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DIGITAL TRANSFORMATION IN **RETAIL & CORE BANKING**

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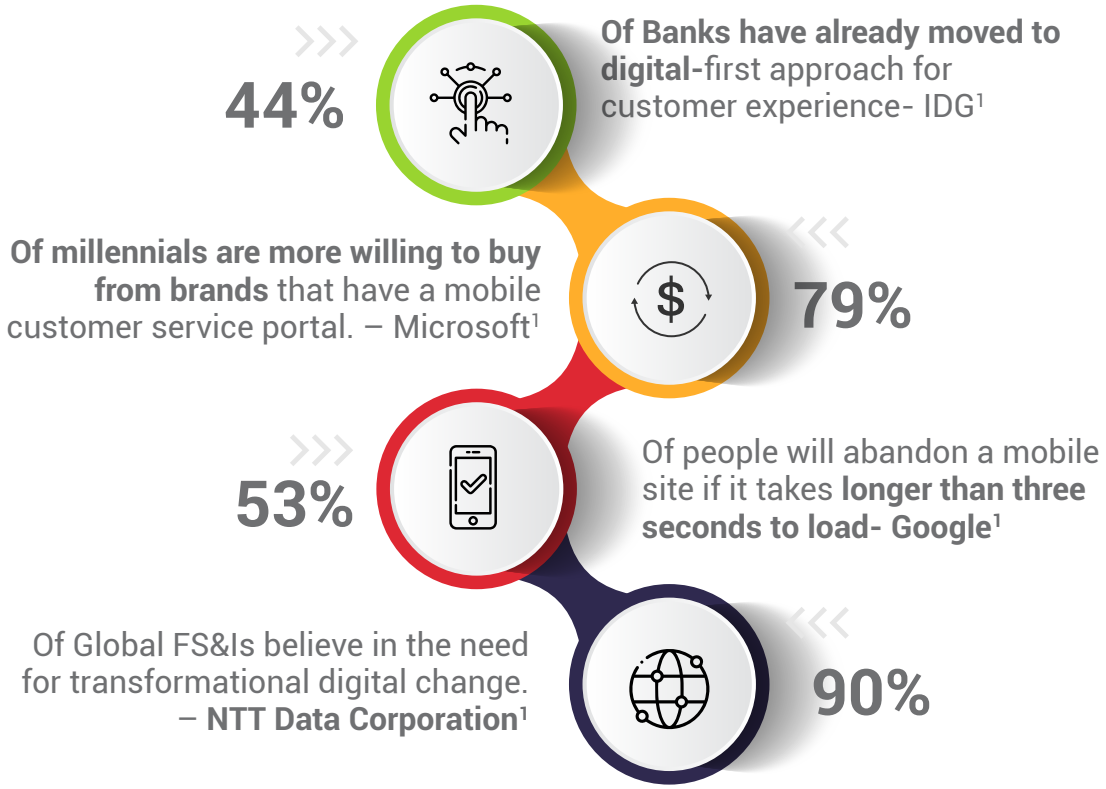

1. Executive Summary

The retail banking industry is experiencing a paradigm shift in their value proposition and value chain. The industry is being revamped to align itself with the new intermediation driven by digital transformation. The COVID-19 pandemic has made a makeshift change in the mindset of customers. The entire story around the customer journey, customer outlook and customer experience has changed so much, that they are demanding financial services access anytime, anywhere and across multiple channels - with mobile devices emerging as a top priority. Legacy IT systems, asynchronous processes and elongated life cycles have often clipped the wings of Retail banks amidst a booming demand for digital age technologies. Cost pressures, funding, complexity to transform and paucity of talent have only added to the woes. The competition, earlier restricted only to fellow banks, is now also coming from for other entities with sound digital business operability. Fintechs, telecom companies, retail outlets and tech-savvy start-ups are all in a close race to grab a pie in this digital revolution. In order to survive and thrive, banks need to embrace these disruptions with strategic change management and restructuring of core systems.

2. CXO's Vision

Executives at the top level often have their tasks cut out for them. They are involved in a variety of processes ranging from capital allocation, accounting, budgeting and risk management, to financial and regulatory reporting, investor relations, hiring and reskilling talent. The aforementioned processes have been in existence right from the time corporations were formed. However, in the modern era, priorities have changed. Contemporary C-level executives have placed technology enablement as paramount to the progress of a bank, superseding all the other processes aligning it to operations, strategy and long-term vision, to increase Return on Equity.

Mckinsey recently surveyed C-suite executives across 52 banks and financial institutions. Executives were asked about top priorities driving their company's growth. 88% of executives ranked revenue acceleration as the topmost priority, followed by improved agility and time to market (71%), and cost reduction (47%)[2].

Whether the Bank has been in existence for a century, half a decade, or a start-up, their CXOs have stated that they aspire to become a digitally operable bank in the nearest term.

3. Cost of going Digital

Currently, the majority of IT costs are in the form of IT operations, maintenance, network, end-user and application development costs. Higher levels of IT staffing in the back office coupled with disparate hardware and software have also added further to the costs. These legacy costs make it difficult for executives to allocate sufficient budgets for innovative, revenue generating digital initiatives. Several companies have realized the same and are focusing towards change expenditure, i.e., cost to migrate from legacy systems.

