.4 hours.

The Millennials

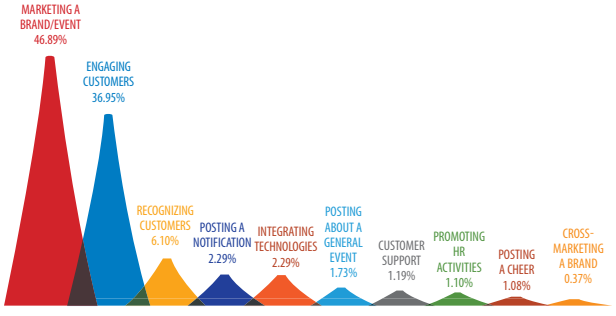
The Millennials are the flag bearers of digital adoption in the region. Their tools for engagement include mobility devices and social platforms like Facebook, Twitter etc. Smartphone and tablet ownership amongst this segment stand at 81% and 51% respectively. The favoured payment gateways are Cashu, Paypal and Gate2play.

Banking trends

Banks have responded with a strategic vision with innovation as the central theme, to leverage the rapid digital transformation in their markets. Business growth is planned keeping in view customer relationship and engagement. Based on conversations with several banks in the region, we understand how banking platform and channel strategy has underpinned their ability to mount an agile response to the region's digital boom.

Consider the following graphic, which shows the online activity of UAE's banks:

UAE BANKS ONLINE ACTIVITY



Source: The UAE Banking Report on Social Media 2013 - 2014

1. Three strategic trends are clearly visible

Analytics: There is a trend of emotional customer engagement, which is built around proactively making the right offer at the right time. This is a logical extension of the strong and consistent customer relationships that banks have developed over time. The relationship analytics with strong correlation to environment trends and customer segmentation is seen as a differentiator. Analytics is not seen as a tool for strategic decision making, more so for operational decisions integrating to all decision making process. This model empowers a teller to make a right sell decision during a branch transaction, whereas in unassisted channels, that decision is guided by the behavior pattern on Internet or mobility banking guides the decision.

2. Digital Delivery

Growth in the use of Internet and mobility devices is driving the second strategic trend, namely digital delivery. Anytime, anywhere banking is changing branding approaches as well as redefining relationships; personalization and the emotional connect between

Anytime, anywhere banking is changing branding approaches as well as redefining relationships; personalization and the emotional connect between the bank and the customer are turning out to be differentiating factors.

the bank and the customer are turning out to be differentiating factors.

Governance: Regulatory compliance is a top item on banks' agenda. Banks need to balance compliance with local and global regulations (example FATCA) with growth and innovation.

Conclusion

The Middle East region is vibrant, and boasts of strong economic indicators. Economic diversification and modernization, along with a strong financial sector, is providing opportunities for growth from a global perspective. Islamic banking has emerged as a strong alternative on the banking landscape, giving stiff competition to conventional banks. Like in the rest of the world, people's lives are being enfolded within a digital fabric. Both government and business are innovating new business models to engage people using digitized channels and devices. In the UAE alone, 43% of banks are on Facebook and 39% on Twitter. Investments in technology continue to grow, especially in analytics and channels. The three major trends in the market are seen in the areas of analytics, digital delivery and regulatory compliance. While these are more pronounced in banking, they are in reality industry-agnostic, and changing the very foundations of human existence.

In the UAE alone, 43% of banks are on Facebook and 39% on Twitter.

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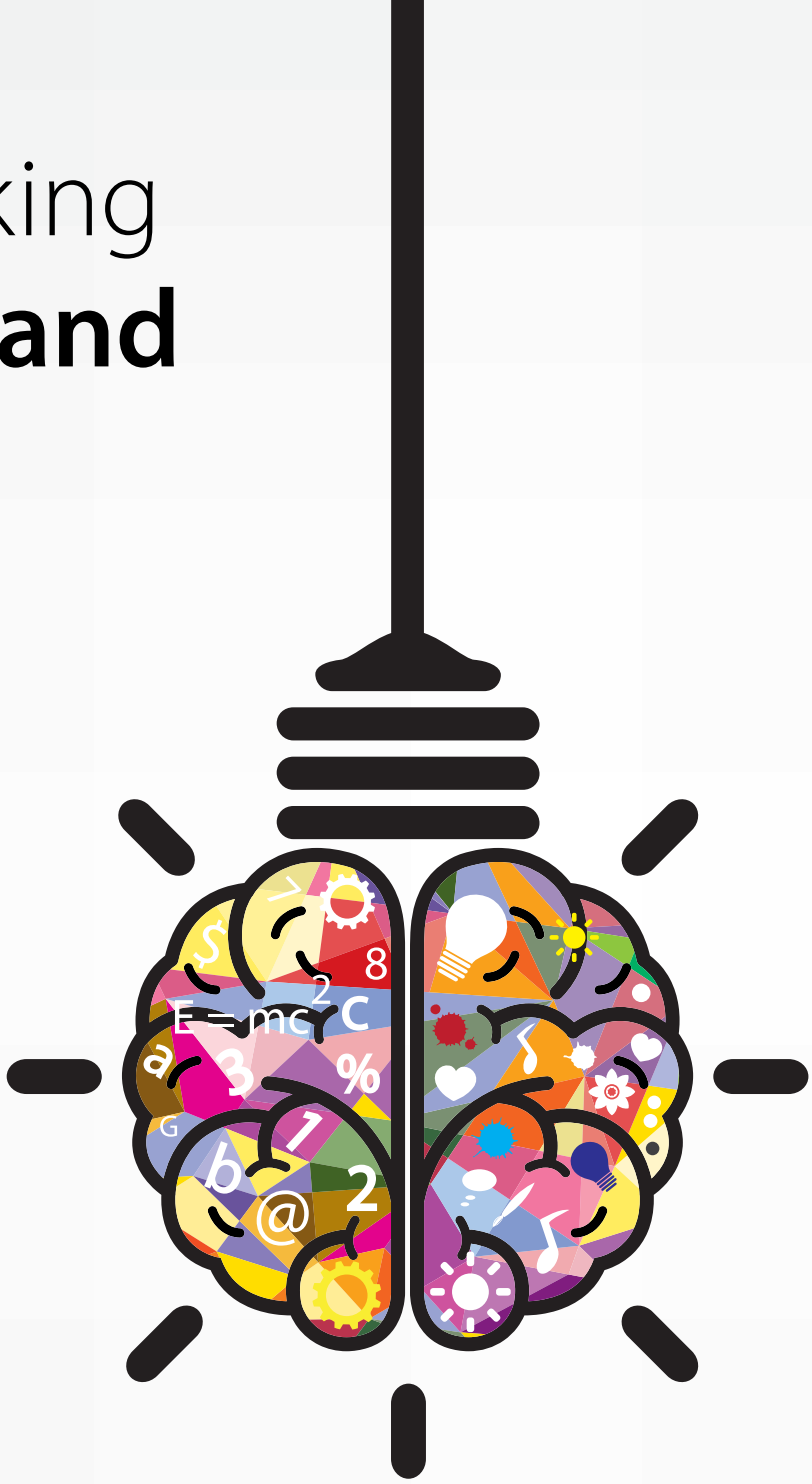
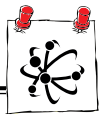
APIs for Banking
Innovation and Growth





We rarely, if ever, jump into a taxi for an impulsive joyride. More likely, it is to commute between work and home. For getting to a date and a restaurant reservation. For transiting from airport to hotel. Sightseeing during vacation.

You get the general idea. A cab ride is typically a significant but still subordinate enabler of a more consequential context. One way of increasing the salience of the cab ride is to methodically go about embedding the service into the myriad contexts it serves. Or, like Uber, simply opening up APIs and letting Starbucks, Hinge, Hyatt, OpenTable, United Airlines and TripAdvisor do the embedding.

That, rather simplistically, describes the opportunity known as the API economy.

No other sector, arguably, touches more consumer lifestyle and life-stage contexts than banking. Banks therefore have a huge, almost exclusive, opportunity to play a more integrated role in the way consumers live, eat, work, entertain, shop, travel, vacation, retire, manage their home and their health; the list simply goes on. And yet most banks continue to operate within a perimeter defined by the practical need to secure business assets within, rather than the strategic imperative to trigger opportunities without.

There are at least three reasons why this traditionally proven approach may no longer be adequate to enhance enterprise and customer value.

