



Recomposing Banking with Finacle

Architectural excellence powering
Finacle's composable platform



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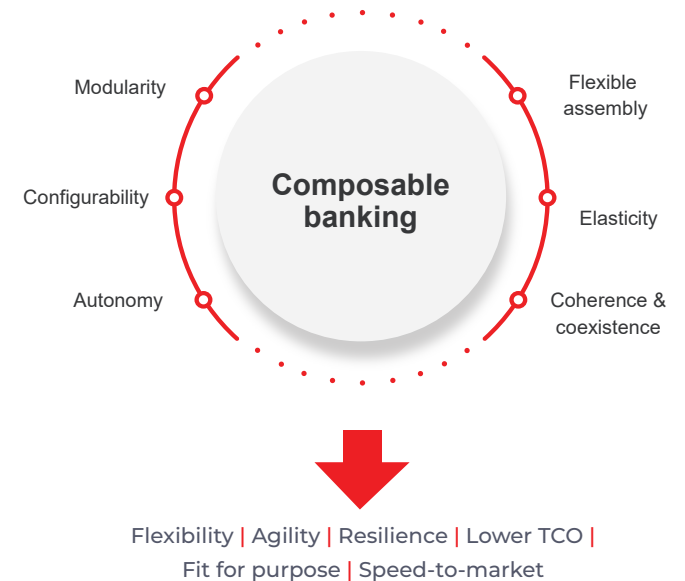
The rules of banking business are being rewritten by composability

Banking is changing. The pace of change has never been this fast, yet it will never be this slow again. The massive shift towards digitization is continually creating new orders - Customer journeys are evolving, newer banking business models are thriving, and operational benchmarks are getting reset. Unbundling and rebundling of banking is presenting new opportunities for banks to undertake business model innovation journeys. Digital is no longer a competitive advantage, but has metamorphosed into a tool for survival.

While digital goalpost continues to move rapidly, most banks are not moving fast enough. While many of them today are at varied stages of their digital transformation journeys, very few of them have deployed transformation initiatives at scale. In our recent industry research, over 43%* of banking respondents reported partial deployment of digital transformation programs.

A vast majority of respondents highlighted legacy technology and system integration challenges as the key drivers which are stifling the transformation journeys. The premise is clear. If banks and FIs are to succeed from here on, they must disaggregate their monolithic systems and move towards a modular, open architecture that can help power their transformation journey with speed, scale, and resilience. Composable architectural design built on microservices-led foundations will play a critical role in this transition.

This approach will entail delivering tailor-made products through rapid bundling of independent fit-for-purpose components and will require banks to drive focus on domain-driven design principles. A composable platform will give banks the necessary flexibility to aggregate products for their unique business needs, reduce the time-to-market for launch, enhance resilience and lower TCO.