While the objective to reduce costs is a good move towards reducing future spending, the digital change implementation also comes with a cost. Here, the cost involves both changing the existing legacy infrastructure to digital infrastructure and giving it sufficient time to scale the existing value chain. According to a survey conducted by Capgemini, the average payback period to achieve break-even over the investment on digital transformation of core banking system is 4.5 years.[3]

Even if a company has sufficient cash flows to cover the expenses for transformation, not all projects end up successfully. A research conducted by Bain & Co. in 2020 found that only 8% of global companies have been able to attain their desired results from their investments in digital technology[4]. The companies surveyed were across financial services, oil and gas, pharmaceuticals, infrastructure, e-commerce, automotive and technology. While for tech-savvy companies, the success rate is around 26%, the number falls between 4%-11% for traditional industries. If we take banking and financial services in isolation, the success rate is close to 17.5%[3]. This rate was also closely related to the size of the company. Organizations with less than 100 employees reported a higher success rate (2.7 times) in digital adoption than organizations with more than 50,000 employees[5]. Larger the organization, bigger is the challenge to scale and implement.

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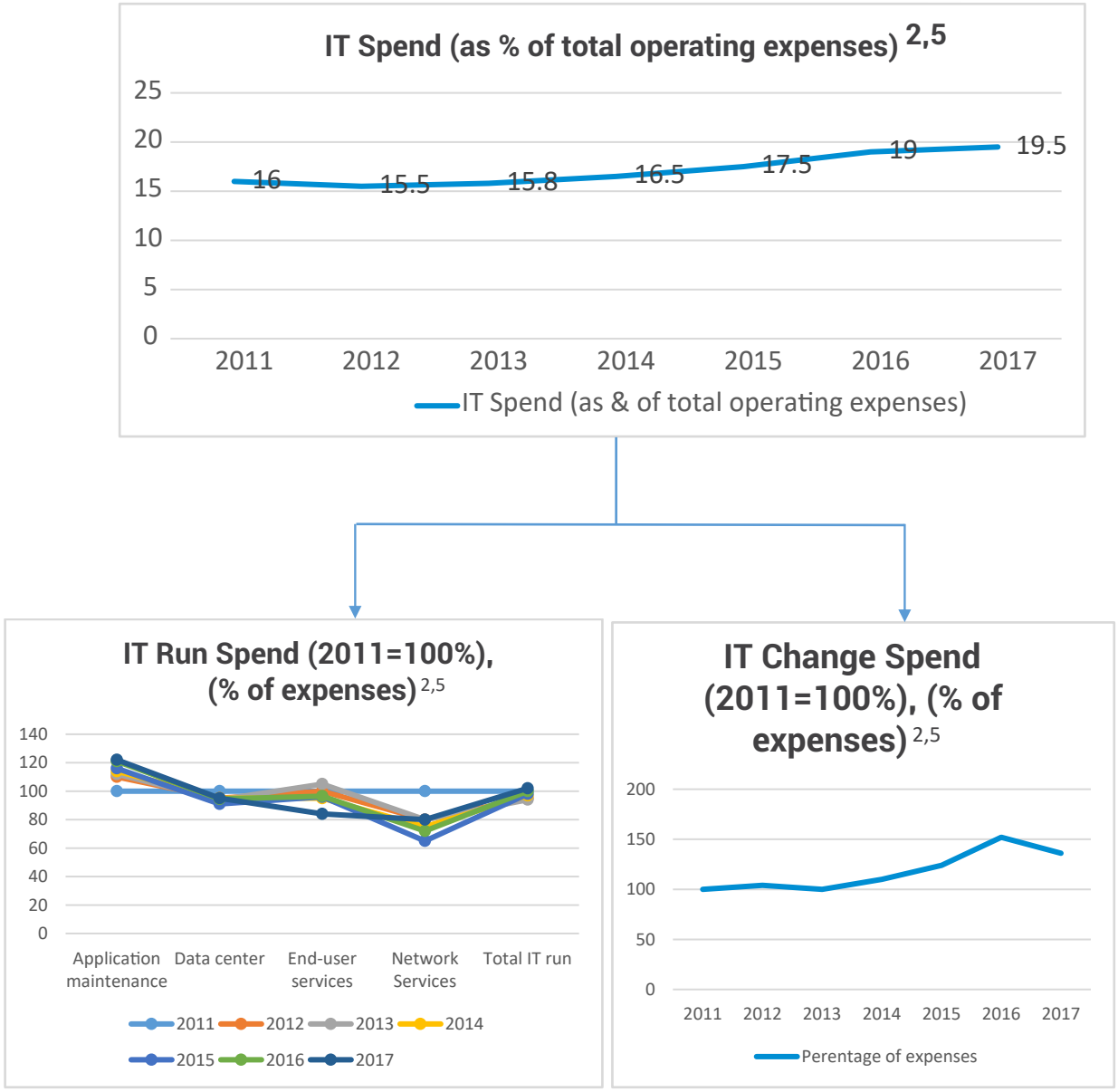
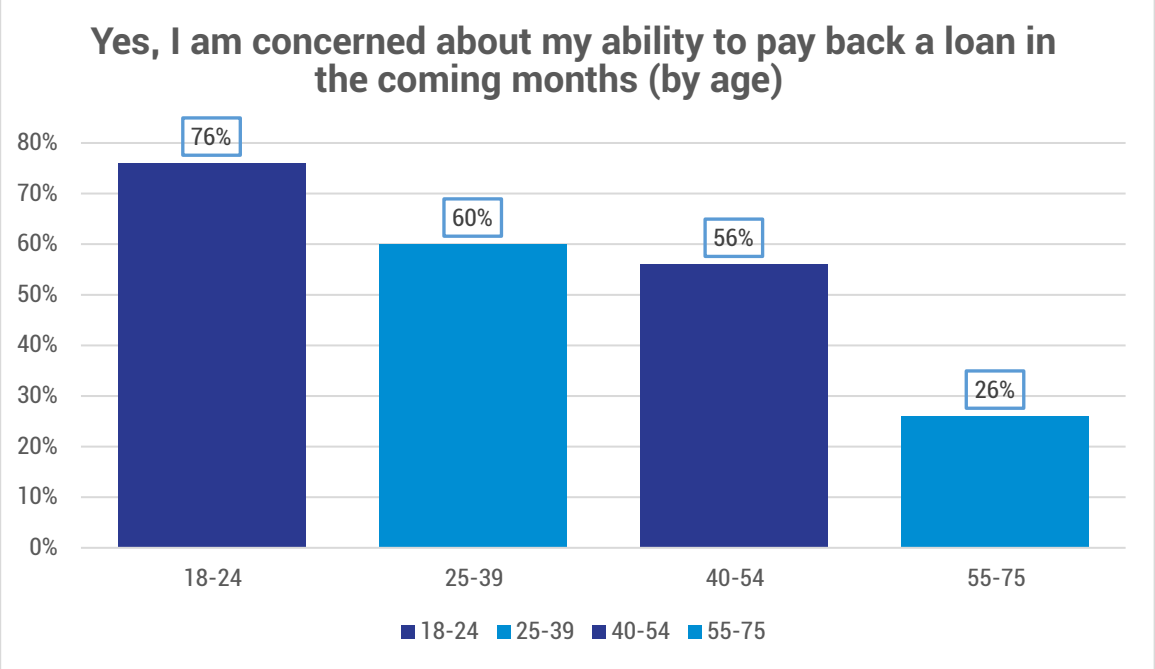