- Customer experience is the key lever for achieving sustainable top- and bottom-line growth in banking today. Enabling frictionless, omnichannel, cross-device transactions is just table stakes in the experience economy. Customers expect banking products and services that are customized and personalized to their contextual needs and expectations. Unless banks integrate the value of context into their business strategies, their ability to deliver a 'segment of one' experience will be severely limited.

- Today, some of the most disruptive innovations in banking have emerged from a new breed of cross-sector competition driven by starkly different business and technology models. A unifying theme, though, is the focus on customer experience as competitive differentiator. Traditional banking needs to evolve significantly if it is to compete successfully under the new terms of engagement.

- The IT ecosystems in most conventional banks were not designed to cope with the relentless pace of technology evolution. Even as banking infrastructure gets to grips with rapid advances in mobile technologies, the competitive horizon has already expanded to include concepts like wearables and the Internet of Things – concepts, which have the potential to open up new perspectives into customer context. Banks need to be equipped to seamlessly assimilate and innovate with these new technologies in order to sustain competitive advantage.

Today, some of the most disruptive innovations in banking have emerged from a new breed of cross-sector competition driven by starkly different business and technology models.

Drawing a parallel with Uber, the future of banking will be defined by its ability to create interfaces with other auxiliary networks and services that not only extend the

reach and value of core business functionality but also streamline the addition of new competencies. The focus will have to move beyond proprietary systems of record and engagement to build systems of collaboration that create an expanding ecosystem of contextual services for the customer.

The biggest challenge in creating these collaborative interfaces is managing access to banks' core system and information resources without completely ceding control, a challenge APIs help address by decoupling front-end services from back-end resources. On this two-speed firelane, banks can create and manage collaborative platforms that accelerate innovation at the edge of the enterprise without compromising the security of proprietary resources.

In 2013, BBVA opened up access to "anonymized", aggregated data for a hackathon that attracted 780 developers from 19 countries around the world.

Many banks have already created and exposed their APIs, but thus far the focus has been on peripheral value-adding services like branch locators or exchange rate calculators. However, some innovation leaders, like Spanish Bank BBVA, are operating at the frontiers of this new opportunity. For instance, in 2013, BBVA opened up access to "anonymized", aggregated data for a hackathon that attracted 780 developers from 19 countries around the world. By the end of the program, these developers had collectively generated 6.7 million calls to the API and delivered 144 apps representing €2.9 million in development time.

The good news is that things are poised to change rapidly with financial APIs emerging as the second fastest growing category among APIs after social networks. What could an API-driven business model mean for banks?

Key benefits of banking APIs

More flexibility, agility and innovation capability: The IT architecture in most banks is characterized by legacy systems, and rigid, reactive applications incapable of delivering customer value or driving enterprise growth. Also, an immutable ecosystem impedes any large-scale innovation efforts by posing cost, complexity and risk.

APIs can help banks reduce system complexity by creating a common interface for mapping multimodal transaction flows to a unified core system. Because these API interfaces are easily added or modified, that gives banks the flexibility and agility required to drive internal innovation at minimal cost, effort and disruption risk. It also helps define the fundamental protocol for collaboration with external partners, which can accelerate the development and delivery of new services and functionalities.

Most importantly, an API-centric approach to system transformation helps banks build a flexible and versatile platform designed to seamlessly connect with new opportunities in emerging technologies such as wearables or IoT.

Scaling up reach and functionality: Banks are already grappling with the onerous task of deploying applications across an ever-expanding range of devices and operating systems, which will only get worse as wearables and IoT gain traction. An API-driven business model would allow them to quickly scale up reach by leveraging a partnership ecosystem that can expeditiously repurpose existing assets and functionality for new segments and markets. This is

how Netflix has facilitated content delivery to more than 800 types of devices.

Banks typically tend to ignore the needs of many profitable but niche segments because of the inherent development and integration challenges of adding new functionality. An API-centric platform makes it much easier to successfully address these niche markets, as in the case of the Open Bank Project, whose open source API and app store features an app with a voice-based interface that allows the visually impaired to interact with their bank accounts.

Accelerating innovation: With technology evolving at breakneck speed, it is quite ambitious for a bank to expect to keep pace based solely on the merit of internal resources. An API model makes it easier to tap into emerging technology trends besides potentially making a transformative impact on innovation cycles.

Once service and data resources are released from the confines of applications, banks will have the opportunity to scale up and accelerate their innovation programs by augmenting the efforts of the internal IT team with the distributed intelligence of a collaborative network, using an API model. They would be able to quickly harness third-party innovations – from the Open Bank Project for example – to enhance both time-to-market and to-value for new services and functionalities.

An API model makes it easier to tap into emerging technology trends besides potentially making a transformative impact on innovation cycles.

Structuring an API program

It is clear that banks can unlock more business value from their system and information resources by opening them up via APIs to create new capabilities, services and functionality. However, rather than taking a process- or service-centric approach, banks should adopt an orchestrated enterprise-centric view of APIs to maximize their potential. A structured four-stage API program, such as that described below, can help them match outcome with intention.

Analyze and strategize: Banks' first step towards creating an API-enabled business strategy should be to analyze the existing technology and business environment. This will help them identify those business assets which offer an opportunity to maximize value, and also define the key objectives and outcomes of their API program. In most cases, this will lead to the broad API strategy that will deliver expected performance. For instance, a Private API strategy will focus almost exclusively on delivering internal operational improvements and efficiencies, whereas a Partner API strategy, coopting a bank's business partners, could yield opportunities for new value-added services and incremental revenue.

The definition of governance principles and metrics should follow the choice of API strategy. In this phase, it is important to clearly define the controls that need to be in place to optimize between risk and exposure.

Design, develop and implement: In this stage, APIs must be defined in terms of the technical specifications that will not only fulfill business expectations but also ensure compliance with governance principles. The primary design process should also take into account factors like usability and experience for the APIs to offer the right blend of access and security to attract

developers. Development must be supported by an emphasis on testing to ensure that all processes and security protocols are functioning as intended.

During the implementation phase, standardized frameworks can help banks manage risk more effectively as well as ensure that all best practices are followed. All APIs must be tested once more for usability and security before they can move on to the next stage.

Operate and iterate: Operations begin once an API attracts active users. It is therefore important, especially for Public APIs, to launch an awareness campaign that targets and enlists developer communities, with hackathons serving as a popular tool to get the programs ticking. The development portal should then be monitored continuously to assess API access and usage statistics so that the resultant data can be used to iterate and fine-tune the strategy. This must be an ongoing process so that any changes in business dynamics or objectives can be folded back into the development process. It is also critical to actively engage with users and quickly action new feedback or requirements.

Retire and repeat: There will come a stage in every API lifecycle where retirement becomes a valid option. For instance, the Google Earth API will be retired later this year because popular browsers are dropping support for a key programming interface. Netflix, on the other hand, pulled the shutters on its Public API strategy late last year and shifted to a Partner-led API model. In 2013, Twitter shut down its API when it transitioned to a brand new version. There are many reasons that could compel API termination, from lack of developer support to performance deficiencies to security issues. Then it's back again to the drawing board.

An API-driven strategy will empower banks to innovate around the critical component of context that is at the center of every memorable customer experience.

In conclusion

Today most banks are locked into a struggle to protect and grow their bottom-lines. At the same time they have to relentlessly pursue innovation to compete and unlock top-line value in the digital economy. An API-centric business strategy can help them address both challenges by delivering new segments and markets for their core functionality and enabling them to drive innovation and leadership with new capabilities. Most importantly, an API-driven strategy will empower banks to innovate around the critical component of context that is at the center of every memorable customer experience.