Unlock feature-rich composable banking with Finacle

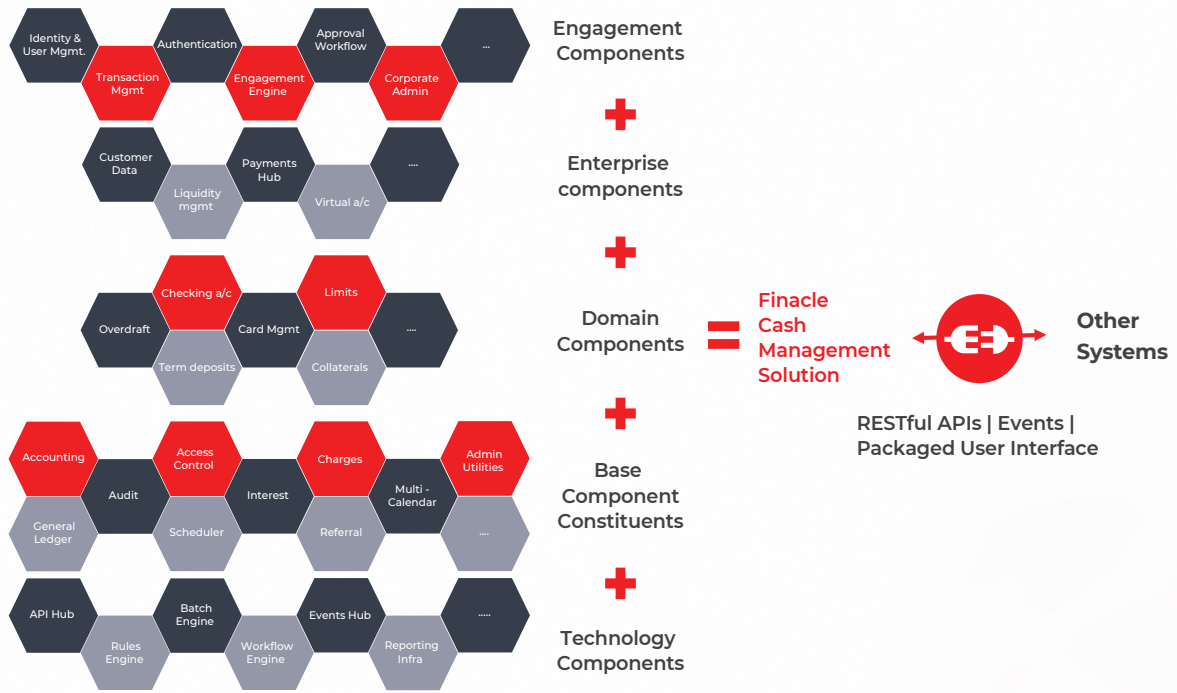
Finacle is differentiated by its functionally rich solution suite and composable architectural design. All Finacle products are composed by reusing and assembling an array of independent and fit-for-purpose technical and domain components. Built leveraging 20 years of experience of serving banks globally, these components are independently scalable, replaceable, and upgradable, and offer uniform interfaces designed to support service composition. Combined with

customer-centric engagement components, Finacle delivers industry-leading digital banking solutions for various business segments, such as Retail, Wealth, Islamic, Business, and Corporate Banking.

This approach enables the highest effectiveness of both R&D investments and delivery of feature-rich solutions. Each of these components brings the innovations and best practices accrued from serving banks in more

than 100 countries. All the components' capabilities are exposed as APIs and webhooks to enable rapid integration with Finacle and non-Finacle components.

No matter what a bank's size, type, or persona, Finacle's composable architecture can give it a foundation of robust functional capabilities to scale digital transformation with confidence.



Composing a Cash Management solution using Finacle Digital Banking Platform - an illustration

Many journeys, one platform

In the journey to become truly digital, no two paths are alike. Finacle meets the needs of any type of bank, at any stage of their journey.

The componentized, microservices-driven architecture and highly parameterized application suite drives digital transformation for a wide range of financial institutions. Banks can go to market faster with Finacle's flexible product factories and modular deployments that bring global innovations to life with simple configurations.

Whether a bank is traditional or emerging, global or local, physical or digital, or a medley, Finacle's robust platform is designed to help it transform with agility and drive innovation-led growth.

Retail Banks Standard Bank, Africa	SMB and Corporate Banks ANZ, APAC	Universal Banks DBS, Southeast Asia
Digital-only Banks Marcus by Goldman Sachs, US and UK	Small Finance Banks Ujjivan Financial Services, India	Micro-Finance Institutions Fondation Arrawaj, Morocco
Neo-Non-Banks Resimac, Australia	Marketplace Banks Paytm, India	Islamic Banks Emirates Islamic, UAE
Companies from non-financial industries Leading Insurance Company, Canada	Utilities IBBIC, India	Special Financial Institutions focused on underbanked/un-banked India Post, India



With the successful deployment of the Finacle Core Banking Solution, we have the agility to respond to customer needs, the scalability to adapt with market requirements whilst providing the superior customer experience required in today's competitive digital age.

Boe Hartman, Former CTO, Marcus by Goldman Sachs (Digital Finance Technology)



Finacle Digital Banking Platform is built on contemporary architectural virtues

The cloud-native, componentized, and open APIs-driven Finacle platform is designed to help banks transform into agile, scalable, and open enterprises, ready to benefit from new-age possibilities.

Finacle offers an optimum mix of componentization granularity. The microservices-based solution components run in a containerized environment orchestrated by Kubernetes. They can be deployed on a private, public, or hybrid cloud or accessed via a software-as-a-service model. All of the solution capabilities are exposed through APIs to enable banks to easily connect and co-innovate with customers, partners, and the extended developer ecosystem.