1N=8 Global Banks for 2011- 2017
Source: Mckinsey Digital 20/20 Survey, Next-gen Transformation of Financial Services, 2020

4. Transformation of Customer Journeys

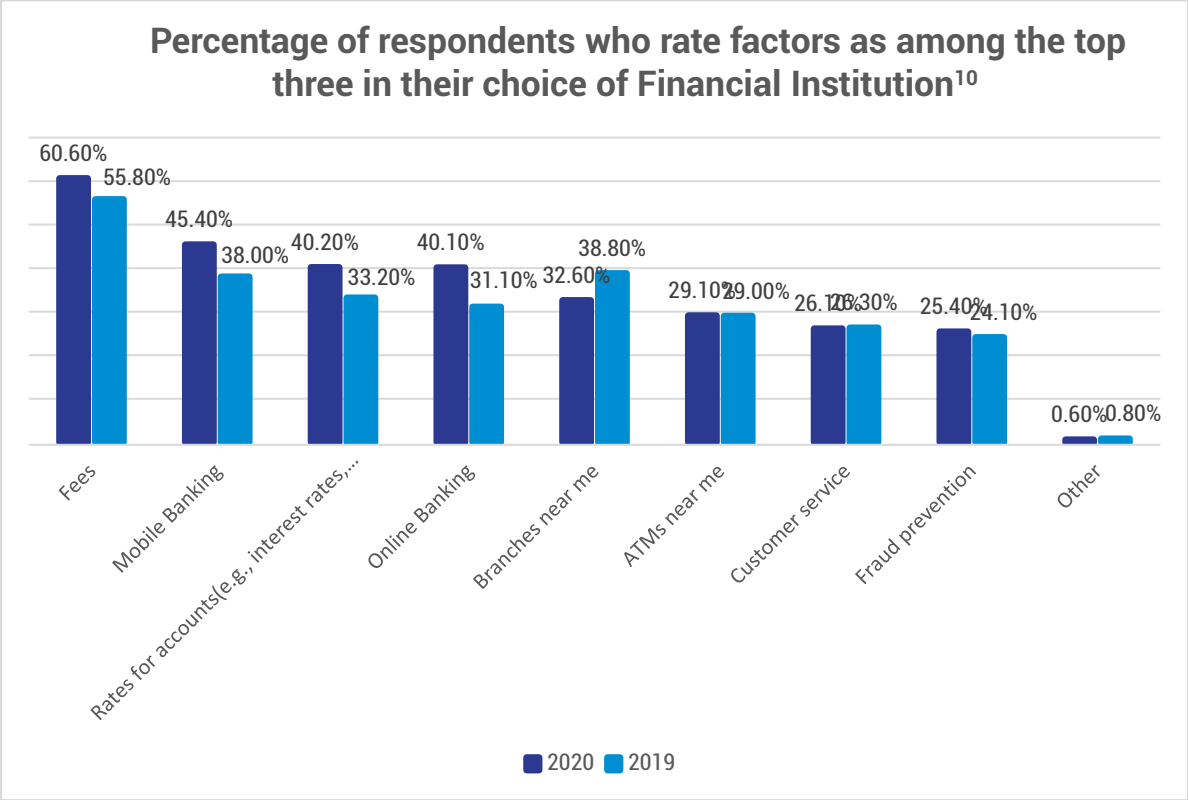
Lightco carried out a survey of 1000 consumers online to demonstrate the impact of COVID 19 on retail banking and the change in consumer mindset with regards to banking[7]. COVID 19 has made the respondents prone to more financial distress due to a fear of layoffs, owing to the obsolescence of skill sets. Calls to banks have also soared due to anxiety. The spike in customer traffic to branches and bank call centers have made the banks recognize the significance of digital channels.