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‘Direct’ing Innovation:
Discover Financial Services

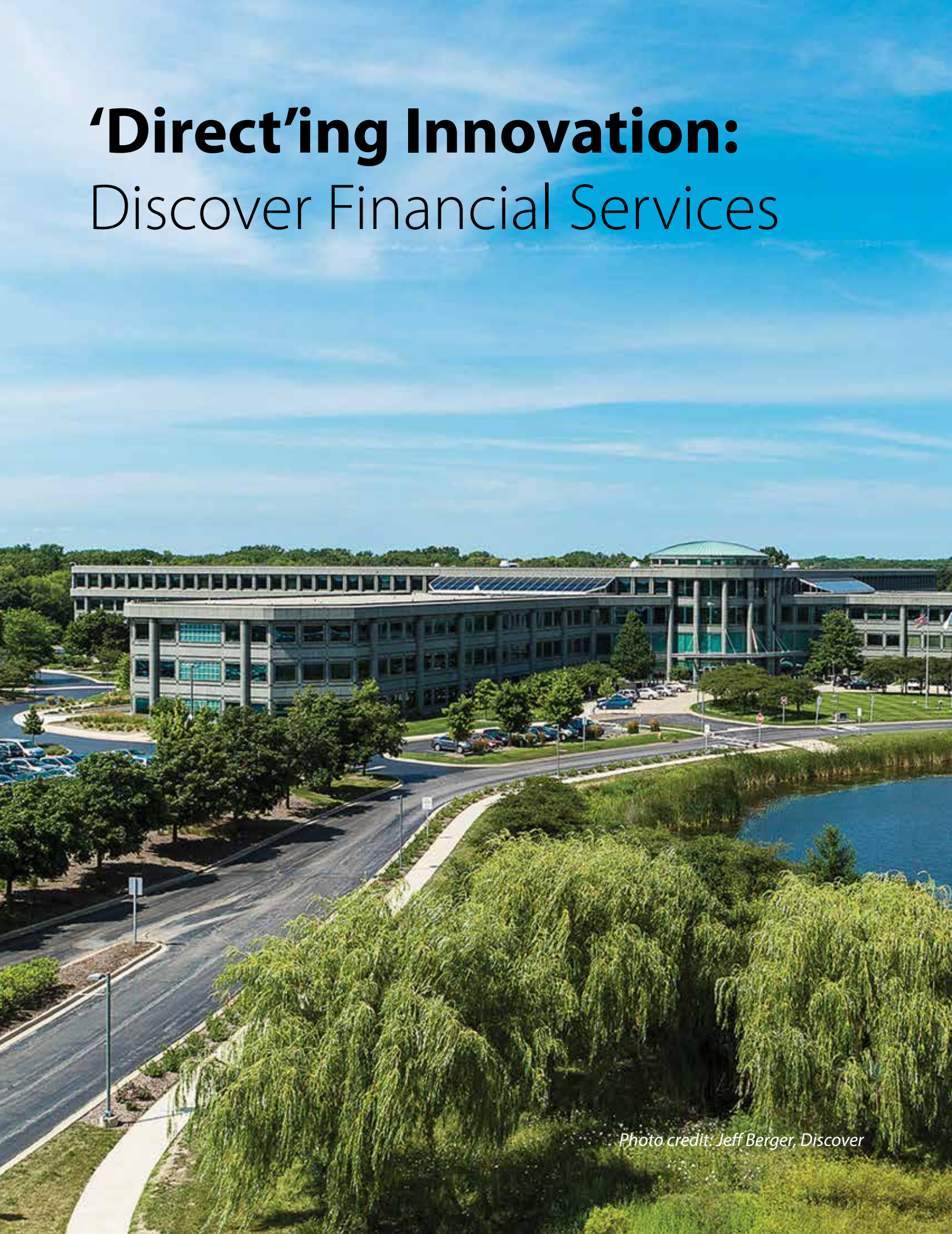


Photo credit: Jeff Berger, Discover

With digital being the key word today, how does a direct bank ensure it makes the most of all the opportunities coming its way? We are in conversation with Glenn Schneider, Executive Vice President, Chief Information Officer, to find out what makes Discover one of the most successful direct banks today.

Q: Being a direct bank, how do you see the opportunities and challenges which digitization of the world is creating for the industry?

A: The trend "all things digital" is forcing traditional banks to reinvent themselves and provide more products and services through digital channels. More big banks moving to digital has the potential to mean more competitors entering Discover's space.

> The trend "all things digital" is forcing traditional banks to reinvent themselves and provide more products and services through digital channels.

However, increasing customer expectations around digital creates continuous demand for new and better features. Discover understands these demands better than most, given our long history and experience of being a direct bank that focuses on extraordinary service. For example, our investments in platforms and people mean that we quickly move and respond to evolving needs. So ultimately these trends are good for Discover as they help us expand our products and servicing capabilities.

Q: What's your bank's vision? What's the role technology-led innovation is expected to play to meet your organization's aspirations?

A: Our vision is to be the leading direct bank and payments partner. We deliver innovative, valuable products to our customers with award-winning customer service. Technology is at the heart of these products and services as it enables Discover and our employees to provide services faster, better and with higher quality and confidence.

Q: You have been a pioneer in the industry to adopt a modern real-time core banking platform. How do you see this renewal helping you meet your organization's goals?

A: Having an in-sourced, real-time core banking platform enables us to move at the rate of our customers. We've already updated the system with 10 minor releases and over 400 enhancements in less than one year, which is something that may not have been possible in the past. Additionally, the lower cost and scalability of the new platform enables us to invest more aggressively in new and exciting products and services, on top of providing great value to our customers through lower fees, better rates and rewards.

Q: What are the key focus areas for your team? Where are you directing your discretionary spend?

A: We continue to focus on:

- Automating and integrating front/back-office processes
- Adding more services to the digital channels
- Continuously adding greater controls, security and fraud checks into the systems
- Incorporating real-time analytics to help us better understand and service the customer in a manner they want to be treated

> We've already updated the system with 10 minor releases and over 400 enhancements in less than one year, which is something that may not have been possible in the past.

Q: Tell us a little bit about the exciting new offerings in the pipeline.

A: We have plans to migrate our personal loans business and student loans businesses to the new platform. We'll be adding more and more cloud-based services to complement our internally-hosted systems so that we can accelerate our delivery of functionality to our user base.

About Discover

Discover Financial Services (NYSE: DFS) is a direct banking and payment services company with one of the most recognized brands in U.S. financial services. Since its inception in 1986, the company has become one of the largest card issuers in the United States. The company issues the Discover card, America's cash rewards pioneer, and offers private student loans, personal loans, home equity loans, checking and savings accounts, certificates of deposit and money market accounts through its direct banking business. It operates the Discover Network, with millions of merchant and cash access locations; PULSE, one of the nation's leading ATM/debit networks; and Diners Club International, a global payments network with acceptance in more than 185 countries and territories. For more information, visit www.discover.com/company.

Innovating with the times: **DenizBank**

DenizBank is one of the pioneering banks when it comes to innovation and technology adoption. What does it take to stay one step ahead of the game? What does the way forward look like, and how does a bank sustain its leadership position in these challenging times. In conversation with Murat Çelik, Digital Generation Banking EVP, DenizBank, to find out what makes DenizBank click.

Q: Congratulations for being one of the most innovative banks in the world today. What drives DenizBank to innovate relentlessly?

A: Customers' needs and behaviors are changing. In these days, only resolving customers' banking needs is not enough to acquire new customers and retain current customers' loyalty. With the recent advances in technology, we feel the pressure to offer more, and continuous innovations to offer the simplest solutions for our customers' needs. From this perspective, resolving customers' technological needs, offering them platforms that enable them to both find new customers as well as sustain loyalty, and finding ways to entertain our customers, are all now part of banking.

> With the recent advances in technology, we feel the pressure to offer more, and continuous innovations to offer the simplest solutions for our customers' needs.

Q: As one of the disruptors of the industry, where are you betting on going forward? Please share with us your vision for digital banking

A: We will offer our banking products and services in such a way that we will automatically be a part of our customers' daily life. We will be with them with our value added digital products wherever they are. We will work to make their life easier and keep them happy. We will explain our banking products in a way that even a primary school graduate or someone who does not have any banking experience will be able to understand what our products are, what they are for, and how they can be used.

Q: What are the biggest challenges for banks today? As a next-gen bank that's ahead on technology adoption does the absence of legacy mean you face fewer/different challenges than conventional banks?

A: Most retail and SME banking customers' needs can be satisfied without the need to visit a branch. This gives the new-age technologically-advanced banks an advantage over legacy-ridden banks. Non-banking players like Google, Apple, Facebook, Telco operators, food retailers, and game companies are also becoming a threat for 'customer ownership', which is traditionally

> Our main focus is to be a part of our customers' daily life with state-of-the-art digital products.

one of the main assets for a bank. The term customer ownership is changing too, owing to the services offered in the Cloud environment and also with the Digital applications. Legacy banks will lose most of their income items, if they cannot strengthen real ownership on Cloud and digital environments. This makes it inevitable for banks to take fast steps to implement new technologies and stay by their customers all the time with value added digital products.