The Finacle suite is proven for high availability and performance. It supports horizontal, vertical, and functional scalability: Finacle's largest core banking implementation powers more than 500 million accounts. Its modern architecture is one of the reasons why Finacle is consistently recognized as a leader in the core banking, digital engagement, corporate banking, and payments spaces by major industry analysts.



Cloud-Native Solution



Data Lake and Embedded Analytics



Componentization and Microservices



RESTful APIs



Event Driven



Robust Security



Scalability, Performance and Resilience



Configurability, Localization and Extensibility



Continuous Deployment

Key architectural highlights



What's under the hood

Eight perspectives to gauge the robustness of Finacle's composable architecture

Increasing sophistication of technology calls for a nuanced view of its fundamentals. Finacle's approach to a composable architecture spans eight key perspectives.

These views of the architecture not only present a more coherent, nuanced look into the foundations of Finacle offerings, they also ensure that the architecture is communicated to, and understood by the diverse stakeholders more easily.

1

Technical architecture

2

Cloud architecture

3

Security architecture

4

Data architecture

5

API and eventing architecture

6

Process architecture

7

System architecture

8

User experience architecture



Recomposing
Banking with Finacle

1. Technical Architecture

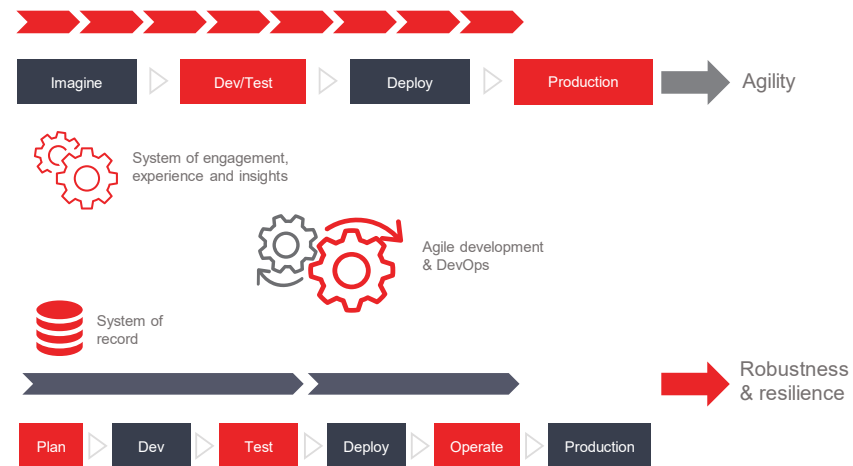
Anti-fragile architecture for speed and resilience

Agility is a key transformational virtue in the fast-changing banking landscape, but it is not the only one. As banks evolve their tech-stack in pursuit of truly digital operations, there is an inherent multiplicity in the intended outcomes.

A platform must also provide resilience and robustness to drive operations with confidence. In addition, it should adopt a polyglot design to improve agility across different components,

enabling them to evolve and refine at different speeds based on a changing business environment.

Meeting these contrasting yet critical needs calls for a full-stack, multi-layered, decoupled architecture with proven extensibility and containerized deployment capabilities.



Driving agility and resilience with a modern architecture

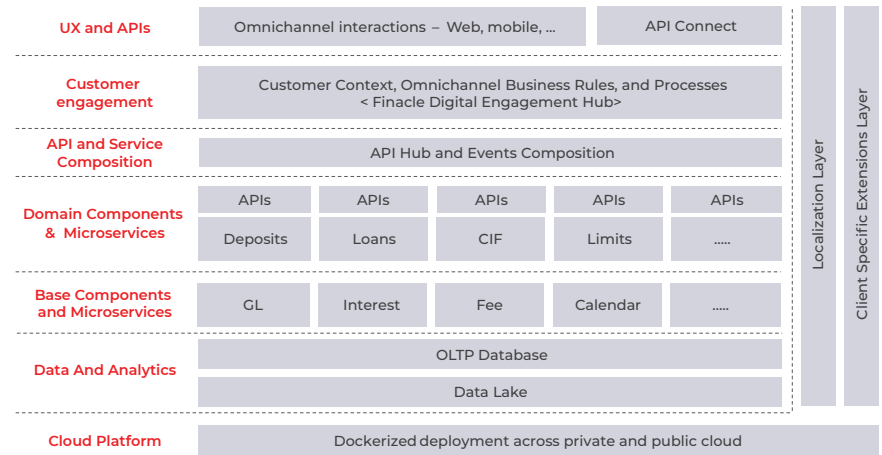
Achieving architectural composability with a decoupled, polyglot design