Source: Lightco: impact of COVID 19 on consumer Banking March 2020

Gen Z are 3X as concerned as Baby Boomers about paying back loans over the coming months

Capturing a customer's attention within a short span of seconds is no less than an elevator pitch. In today's virtually connected world, customers are spoilt for choices. Installing a brand recall in a customer's mind becomes really tough in such a competitive environment. Today, choices made by customers are unpredictable, non-linear, personal and impulsive. The traditional sequence of gaining awareness, showing interest, approaching physical branches for account opening has changed. **Customers demand multiple touch-points across internal and external channels of a bank with the ease of convenience and a quicker response.** Loyalty is no more the preferred trait among customers, whereas accessibility and experience are.

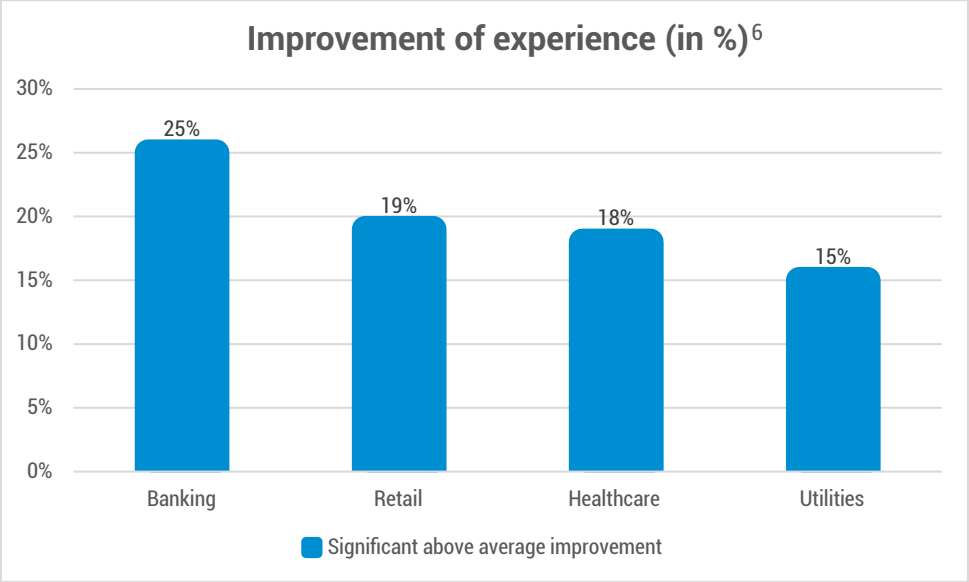


Methodology: The 2020 data is based on an online survey of 2,324 US mobile banking uses. The 2019 data is based on an online survey of 2,000 US mobile Banking users. Respondents to the online surveys were sourced from a third-party sample provider to closely resemble US demographics on the criteria of age, gender and income

Another online survey conducted by Business Insider rated the top factors of customers influencing them to choose a financial institution. The survey was carried out in 2019 and 2020 with a sample of around 2000 mobile banking users. The survey inferred fees as the primary criteria for their choice, followed by easy access to mobile banking. While the percentage of respondents voting for fees increased by around 5%, respondents choosing mobile banking increased by 7.4%[8].

COVID 19 has made the respondents prone to more financial distress due to a fear of layoffs, owing to the obsolescence of skill sets. Calls to banks have also soared due to anxiety. The spike in customer traffic to branches and bank call centers have made the banks recognize the significance of digital channels.

The impact of digital transformation on customer experience across sectors is shown below:



> **25% more improvement was observed in digital customer experience in Banking industry, more than the impact in Retail, Healthcare and Utilities**

Banks will need to understand the changing customer preferences and then create a curated product portfolio for a contextualized customer experience. In order to achieve the same, banks will need to gauge the elements that truly contribute to their value chain along with the risks and costs associated with these elements. This will enable banks to expand their capabilities into multiple channels and engage seamlessly with the customer throughout their journey.

5. Challenges in Retail/ Core Banking

According to another survey conducted by Lightco in 2020, 58% of digital customer journeys are still fragmented and require physical or offline efforts to complete banking interactions[6]. **Traditional IT infrastructure in retail banking is built around batch processing. Since transactions are processed in batches, customer requests have to wait in queue to get processed. Moreover, if the transaction is not processed due to an outage, it further exacerbates inconvenience, leading to dissatisfaction**. While all this is happening in the background, customers are oblivious to failed