Q: In our experience, banks have dual priorities – to renew their existing systems and processes to make them more efficient, and to adopt next-gen technologies to create new value. At DenizBank where is the focus for transformation?

A: At DenizBank, while we are working to perceive customers' needs in the near future, and find technological solutions to fulfill such requirements, we are also trying to find ways to introduce them to such technologies, and create income from these innovative services. Our main focus is to be a part of our customers' daily life with state-of-the-art digital products. Also, we want to create a loyal and happy customer base. We want them to store their precious memories with their beloved ones in our cloud and digital environments. The sentiment we want to create is similar to the attachment they feel for their mobile phones.

Q: Tell us a little bit about the exciting new offerings in the pipeline.

A: There will be many value added features in our new upcoming state-of-the-art mobile application YIHU (YİHU Makes Your Day):

- Users will be able to use banking services in easy to understand daily language instead of banking terms
- They will be able to do their bit for the larger good by supporting public or personal social causes, or start their own project and let others support it.
- With the gamification feature, they will have fun as well as get our products and services at a better price.
- They can send money from almost all platforms without memorizing any banking terms.
- Non-banking audience as well as DenizBank customers will benefit from this application.

In our other mobile application – DenizShell, everything that a customer carries in his/her wallet will be consolidated in one application. They will also be able to use all our products and services in one place, like they are shopping from one store. All our mobile applications will be served under a single platform.

Kotak Mahindra Bank:
Talking Digital

Keeping up with the times is a challenge for any Bank. But Kotak is not only adapting to the changing needs of its customers, but also creating leading-edge solutions for the digital age. An interview with Deepak Sharma, EVP & Head - Digital Initiatives at Kotak Mahindra Bank reveals how the Bank does it all, and does it well!

Q: How do you see the opportunities and challenges which digitization of the world is creating for the industry?

A: Digitization is a great transformational opportunity for organizations across industries. It can help organizations become more efficient, customer centric, competitive and profitable. The challenge with digitization lies in execution. It is important to pick the right initiatives in context to organization and industry. It is also critical to make it measurable in terms of project cost, resourcing and timelines, and match it with the benefits emerging out of it. This apart, getting stake holders aligned with project implementation is a critical success factor. Transformation is often gradual and a long term journey with several small steps. Organizations must not expect overnight results through digitization, as benefits will accrue over a period of time and will result in sustainable competitive advantage.

"Organizations must not expect overnight results through digitization, as benefits will accrue over a period of time and will result in sustainable competitive advantage."

In the context of banking, digitization can be applied to both the customer facing side of the business as well as the back office. This helps drive overall organization efficiency. We also look at digitization from our employees' perspective, and identify projects which help them manage their work and customers better. This helps us get them onboard early in the project stage. Digitization is an inclusive journey and succeeds when you take people along. It is also important to communicate project updates regularly, and explain to stakeholders what each milestone means to each of them. Before taking up long term projects, it makes sense to pick up some small projects which can bring visible differences and create buy in. The success of such projects motivates all stakeholders to look at complex long assignments. Our digitization journey at Kotak is a 360 degree approach which brings business, technology and solution partners, project management, and the IT teams together.

Q: Please share with us your strategy for digital banking. As one of the disruptors of the industry, where are you betting on going forward?

A: Digital for us has always been driven by the two prong strategy of digitization and digital innovation. By combining long term transformation projects with new products and services, we are not just looking at

> Digital for us has always been driven by the two prong strategy of digitization and digital innovation.

delighting our existing customers, but are also focusing on attracting the new digital native segment. Our focus is centered on mobility, social, payments and analytics based solutions. Banks have always enjoyed the trust of customers when it came to their financial wellbeing. Now, by integrating such innovations, we have a great opportunity to create far more engaging financial service solutions for our customers.

The first question we ask before starting any project is: "what problem will it solve for the customer and what opportunity does it create for the organization?" This helps us not just design a customer centric solution but also drive faster user adoption. For e.g. when we embarked on the mobility journey, we built device authentication as a first factor security feature. This helped us offer certain view-only transactions without the need for the mandatory MPIN. We also realized that a lot of families have one smartphone but multiple bank accounts. To make account access easy for family members through a single banking app, we launched multiple CRNs (Customer Relationship Numbers). Research showed that often customers forget their debit/credit card PIN and this impacts card usage. By providing a reset PIN option in the mobile app, we helped solve this problem. Basis customer insights, in the last two years we have added over 15 such unique features in our mobile app. This helped us drive not just higher mobile adoption vis-a-vis our peers but also earned us the highest rating in the app store. Within two years, we have witnessed mobile login numbers surpassing those of net banking.

> Our focus is centered on mobility, social, payments and analytics based solutions.

Q: In our experience, banks have dual priorities – to renew their existing systems and processes to make them more efficient, and to adopt next-gen technologies to create new value. At Kotak Mahindra Bank, where is the focus for transformation?

A: At Kotak, we don't see this as an either/or priority. We continue to focus on digitization and digital led innovation in equal measure. Digitization is a long term journey comprising of several small steps, and is an essential part of our transformation strategy. We see this as the core of our efficiency, productivity and customer experience priority. Next gen technologies are used for digitization as much as they are used for new products and innovation. Our focus on big data and analytics, security solutions, mobile and Web platforms, and social tools not just help us launch new products and reach out to new customers, but also help us delight our existing customers. Some of our products like Jifi Saver, Kaypay, Hashtag banking and Message Money combine these two sets of priorities for the bank.

> Digitization is a long term journey comprising of several small steps, and is an essential part of our transformation strategy.

Q: Tell us a little bit about the exciting new offerings in the pipeline.

A: Recently we extended our Hashtag banking feature by introducing 'Tweet to order'. This is a unique and first of its kind service by any bank. We started with two new books including Amish Tripathi' s new book 'Scion of Ikshvaku'. Our customers can send a simple tweet and the book will get delivered at their address.

> "Our customers can send a simple tweet and the book will get delivered at their address."

We are also launching a new App experience to promote inclusive banking, we are calling this 'Kotak Bharat App'. This is a multilingual, lite App, which one can use without data connectivity. We have also integrated Personal Financial Management (PFM) tools on our Netbanking platform to provide a single view of all income and expenses to our customers. This is the first initiative of its kind by an Indian bank.

This apart we also continue to integrate various service/ e-commerce merchants on our mobile banking App. We are launching international flight ticket booking from our M-store, which is part of our mobile app. M-store initiatives help our customers make flight and hotel bookings with a few clicks, and a negligible percentage of transaction failures. This also helps our customers make seamless purchases without the need to carry physical plastic. Similarly with the "Kotakrewards" platform, we have integrated prominent e-commerce sites with a payment and reward experience.

About Kotak Mahindra Bank

Established in 1985, Kotak Mahindra group is one of India's leading financial services conglomerates. In February 2003, Kotak Mahindra Finance Ltd. (KMFL), the group's flagship company, received banking license from the Reserve Bank of India (RBI), becoming the first non-banking finance company in India to convert into a bank - Kotak Mahindra Bank Ltd. (KMBL).

Effective April 1, 2015, ING Vysya Bank Ltd has merged with Kotak Mahindra Bank Ltd creating a Rs 2 trillion institution (consolidated). The merged entity – Kotak Mahindra Bank Ltd. has a significant national footprint of 1,250+ branches and 1,900+ ATMs spread across 640+ locations, affording it the capacity and means to serve even better.

Discover Financial Services:
End-to-end transformation

Opportunity

For its initial 20 years of existence, DFS was essentially a monoline credit card issuer and merchant acquirer, and as such, its IT systems footprint was mostly focused on card processing. With an aggressive rollout of new banking products and services beginning in 2007, DFS's back office processing environment began morphing into a series of applications supporting specific products. Some of these systems were developed in-house, while others were procured through outsourcing partners.

Given DFS's lack of physical branches, market differentiation is predicated on its ability to offer a seamless customer experience across self-service channels like IVR and ATM, digital channels like internet and mobile, and the direct customer support offered by DFS's call center group.