Finacle offers a multi-layered architecture with a clear decoupling and separation of concerns between layers. The application architecture is polyglot by design, with the ability to deploy fit-for-purpose technologies at each layer. Its full-stack, organic design leverages a host of open-source components across layers, enabling banks to meet emerging needs with proven and vulnerability-tested components.

Its GUI tools-led extensibility framework supports region-specific localization and

client-specific extension across all layers with no change in source code.

With Finacle, banks can customize everything from business services and business processes to workflows, reports and user interfaces. Further, the solution supports containerization for faster creation and deployment of business applications on-premise as well as on cloud.



Architecture designed for today's and tomorrow's requirements



Finacle brings a fairly modern architecture which has been built to be componentized and microservices based, decoupling the user interaction from the underlying functionality and data. This is the direction of the market, but based on Celent's evaluation, Finacle is ahead of most of the pack.

Celent ABCD - Modern Digital Banking Channels Platforms, 2020 (Global Edition)





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2. Cloud Architecture

Banking on cloud

Driving business agility, resilience and innovation

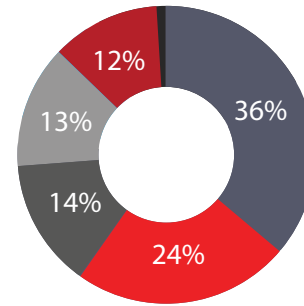


Digitization continues to rewrite the rules of modern-day banking. Transactions are increasingly moving to the digital realm and banks find themselves looking at a mammoth task of processing thousands of transactions per second, particularly during seasonal spikes. Besides, the growing non-traditional competition is resetting benchmarks in customer experience with highly personalized services and great user experience design.

To respond, banks need a flexible and scalable IT infrastructure with agile foundations, enabling them to meet emerging requirements and take new, personalized products to market with speed. While

most banks today know that cloud is the answer, they are yet to embrace it fully; more than a quarter are yet to evolve definitive cloud strategies. With cloud, banks can personalize their services at scale as well as rapidly design, test and deliver engaging experiences to customers. Furthermore, financial institutions of all sizes, even those with fewer resources, are becoming more competitive thanks to cloud.

Given the benefits of agility, flexibility and scalability at low infrastructure and computing costs, the question today is not “why” but “when” and “how” a bank should adopt cloud.



- Business agility
- We don't currently use cloud computing
- Business resilience
- Cost savings
- Business innovation
- Other

Rationale for Using Cloud Computing

What is the PRIMARY rationale for using cloud computing at your organization?

Source: Efma Infosys Finacle 'Innovation in Retail Banking Report 2020

Scale cloud success with Finacle

Cloud-native and cloud-agnostic solution suite

Finacle offers a cloud-native, cloud-agnostic platform, which can be deployed flexibly – on a private, public or hybrid cloud – to suit a bank's requirements. Finacle applications are built on a cloud-native framework based on Cloud Native Computing Foundation (CNCF) standards, and follow the Twelve-factor App Methodology.

The applications run in a containerized environment orchestrated by Kubernetes, which is supported in all cloud environments and lends a cloud-agnostic deployment approach to enable functional and horizontal scalability. The key elements of this approach include:

- Microservices-based componentized architecture
- Stateless processes for agility and scalability
- Containers orchestration with Istio
- Distributed database and storage
- Continuous integration/continuous delivery automation
- Service mesh for data sharing, observability and analysis
- Container registry and runtimes for access controls
- Streaming and messaging

Finacle has partnerships with all major global and regional cloud providers, including AWS, Microsoft Azure, Google Cloud, IBM, RedHat and Oracle, to accelerate the transition to cloud.