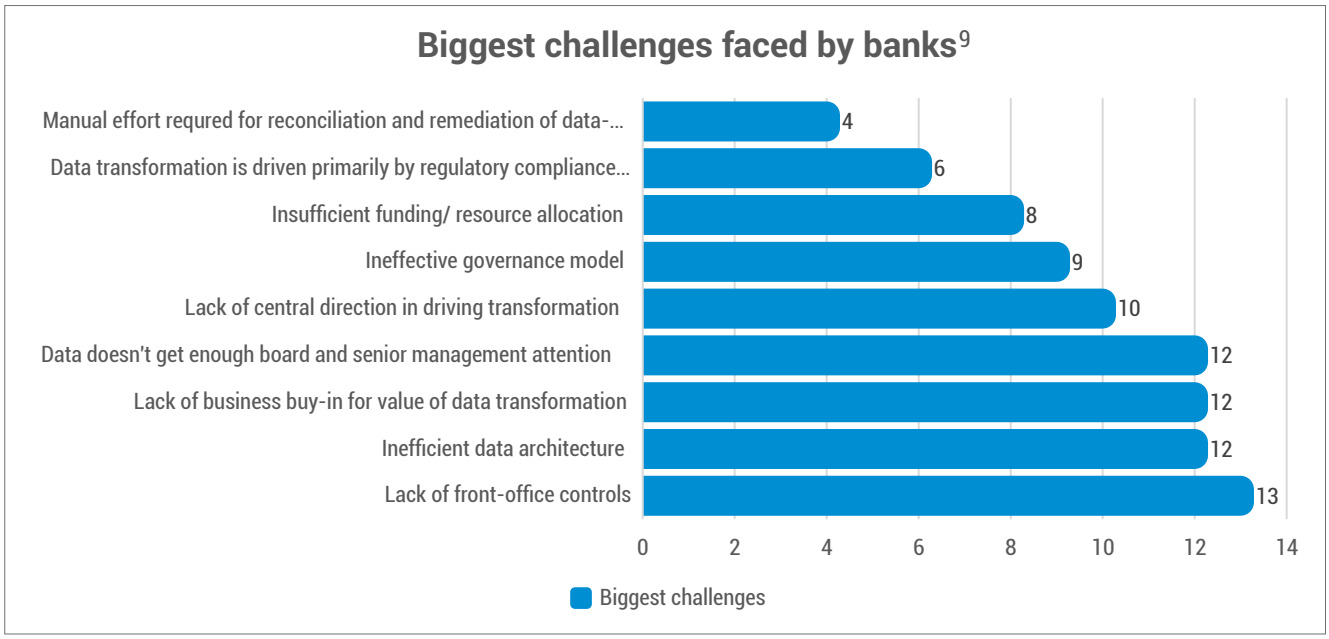
transactions, which may result in delayed payments and also a damaged credit score. The final output is customer inconvenience, loss of revenue and rework in transaction execution. Disparate systems tend to lose the plot in the middle while relying on manual hand-offs. Hence, it is pivotal that each stage of the customer journey is tied in close proximity to each other, leading to efficient tracking.

High Operational Costs and Operational Risks

Most IT spending in banks is directed towards upgradation and maintenance of existing legacy infrastructure, leaving little on the plate for research and development. A high operational cost in a legacy environment leads to higher outages, which in turn, increases the processing cost. Multiple manual interface touch-points across the value chain escalate the probability of processing errors. These errors only compound as the quantum of transactions increase. As per the latest report on banking supervision and failure detection by Basel Committee, banks have been instructed to standardize the way they evaluate operational risks at each customer touch point and update the failure rates. Due to this, banks that use indigenous models face higher capital risk requirements, undermining a retail bank's ability to lend and increasing the costs of maintaining deposits. .

Banking Data Silos

Data accessibility is restricted in IT legacy systems across different banking departments. The Finance department works on a set of data to carry out tasks, while HR, Administration and Sales work on a different set of data. Incompatible and unconnected IT systems create data silos, hindering the process of gaining meaningful insights. Legacy systems and data architecture are built around technologies and tools that don't allow sharing of data across the front, middle and back office. Since each department is physically separated from each other, data collection and transformation becomes an Achilles heel. This kind of restricted environment does not offer scope of improvement across the value chain. Lack of front office controls and inefficient data architecture were identified as major challenges for data transformation in banks[9]. According to a research done by Claranet, 54% of financial institutions in the UK were not able to decipher any inference from the complex data they held, while 43% cited centralization of customer data as their biggest roadblock to improve customer experience[10].



Source: Mckinsey Next-gen Technology Transformation in Financial Services: 2020

The above chart is a survey, ranked by perceived importance, carried out by Mckinsey with banks to classify the challenges faced in improving data quality at the enterprise level. The challenges, in the chart, are listed as below:

- Lack of front-office controls(e.g. Poor quality of data entry at system of origin with no/ limited validation)
- Inefficient data architecture(e.g., Multiple data warehouses with no common data model, legacy systems, complex lineage)
- Lack of business buy-in for value of data transformation
- Lack of board and senior management attention (e.g., seen as an IT issue, not considered a business asset)
- Lack of central direction in driving transformation (e.g., disparate business-unit-led efforts)
- Ineffective governance model (e.g., unclear ownership of data, weak or unenforced policies)
- Insufficient funding/ resource allocation for enterprise-level data transformation program
- Data transformation is driven primarily by regulatory compliance needs; with no focus on data quality
- Manual effort required for reconciliation and remediation of data- quality issues

6. Banks still hold the power

Though retail banks are being criticized for not being innovative and upgradable enough, they still possess a tremendous benefit over the emerging competitors such as Fintechs, e-commerce or technology giants. Retail Banks hitherto possess a mammoth amount of data and have built their channels in the form of physical branches and digital apps. They also hold custody of the customer's critical financial information and also have support of the Government, since they are licensed, regulated and still enjoy the goodwill and trust of the customers. Banks do maintain their liquidity and cash reserve ratios to comply with the Capital Adequacy Ratio (CAR) requirements stipulated by the Central Banks. Raising capital has never been an issue for banks as they can open subscriptions for their bonds, conduct private placements with financial institutions and Qualified Institutional Buyers and even deploy the capital to augment their channels. Moreover, they have access to surplus cash in the form of customer's deposits which are insured. This automatically brings down the liquidity costs and increases entry barriers.