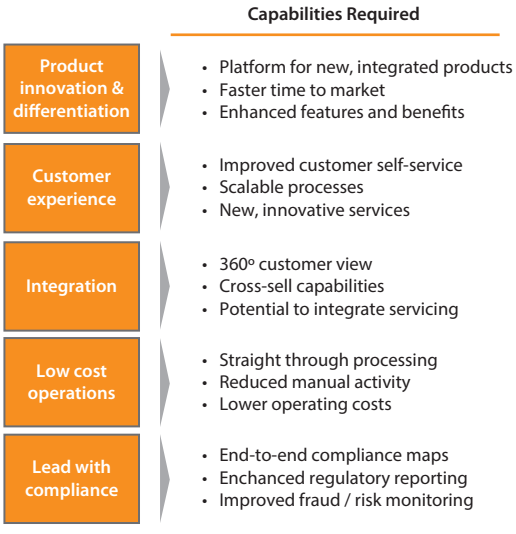
By 2011, DFS's IT environment supporting direct banking grew to more than 100 discrete IT services, of which more than 75 required point-to-point integration. These services included core services to support DFS's eight deposit and loan product families, important ancillary services like print services, check fulfillment, customer verification, and anti-money laundering services, additional applications like call center and customer relationship management (CRM) systems to support customer service, and finally services to support accounting, regulatory reporting, and compliance.

Facing the need to support the future growth in DFS's product portfolio during the 2010s, the firm's IT leadership embarked on an ambitious program to modernize its banking platform.

The importance of the call center as the backstop of DFS's customer experience put significant pressure on the call center support systems used by the firm's customer service agents. Over 20 different and disjointed applications were previously utilized to support customer servicing for all banking products. The legacy user interfaces required customer service agents to open multiple windows in order to access the various details of the client's deposits, loans, and other elements of the client relationship. Some of these windows presented a modern user interface, others a bit more than green-screen, and none of these windows were integrated with each other.

Facing the need to support the future growth in DFS's product portfolio during the 2010s, the firm's IT leadership embarked on an ambitious program to modernize its banking platform, eliminate the silos that supported DFS's growing product offerings, and create the foundation for an enhanced omnichannel customer experience that would promote service satisfaction while unlocking new cross-sell opportunities for DFS (Figure 1).

Figure 1: Requirements for New Banking Platform



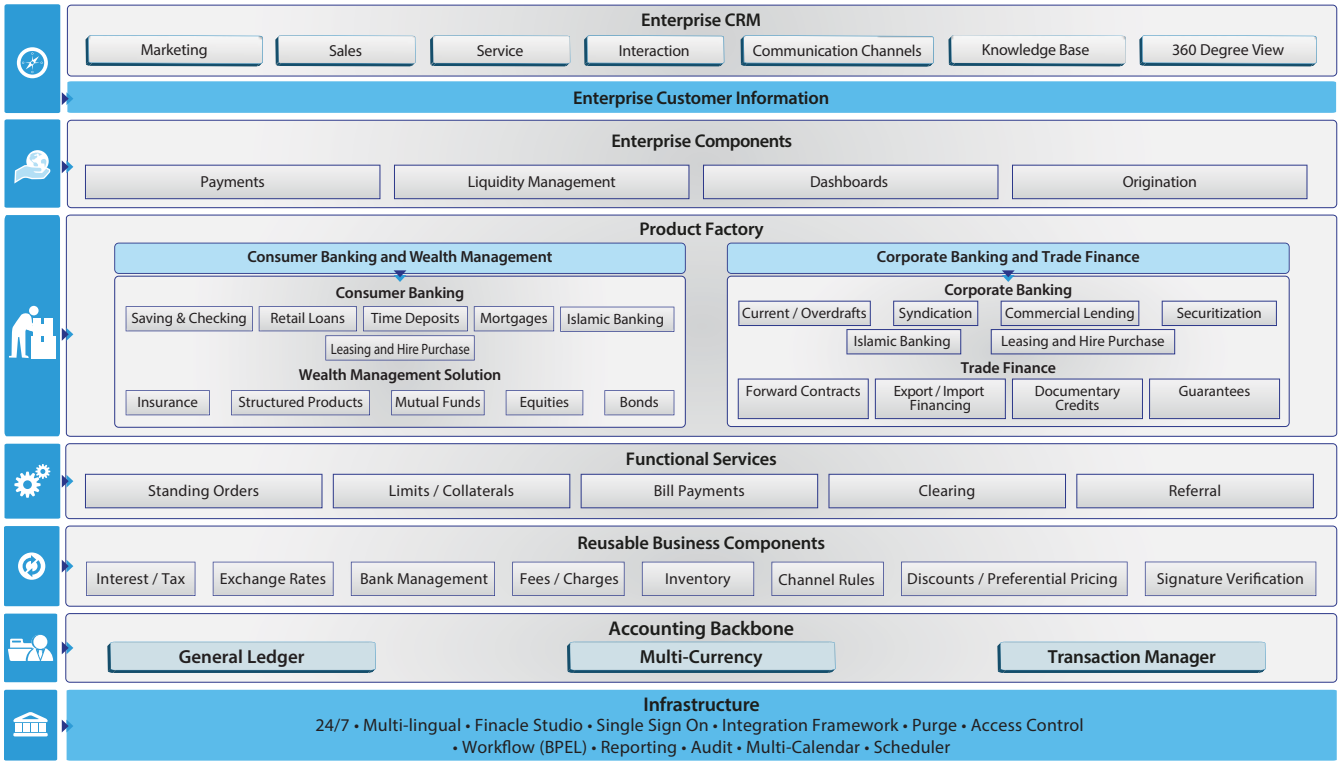
Source: Discover Financial Services

Solution

In 2011, DFS embarked on a banking platform transformation, a five-year overhaul of its entire banking technology ecosystem aimed at upgrading its capabilities, simplifying the linkages between its front office and back office systems, and creating a new platform to promote greater agility in developing and deploying new products and services. The foundation of this project was to consolidate disparate systems to a few strategic platforms, bring all mission-critical back office applications in-house, and retain outsourcing arrangements only for discrete point solutions like check printing and anti-money laundering (AML).

After an extensive search for a technology solution, DFS selected the Finacle universal banking solution from Infosys, the global IT services company based in Bangalore, India. Finacle was originally built in 1994 as Bancs 2000, was rearchitected in 2000, and underwent another major rebuild in 2008. The current version of Finacle is 10.6, and its modern system architecture includes support for real-time processing, full service-oriented architecture (SOA), and straight-through processing. Finacle's solution architecture is shown in Figure 2.

Figure 2: Finacle Core Banking Solution Architecture



Source: Infosys

Additionally, the Infosys solution selected by DFS includes Finacle Studio, a development environment that allows DFS to create new product and service offerings as well as new customer service workflow tools utilizing Finacle's library of prebuilt banking components (the "Product Factory").

While Finacle offers native CRM capabilities, DFS opted to build its own enterprise call center system called Atlas to serve its unique needs. Atlas was architected from scratch in Java to power an innovative dual-monitor setup in the call center. This approach provides agents a relationship view of the customer on one screen while

allowing the agent to carry out account inquiries and to initiate transactions on the second screen.