That said, one cannot ignore Fintechs as a viable competitive threat. Fintechs generally offer financial technology products and services that are domain-specific in nature. Fintechs cannot be considered as a direct competitor to Banks, but they do have a niche technological edge, creating a profound acceptance among the tech-enthusiastic customers. Since the business model is domain-specific in nature, Fintechs tend to delve into a single Banking product and then achieve deep specialization into the same. Initially, Fintechs began by offering digital and mobile wallets but have now expanded into credit cards, BNPL (Buy Now Pay Later) business, merchant-vendor partnerships and Point of Sale (POS). They are also growing into lending small-ticket business loans. Fintechs have formed associations with key players in various industries to offer differentiated products to their target customers. Due to niche offerings and expansion into digital foray, Fintechs do not have to spend much on physical acquisition costs.

Banks can form partnerships with emerging Fintechs to provide additional products and services. The partnership does not necessarily involve acquisition of Fintechs, since banks cannot find an exact match of a Fintechs which is equally compliant, scalable and has architecture designed like a bank. Banks can leverage Fintechs' domain-specific operating capabilities to build technological platforms.

Accelerator programs are a very popular form of collaborative investments that allows Banks to exchange ideas and drive innovation for explicit banking use cases. Regulators around the globe are also promoting such partnerships (PSD2 in Europe) to reinvent banking through Third Party Banking APIs and revolutionized payment products.

Rather than completely transforming from a legacy IT stack to a digital technology enabled business, many banks are building parallel Greenfield digital banks as a new revenue stream without harming the existing streams. They are working on service-specific zones on a Proof of Concept basis. The Greenfield stack can be built on any existing legacy stack, starting with customer experience and slowly integrating backwards on a standalone technology framework to create a scalable architecture on top of core. A few traditional banks have already tried this approach and have spun-off their Greenfield business into a separate entity.

7. Regulatory Landscape-Focus on Cyber Security

Cyber security in Banking is far more vital than in any other industry, since Banks are dealing with sensitive information of customers such as the customer's account number, credit card/ debit card number, PIN, authentication codes, passwords etc. Most importantly, they also act as the gatekeepers of money. Recent outages of Capital One in the USA, Desjardins group in Canada, Unicredit in Italy and Scottrade Bank in the USA are evidences of the devastating effects of cyber-attacks and data breaches on Banks.[11]

Post the 2008 financial crisis, the banking industry has been subject to severe scrutiny and due diligence. The recession led to a debt crisis and changed the geo-political picture completely. This mandated financial institutions to comply with meticulous financial reporting and rigorous risk management practices such as International Financial Reporting Standards (IFRS), Dodd Frank, Generally Accepted Accounting Principles (GAAP) and Sarbanes Oxley (SOX). With the increasing incidents of theft, fraud and data breaches, regulators are laying down directives for cyber security as well.

Though regulators have tightened the screws on banks and financial institutions, they have also taken initiatives to drive competition and innovation. The European Union (EU) has been at the forefront of promoting technology in banking to regulate safer and secure payment services. The EU has introduced several initiatives such as The Markets in financial instruments Directive (MiFID) and Payment Services Directive (PSD2 Directive (EU) 2015/2366). PSD2 directive aims at expanding participation in the payments industry from non-banking institutions and also creating a centralized European payments system along with robust IT infrastructure and technical standards for credit, debit, auto-pay and safe transactions. PSD2 also targets new-generation neo-banks and Fintechs to collaborate with banks through API Banking. Other Central Banks are following the EU in setting competent authorities to regulate and safeguard trade processing, exchange rates, charges and transaction time. The EU also laid emphasis on protecting the rights of the consumers by introducing the General Data Protection Regulation (GDPR) mandate. GDPR's IDS requirements have listed down metrics to protect personal and sensitive data of the EU customers and store the same within the European Economic Area (EEA).

As banks launch new products or services, change existing business processes or update an asset that use digital technology, they are prone to emerging digital risks. Moreover, banks operating in all geographies need to keep up pace with the changing regulatory landscape. Regulations are indigenous to a particular region. Hence, Banks shall always be challenged to put their systems and processes in line with compliance as the existing regulations undergo alterations. Any bank that has a proactive cyber security team to keep pace with the changing face of digitization and regulations emerges as the clear winner.

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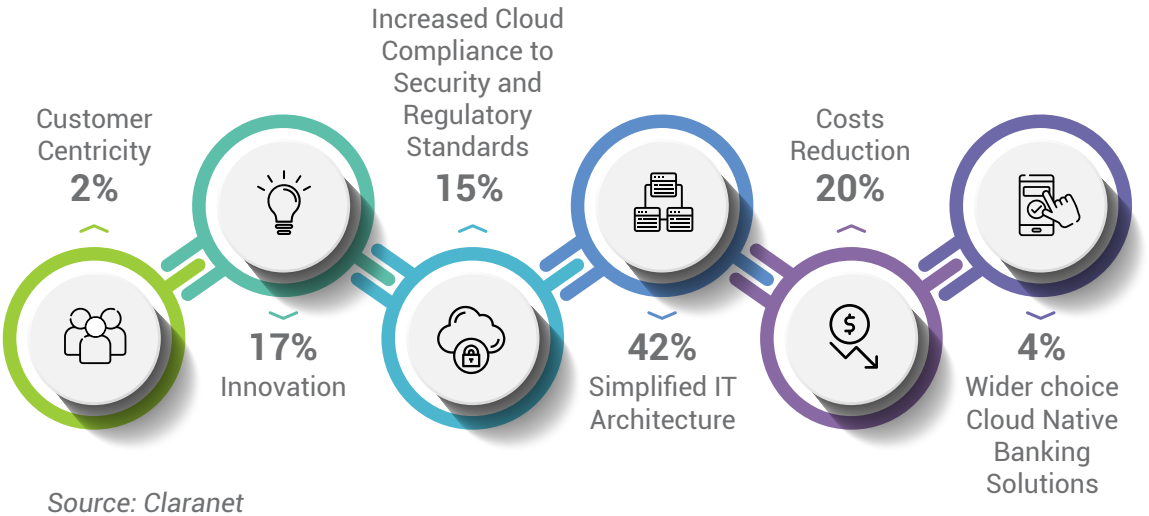
8. Disruptive Technologies in Retail & Core Banking