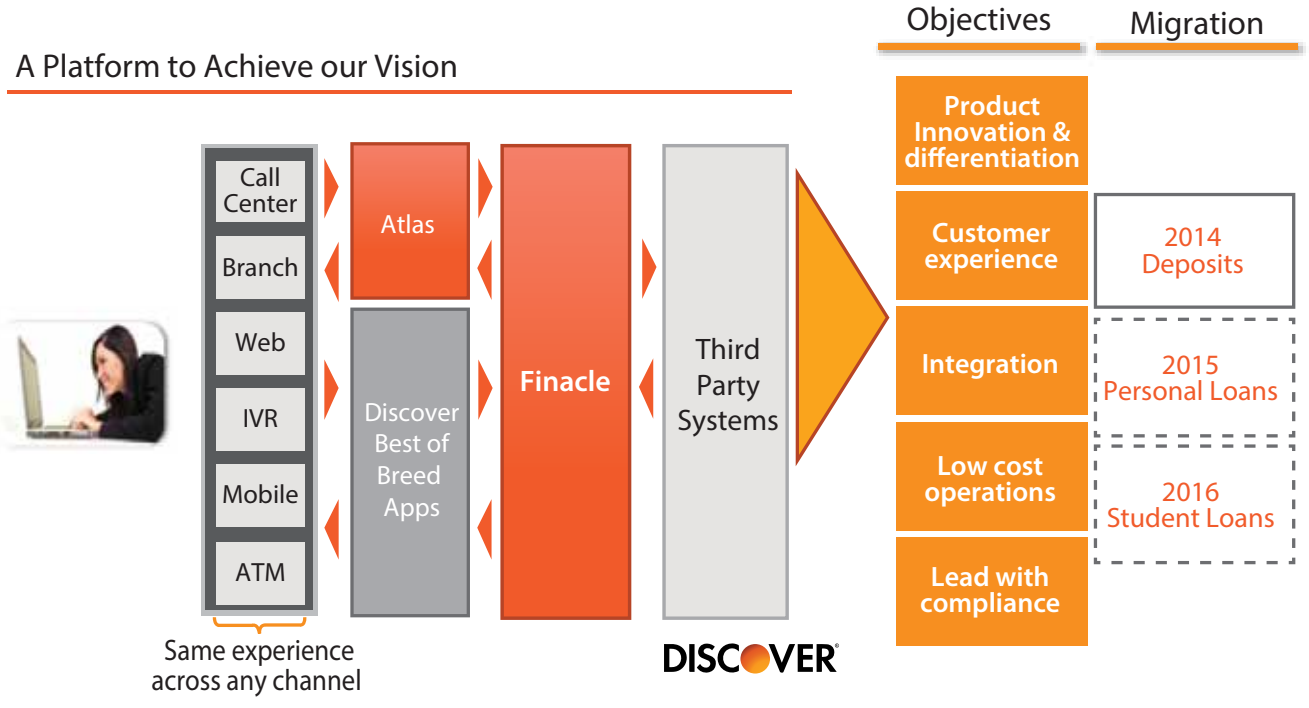
organization, the firm wisely opted not to attempt a "Big Bang" approach and instead decided on a phased

After an extensive search for a technology solution, DFS selected the Finacle universal banking solution from Infosys.

Finacle is the centerpiece of DFS's banking platform strategy and will over time support all banking products excluding the credit and debit card processing platforms. The new platform was architected as an integrated solution hub with banking third party

implementation schedule (Figure 3). The conversion to the new Finacle deposit module took place in May 2014, and loan servicing will take place in two additional phases, with personal loans to be converted in 2015 and student loans in 2016.

Figure 3: Project Overview

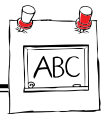


Source: Discover Financial Services

applications and services all plugging in, allowing for the elimination of the many point-to-point interfaces that previously existed between DFS's systems and their third party providers.

Given the all-encompassing nature of this ecosystem transformation and its impact on the overall DFS

Since DFS represented Infosys's first enterprise core banking installation system in North America, there were a number of challenges to be overcome in the development and testing of Finacle. Key issues included the localization of Finacle to reflect DFS's banking requirements, the addition of federal and state-based banking requirements (DFS operates in all 50 states),



and the introduction of new reporting functionality to support DFS's regulatory compliance obligations.

The implementation of this new banking platform required the mobilization of a project team numbering more than 2,000 product managers, systems architects, developers, consultants, IT strategists, systems integrators, interface/web designers, and legal and compliance staff. Significant on-site and offshore development support was provided by both Infosys and Capgemini, and Big 4 accounting firms contributed advice regarding compliance requirements.

Even with 2,000 personnel on hand, the workload generated by this project was staggering, with 3,000 discrete business requirements to address, 130,000 system parameters to set, and 25,000 test cases to write and run. Prior to the final conversion of the deposits business, DFS and Infosys organized 12 simulated migrations, 5 disaster recovery readiness tests, and 3 rounds of regression testing.

To cope with the resulting project management complexity, DFS adopted a "one team" approach to integrate the contributions of individual project personnel. This approach leveraged co-located functional teams staffed with individuals drawn from the business, technology, and partners and was core to the project's success. Steering the project forward was a multi-layer governance structure that included program level, management level, and executive level groups that met on a regular basis to assess progress and remediate issues as needed.

Results

In addition to providing DFS with a real-time processing platform that allows for the tighter integration of transaction data across self-service and digital channels, the implementation of Finacle is expected to create significant value across the enterprise.

From an operations perspective, the replacement of a number of separate product silos by a single deposit and loan servicing system is expected to yield dramatic operational efficiencies. DFS estimates that through the elimination of half of DFS's manual back office processes, the introduction of real-time automation in compliance, and the consolidation of account processing to a single platform, they will realize a 65% decrease in its servicing cost per account compared with current costs.

In addition, the use of Finacle Studio and Finacle's product factory to create new products and product enhancements is expected to improve DFS's agility in product management and facilitate the introduction of innovative new services like Rewards Checking. Based on this newfound agility, the firm expects new account openings to more than double by the time the final phases of the project are completed in 2017.

In addition to providing DFS with a real-time processing platform that allows for the tighter integration of transaction data across self-service and digital channels, the implementation of Finacle is expected to create significant value across the enterprise.

Finally, the development of DFS's Atlas customer care system has already had a dramatic impact on the quality of service in its call center operation. The

integration of numerous customer data elements into a single cohesive view of the relationship is the driver of DFS's "We Treat You Like You Treat You" standard of customized client care, and through the dual-screen CRM portal, most common customer requests now require 40% fewer clicks.

In the case of account origination, Atlas's seamless integration of data has allowed a new account to be opened in 6 or fewer steps, compared with the previous 20 steps. The introduction of Atlas in DFS's call centers has driven an improvement in agent productivity beyond DFS's original expectations, reducing call center wait times and average call handling times.

Rather, the inspiration for this project was to transform the ability of DFS to deliver innovative real-time services, to introduce agility in creating new products and services that are natively supported by DFS's back office systems, and to put technology in the hands of its customer service organization that will lead to best-in-class customer care.

With thousands of business requirements being supported by thousands of project personnel, an ambitious five-year project plan, and a significant investment in software and resources, it is clear that DFS has recognized that technology is not merely an operational detail of banking, a box to be ticked.

To DFS, this banking ecosystem transformation was not merely an exercise in improving operational efficiency — although account servicing costs are expected to drop by 65%.

Summary

To DFS, this banking ecosystem transformation was not merely an exercise in improving operational efficiency — although account servicing costs are expected to drop by 65%. Nor was it an exercise in reducing complexity — although the number of interfaces that customer service agents must learn will be reduced from over 20 to 1.

This banking platform transformation represents DFS's belief that the use of modern and flexible technology is the fabric from which innovation and world-class service is sewn, and for this reason DFS is recognized as a 2015 Celent Model Bank.

Prepared by
Celent, a division of Oliver Wyman, Inc.

The do's and don'ts of **transformation**

Sheenam Ohrie, Head – Delivery, Support and Testing at Finacle talks about what makes for a successful transformation, and how it works for banks of different sizes.

Q: Transformation is on every banking leader's mind. But the method to do it is different for each bank. How does a large bank, with presence in multiple countries go about transforming itself? What are the best practices and how can it ensure a smooth transformation with minimal disruption?

A: If I had to list the most important best practices from our various implementations of multi-country transformation, I would start with the need to control the requirements coming from business by focusing on commonality and creating a common pool of changes to be made to the system being used for the transformation journey. For example, in a Finacle transformation involving several countries, each of which fulfill the same business requirement in different ways, we try to see if we can influence the bank's IT department and business leaders to adopt a common way of running that requirement so that we only need to run one set of changes.

The second best practice is to industrialize transformation, by which I mean essentially see how we can automate the journey itself, by looking at the various steps in the transformation, which can be automated and putting them into a process workflow, which ensures transformation can be very easily replicated by users. If you drill down into the details of automating what needs to be done, of understanding how to improve efficiency, finding the processes in common, and making sure there is minimal human intervention, that can really help.

The third best practice comes into play when you start consolidating existing systems. Try to focus on letting go of satellite systems that the bank has acquired over time.

All three are driven by IT. The fourth best practice is more a regulatory issue. In a multi-country rollout you need

The second best practice is to industrialize transformation, by which I mean essentially see how we can automate the journey itself.

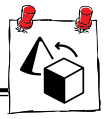
to ensure that the essential regulatory requirements are incorporated into the platform and have a plan for it.

We have leveraged these best practices in our multi-country implementations for South Africa's Standard Bank and State Bank of India, which is live in 22 countries now, to name just a couple. Each time we do an implementation, we learn a lot from it, which we put back into future execution.

Q: What about a big bang approach? If a large bank were to take this approach for its transformation, what are the challenges and how can they be curbed?