Cloud

We are already witnessing a massive shift in banking infrastructure from traditional systems to public/ private cloud. Cloud helps in Maintenance, Storage, Management, Processing, Analytics, and Security of data on internet-based servers which can be made available on-demand. Modern cloud architectures offer high elasticity, pooling of resources, compact and self-serving software components that can be linked with configurable APIs. Moreover, enhanced and tightened security layers can be built on top of the cloud to ensure safe and secure access. When the resource pooling is facilitated from front-office to back-office, banks can launch products at a faster pace into the market and gain a competitive edge over the other players.

WHAT'S DRIVING BANKS TO THE CLOUD?



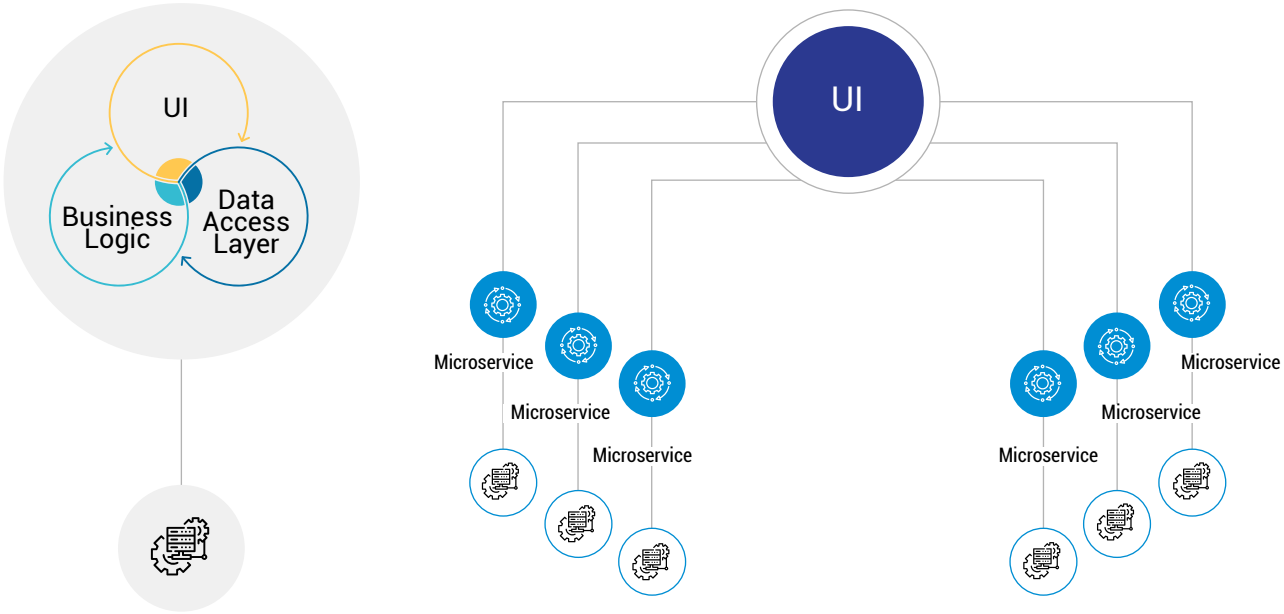
Source: Claranet

Software as a Service (SaaS)

Software as a Service (Saas) is increasingly used in conjunction with cloud deployment to provide a comprehensive business platform to the customer. Banks are moving from a traditional licensed model to a subscription based model to make the system more agile. **Updated SaaS architectures that are cloud-native can supplement business agility and cope up with country-specific regulations and cross-currency market regulations.**

APIs and Microservices

Traditional banks are moving away from controlled user experience on a monolithic system. Banks are building up stacks and collaborating with Third Party Banking APIs to provide enhanced customer experience with real-time capabilities. This interface aids in connecting a third-party interface with the banking interface for smooth and faster transactions. Open Banking APIs provide an opportunity to banks to synergize their existing customer base and compliance data with the technology platforms of Fintechs. These result in differentiated product offerings over and above the existing features and functions.



Monolithic Architecture

Microservices Architecture

Source: Aspirsys.com[12]

Microservices are a modern approach to agile architecture. Used in combination with APIs, Microservices are upgradable and deployable elements of software that are connected through properly-defined banking APIs. Microservices based core banking platforms enable banks to incorporate and offer access to a variety of services over updatable and flexible software modules. These modules can be modified in isolation and are independent of each other, due to which application maintenance becomes an easy task. Usage of Microservices architecture makes a system highly scalable, efficient, customizable, faster and cooperative for frequent upgrades. With a plethora of technology choices to be explored, banks operating in core banking systems can easily move to Microservices architecture in phases.

Artificial Intelligence (AI) and Machine Learning (ML)

AI and ML are touted to be at the forefront of innovation for retail/ core Banking. Top level C-Suite Executives have already set priorities to establish best practices in utilizing AI and ML.

On the external front, AI is reconstructing customer onboarding procedures and making it an efficient and straight through process. It is being used internally to provide support for strategic business recommendations to the stakeholders. Machine learning and deep learning are the branches of AI used to automate credit decisions, KYC processing, advanced document searching and providing customer insights. Natural Language Processing (NLP) is a mediator between human and computer and has the capacity to convert human voice into a computer readable format. NLP can train computers to translate human voices into decipherable texts and interpret the meaning of words and sentences.

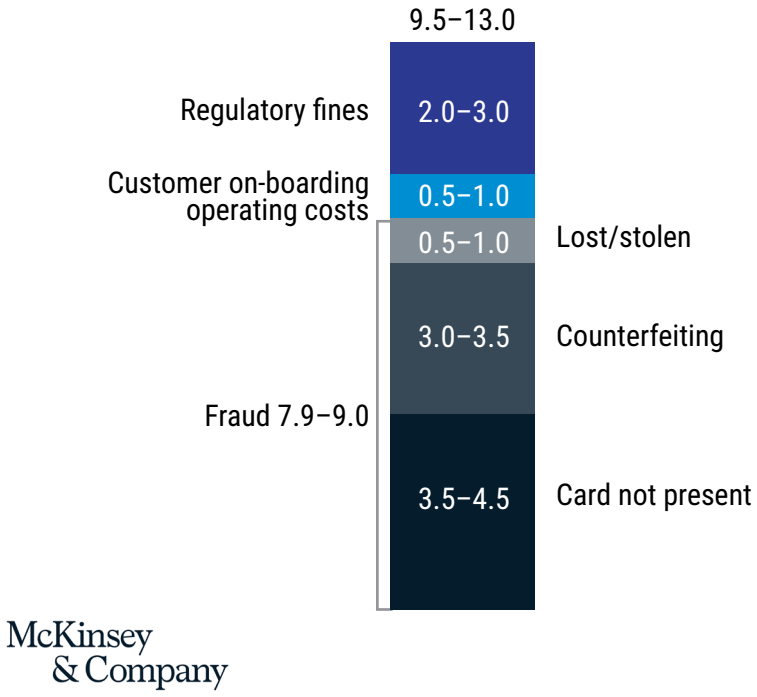
Though the growth of AI is inevitable, it has its fair share of challenges. Companies are in shortage of skillful employees who understand AI use cases. Conversion of data into AI processable format is also a major roadblock. Moreover, governance and cyber security laws are being restructured in accordance with booming AI adoption. Central banks are advising ethical and unbiased data governance practices to validate AI use cases across model training and development.

Blockchain

Blockchain is a chain of blocks that stores critical information pertaining to transactions. Each block acts as a repository across nodal networks. It is a known fact that Blockchain is considered as the next digital revolution. However, its applicability is more discussed than deployed worldwide. Though retail banking has not been at the forefront of adopting Blockchain, its applications have started in wholesale banking and capital markets. Blockchain finds a wide range of usage in credit scoring model, probability of default, cross-border remittances and KYC processes. The primary feature of a Blockchain is that it stores data in decentralized nodal networks in connected blocks in the form of chronological chains, making it tamper proof and inimitable across the chain. A high degree of robustness and security are assured on this front.

Blockchain solutions for onboarding, regulatory compliance, and fraud could save banks significant amounts.

Savings potential from blockchain-based solutions, $ billion



Source: Mckinsey[13]

An article by Free Press Journal estimates that Blockchain can save upto a whopping $10 billion on transactions, cross-border payments, stolen credit cards and operating costs.[14] ID fraud detection also finds greater usability through Blockchain. An experiment by a Singapore based data storage start-up with a consortium of three banks to test their KYC platform showed that Blockchain improved efficiency, cut the risk of financial fraud and reduced costs due to early fraud detection.[13] Several proof of concepts are showing widespread acceptance of blockchain. However, the applicability of Blockchain on digital currencies is still at a nascent stage, as Central Banks are weighing the feasibility.

Contextualized Customer Engagement

Big data analytics will enrich a bank's ability to curate data from heterogeneous sources such as customers, vendors, partners and even social media sites. The analytical data can amalgamate the customer's transactional data with location and context to convert the same into a personalized offering to the customer. Comprehensive customer profiling shall

ensure faster turnaround time with straight through processing (STP) and minimal human intervention. This shall lead to instant fulfillment of the customer demands and promote customer retention.

AI Chatbots have been the most effective channel till date. Chat bots can support basic customer requests like account balance, address modification, credit card dues, salary credit, etc. round the clock. These bots can also be trained to answer queries in multiple languages and preferred styles.

Instead of using manpower to answer basic customer queries on account balance, address change, outstanding credit card amount, Retail banks are automating the response mechanism by deploying chatbots across digital channels. Human involvement is obviated and costs are also reduced. Banks can educate bots to handle conversations appropriately to match with the language style and convenient time. Bots can thus create a repository of customer information, which may serve as the lead generation engine and aid in costless acquisitions. Moreover, bots can provide Omni-channel support across mobiles, tablets, laptops and desktops. Usage of bots in wearables has also started gaining traction of late.

9. Conclusion

With the rising contribution of financial institutions to the global economy, it has become important for banks to stand out from the rest due to the steady increase in competition. Industry dynamics are changing so rapidly that banks need to step up the acceleration of digital transformation to stay relevant and dominant. Upgrading the systems on a stand-alone basis or only a part of the value chain can only aggravate the issues. Instead, the banks need to create a complete all-inclusive digital stack with a modern core processing engine and a front-to-back service that is flexible, upgradable and scalable across the entire value chain.

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Intellect Design Arena

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