A: By big bang, I'm taking it you mean a one-time go-live of all branches in a single country. A multi-country big bang rollout is inadvisable given the differences in regulation and the huge complexity of dealing with more than one geography.

Take a bank like ICICI, with its 4,000-plus branches and massive business. I would say it is possible for them to do a big bang transformation, although it will have many challenges and risks. The biggest challenge, or question if you will, is whether the transformation will succeed or not, and what to do in the event of failure. The way to approach this is to identify the key "blocks" that need to be accomplished well for success, and then look at each of them to see if they can be completed one by one, before the actual go-live cutover. For instance, in the ICICI transformation, we decided the database needed to be converted into multi-byte, and we did that well before going live. Also, all accounts dormant



A multi-country big bang rollout is inadvisable given the differences in regulation and the huge complexity of dealing with more than one geography.

for two years or longer were migrated much earlier, because they were not going to be touched. As a rule, all the information that can be migrated in advance to reduce last minute risk should be migrated, which is what we did at ICICI. Another thing we did very diligently were three dry runs, each at a shorter time to cutover. We also industrialized the transformation. I mentioned at the outset that the biggest challenge is to establish whether the transformation would succeed or not. We addressed this by detailing out a plan for success, and by also having a plan B in case things didn't go as expected. In fact we did this for each of the 48-50 critical steps, to arrive at a mitigation strategy. Another thing we did was to man the most crucial branches, those with large or specific businesses, with key people. This really helped us to identify the challenges and mitigate the risks.

Q: Is transformation mainly about renewing existing systems and processes, or is it a way to embrace new things as well? If yes, how should banks prioritize various initiatives? What is the principal consideration?

A: In the Finacle context, renewal is essentially about upgrading to a later version. But today, a number of banks are also moving away from their old legacy systems that are falling apart. And this is really a journey into the new, because there's the uncertainty of getting into the unknown. Another way in which banks get into new things is by adding new capabilities, like an app for example, on their existing channels. Most of these initiatives are directed at attracting young customers. In fact, bank CIOs are very concerned about the fact that market share is today not necessarily defined by standard banking practices, but rather by new-age ones that are quite disruptive because they don't require customers to come to the bank. So they have to worry about a variety of new types of competitors, many of whom are not traditional banks at all. The only way to beat them is by playing the same game; banks need to embrace new technologies on a regular basis to make sure they're in competition, visible, and able to use their platforms to enter new markets. They need to prioritize this carefully.

We have implemented solutions, such as youth banking, for our clients, and co-developed other new ideas with them. There's a renewed energy among CIOs and CTOs about accomplishing new things for their banks. We're seeing a lot of innovation by way of delivering a classic product in new formats.

Q: Given that there are so many priorities, what do you advise banks should do – renew first or do the new?

A: It can't be either/or. Renewal is a longer term strategy, which takes several months, but when it comes to adopting new initiatives, clients usually can't wait that long. There is a need to balance the priorities.

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One way to do this is to adopt new functionality on the existing platform and migrate it to the new one later. The important thing is the bank must not delay a new initiative, pending renewal of its core platform. This is what we tell our clients.

Our interactions with clients are no longer vendor-buyer discussions, but rather, are conversations between partners.

Of course, there's also a question of resources. Core banking transformation involves big money so banks would sometimes like to defer it, and do small changes first. It's a question of balancing long and short-term goals, and we at Finacle try to help them on both sides.

Q: So along with implementing you are also helping clients see the way forward?

A: That's correct. Our interactions with clients are no longer vendor-buyer discussions, but rather, are conversations between partners. We approach these conversations from the standpoint of maximizing clients' value from transformation by making them more agile, increasing market share and so on. As a result, our engagements have a very different flavor today.

Banking on **Cloud**

As a McKinsey Global Institute research report outlines, by 2025, the estimated potential global economic impact of cloud technology can be as much as $6.2 trillion. Another research report gives statistics of the extent of benefits gained by enterprises by adopting the cloud. 82% of companies surveyed have reported saving costs by moving to the cloud. Cloud is definitely happening for real, and enterprises have been unanimous in embracing and acknowledging this.

From a banking and financial services industry perspective, the use of cloud computing is increasing by way of a mixed private-public cloud strategy.

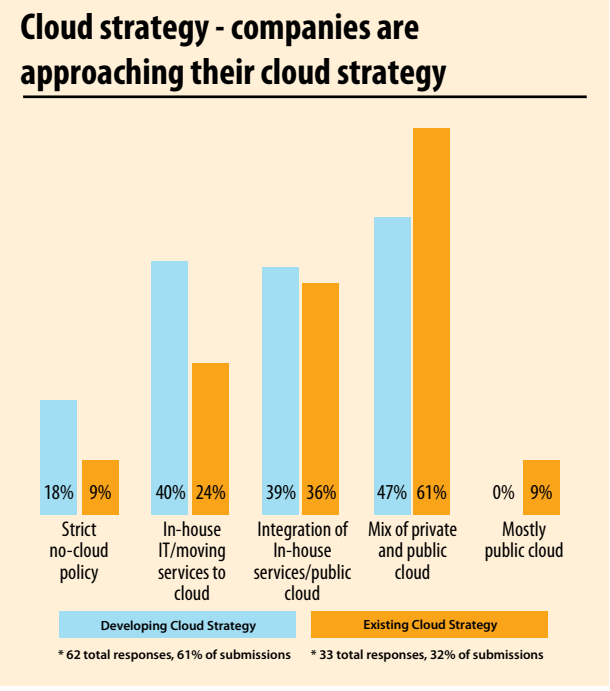

Fig 1: Cloud Security Alliance, Mar 2015

In yet another survey report published by the Cloud Security Alliance in March 2015, over 60% of the survey respondents, i.e. financial institutions from across 20 countries, indicated that their cloud policy was in development, while 32% of the overall, indicated that they had a well-established cloud policy.

In terms of actual usage, among financial institutions with a well-established cloud strategy, 61% use a mix of private and public clouds, while only 9% predominantly use a public cloud.

Avenues for banking in the cloud

The cloud indeed offers significant benefits to banks and financial institutions. These can be viewed from multiple perspectives in a stepped-up manner of adoption. Depending on their openness to the new technology and provided their national regulators permit it, banks can look at adopting the cloud to varying extents as outlined below.

1. Non-production cloud – This involves moving multiple non-production environments that typically reside on-premise to the cloud. It includes moving the training, development and multiple testing environments to the cloud, without hosting the production environment itself. Typically, the utilization of these environments in an on-premise deployment is in the range of 10-15%, which means that banks are paying for 85-90% of under-utilized infrastructure. By moving these to the cloud, they can provision the environments based on need, and save significant costs of under-utilization. Post development and testing, they can synchronize with the on-premise UAT and production environments. This is a huge proposition for banks and other financial institutions to adopt the cloud with relatively lower risks and concerns.

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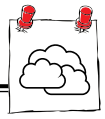

2. Hybrid cloud with bursting – In an era of growing ecommerce, banks have seen unprecedented levels of transaction volumes that come in bursts. With banks investing in digital channels and mobility, and striving to put a bank in their customers' pockets to offer every time, everywhere access to banking services, this has created a huge pressure on their transaction processing systems. As a result, the ratio of peak to average transaction volume has been steadily increasing. What was hitherto in the range of 3-5, is now touching 7-8, and some of the banks in the growing economies expect it to reach up to 15-20 a year from now.

This being the situation, the traditional model of sizing the hardware is no longer applicable to infrastructure sizing within bank premises and is fast becoming obsolete. To meet this kind of peak to average ratio, banks need to look for a different solution. This is where cloud bursting comes in to help. Banks can go with their regular on-premise deployments, and only based on peak demand and load, provision additional instances on the cloud to share the increased load. This can be done while retaining the database on-premise, allaying concerns of data confidentiality and privacy.

3. Moving production environments to the cloud – This is by far the option with the most perceived hurdles. However, banks can still take advantage of the technology when they deploy a private cloud either on-premise or through a dedicated hosting provider. Of course, deploying in the public cloud has regulatory constraints, but we'll see later in this article how this is changing thanks to some recent developments.

4. APIs in the cloud creating a business and partner ecosystem – When it comes to mobile apps, we are all familiar with the options such as "Sign up with Google", or "Sign up with Facebook", isn't it? Essentially, any app can offload certain processing, (in this case, the customer registration and authentication) to an external application by exposing its APIs for direct invocation by other applications. In recent times, banks are realizing the potential of offering APIs as a service to many of their corporate clients and partner ecosystems. This is where the future of the source of banking transactions is headed. We are already seeing the relative share of transaction origination in conventional channels, such as branches and internet banking, diminish while the share of mobile and other non-conventional channels is increasing.

This creates a potential for offering banking as a service through APIs, and helps banks participate in third party-provided services by offering APIs for payments and remittances, credit checks, account inquiries and validations, document verifications and so on.

Banks can go with their regular on-premise deployments, and only based on peak demand and load, provision additional instances on the cloud to share the increased load.

These scenarios open up tremendous possibilities for banks to not only reduce their TCO to a large extent, but also grow their topline by offering new services.

What is hindering banks from adopting the cloud?

When a bank moves into public or hybrid cloud computing, there are several primary areas that must be reviewed: business cases, infrastructure readiness, vendor capabilities and very importantly, security, compliance and legal factors.

- **Security:** concerns regarding inadequate or fragmented data security
- **Legal:** complicated legal responsibilities, for instance, when there is cross-border data transfer and subcontract outsourcing
- **Compliance:** difficulty of getting regulatory approval

The vast majority of national regulators have not developed regulations especially for the cloud. Instead, they use an amalgam of existing regulations that cover offshoring, outsourcing, privacy, confidentiality, resilience, operational risk, etc. This makes it difficult for banks on account of the following:

1. no checklist for cloud compliance
2. compliance is evaluated on a case-by-case basis
3. some inconsistency in how compliance is evaluated

Table 1: Questions a regulator typically asks a bank when it comes to issuing case-to-case approval for the cloud

Category	Questions
Outsourcing	Do you comply with existing regulations and rules on outsourcing?
Business Continuity Planning	Have you verified the service provider's ability to recover the outsourced systems and IT services within the stipulated recovery time objective ("RTO") prior to contracting with them?
Data Ownership	Have you clearly and legally defined the data ownership? In the event of contract termination, either on expiry or prematurely, do you have the contractual power and means to promptly remove or destroy data stored in the service provider's systems and backups?
Data Location	Do you know the exact location of servers, applications and data within the service providers' computing infrastructure?
Data Isolation	Are you aware of the service providers' abilities to isolate and clearly identify data and other information system assets for protection?
Customer Data Protection	Can the service provider protect personal data in its possession or control by making reasonable security arrangements (e.g. authorization, encryption, and security audit) to prevent unauthorized access, collection, use, disclosure, copying, modification, disposal or similar risks?
Customer Data Cross-Border Transferring	Do you transfer any customer personal data to an oversea country or territory? Are the data subjects aware of the implication of such storage (e.g. personal data that is transferred to another country is subject to the laws of that jurisdiction; no contract, no matter how well crafted, can override the laws of the foreign jurisdiction.)?

Regulators are embracing the cloud, acting as a catalyst rather than an obstacle

Financial services regulations were holding banks back from adopting the public cloud. But some recent developments indicate that regulators are embracing the cloud and may potentially become a catalyst rather than an obstacle for adoption.

Back in 2010, Australian banking regulator, APRA, wrote an open letter to the financial services industry, urging executives to view cloud computing as a new form of outsourcing that requires the regulator's tick of approval, and it stepped in to apply pressure on one wealth management firm that had endeavored

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to migrate its CRM system to Salesforce.com, hosted in Singapore.

Three years later, in 2013, APRA released new Prudential Practice Guidelines – Managing Data Risks that recommends a cautious and measured approach to data outsourcing, but does not prohibit cloud computing. The same year, De Nederlandsche Bank (DNB), the Netherlands' national banking regulator, cleared Amazon Web Services for a range of banking services including websites, mobile applications, retail banking platforms, high performance computing and credit risk analysis. The Monetary Authority of Singapore has been known for its solidly 'anti-cloud' attitude, but recently its consultation on the proposed new outsourcing notice and updated guidelines has important changes relevant to cloud services. The message to take from the consultation is that cloud services are OK, provided you follow outsourcing and data privacy rules. Even emerging countries, for instance the Philippines, are embracing the cloud – the Bangko Sentral ng Pilipinas (BSP) has released a new framework on the use of IT in the banking industry, which includes rules allowing banks to use cloud computing technology.

All these new developments is good news for the cloud and the financial services industry. If these positive trends continue, it should stem the reluctance of the global financial industry to adopt cloud services. Then it would become a question of how rather than if, and a transparent and consolidated cloud regulation would be key as a catalyst.

Need for a transparent and consolidated Cloud Regulation Framework

The legal and regulatory landscape around cloud computing is by no means static. Banking regulation has advanced noticeably since the 2008 financial crisis, with considerable progress achieved in recent years. However, many regulatory details about meeting new cloud requirements and business models remain unresolved. Banks' success in adapting to these regulatory changes varies greatly by institution and

Banking regulation has advanced noticeably since the 2008 financial crisis, with considerable progress achieved in recent years.

jurisdiction. Many banks we have interacted with say that they are rarely fully aware of all the implications and impact of regulatory requirements when using cloud services because the rules are scattered across several different texts, or even worse, simply don't exist. Some banks have managed to embed guidelines from the below policy documents:

- Technology Risk Management Guideline
- Guidelines on Outsourcing, and
- In particular, Personal Data Protection Act

Laws, even in many well-developed countries, are still on their way to developing a single regulation that could provide a clear and consolidated framework for the cloud. Cloud computing that employs a hybrid, community or public cloud model creates new dynamics in the relationship between an organization and its information, involving the presence of a third party: the cloud provider. There are also new laws being proposed that could change the responsibilities of both cloud computing tenants and providers.

Under this scenario, both regulators and banks need to adopt an innovative "renew and new" approach (described below) that should accommodate innovations, and at the same time, these implementations should be monitored to ensure security and reliability:

- RENEW the core business, for instance, by ensuring data privacy, ensuring system performance, and maintaining an SLA with the vendor.

- Innovate in NEW areas, such as, consumer protection regulation that is not currently keeping pace with advancing technology, legal responsibility when there is increased reliance on third party providers, and a transparent and consistent evaluation process for regulatory approvals.

In conclusion

Overall, regulators will need to find ways to encourage and not limit industry advancement of the cloud, and take a principles-based approach ahead of prescribed guidelines that unnecessarily restrict its usage. As far as banks are concerned, if there is a clear or encouraging regulation principle, they should embrace cloud-based services and capabilities by prioritizing the relative importance of data, and leverage vendors to help ensure project compliance and clarify regulations. If not, they should not wait for "detailed guidelines from banking regulators before acting" but rather, start or continue to run exploratory efforts on the cloud, extend existing best practices to identify logical starting points, or start with less important data.

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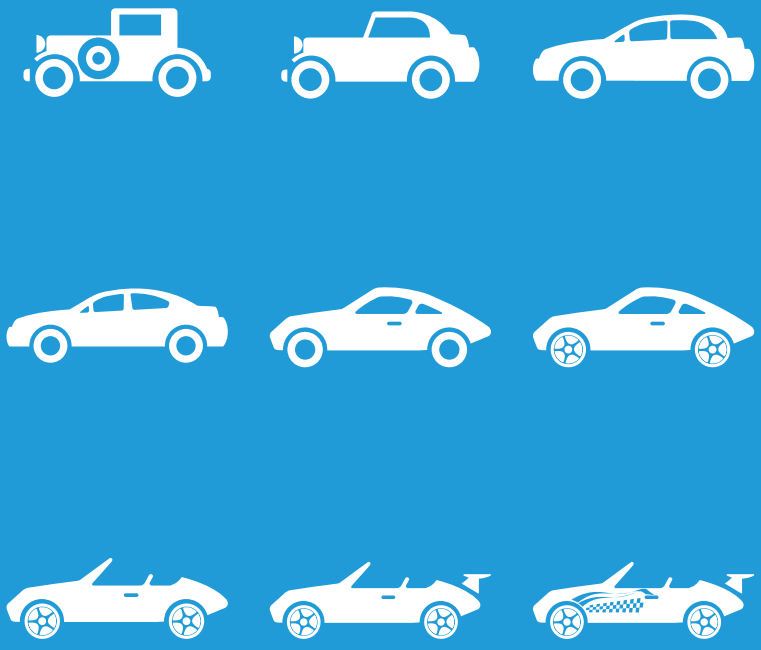

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