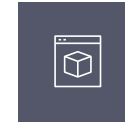
Private cloud deployment

Cloud native deployment in the client managed private cloud



Client managed public cloud

Client deploying the solution on bank managed public cloud environment



Software as a service - Single tenant model

Solutions offered as a service on Finacle / partner managed cloud environment, Full opex model



Software as a service - Multi-tenancy model

Multi-tenant service offered by Finacle / partner, Full opex model

Cloud transformation with Finacle

Success stories across regions, sizes and institution types

A tier-1 global bank leveraged Finacle on public cloud to launch multi-country challenger bank operations



A leading African multilateral trade finance institution deployed Finacle on AWS to power its digital transformation



A large Vietnamese bank is converting from on-premise to Finacle Digital Banking SaaS to accelerate growth



An Australian neo non-bank is adopting Finacle SaaS to accelerate its growth plans



A leading Asian financial institution banked on the Finacle Digital Suite on cloud to power its international expansion





With consumer finance business in Vietnam poised to grow exponentially, it is essential for us to be ready for the opportunity by delivering a range of multi-accessible, flexible and innovative financial solutions. Our partnership with Infosys Finacle has helped us achieve a leadership position so far. We have now decided to upgrade to the new generation Finacle Digital Banking solution as a service, to deliver enhanced customer service and better manage credit exposure, at significantly lower costs. We are confident that Finacle's best in class solutions delivered on AWS cloud will help us be a digital first consumer finance company and continue our dominance in the Vietnam market.

Kalidas Ghose, Vice Chairman & Chief Executive Officer, FE CREDIT





Recomposing
Banking with Finacle

3. Security Architecture

Banking security - Pervasive, adaptive and integral

Industry and technology shifts are creating new orders



It's a connected economy that banks and FIs operate in. Be it banking openness, and its promise of information democratization, or new-age cloud-propelled innovations, all are heralding new dynamics. At the same time, banks also recognize that security is a vital cog in their operations, and for business continuity.

Open banking and API-led collaboration will continue to rewrite banking business models. Data security and regulatory nuances will dramatically evolve. Adding to the mix, would be the growing adoption of public cloud, virtualization of data centers, and prominence of open-source technologies and open networks, which will have enormous implications for banking security.

The expansion of digital and third-party banking channels, and Industry 5.0's IoT dynamics will only intensify the security needs.

AI technologies will throw up new preventive strategies with adaptive threat intelligence, zero trust-based interactions, dynamic multi-factor authentication and behavioral profiling across business applications. In times like these, it becomes binding for banks to take a holistic approach and imbibe security-by-design across APIs, applications, platforms, networks, and data architecture.

300X



Higher likelihood of Financial Institutions being targeted by a cyberattack, as against other companies¹

\$5.85m



Annual average cost of data breach for a financial services institutions²

31% only



Effectiveness of FIs in preventing cyberattacks as compared to detecting (56%) and containing (53%) them²

Sources: (1) Cybersecurity study by Boston Consulting Group, 2019 (2) Global cost of data breach study, 2020 by Ponemon group



Strengthen enterprise security with Finacle

Platform offers comprehensive, yet composable, multi-layered security capabilities

The Finacle Digital Banking Platform is designed to help banks address and mitigate modern security challenges. Guided by a robust security governance framework, the platform offers multi-layered security architecture. It strictly adheres to secure coding and testing principles throughout the software development lifecycle and is fully compliant with global security standards including ISO27001-27002, PCIDSS/PAPB, FFIEC, COBIT and more.

Banks can leverage a range of access control mechanisms around authentication, and segregation of duties and entitlements for internal users as well as customers. For APIs and interfaces, the platform supports security mechanisms including channel authentication, certificates, JWT tokens and the

oAuth 2.0 standard. Further, the platform enables banks to implement critical preventive and detective controls, such as the four-eyes principle, currency-wise transaction limits, a 3x3 exception authorization matrix and a robust audit framework.

What's more, Finacle supports SHA2, AES and Blowfish ciphers for encryption. The platform's database and data security capabilities include input validation, session management, masking, checksum etc.

Finacle uses the Network Zoning mechanism for on-prem deployments. For cloud deployments, the platform extends capabilities for identity and access management, host intrusion detection and vulnerability management, and SIEM-based event monitoring.

Finacle supports HTTPS for all calls based on a two-way SSL/mTLS encryption protocol. For file security, the platform supports secure FTP over NFS / EFS, PGP keys-based encryption as well as secure file portal mechanisms.

Finacle also provides nuanced capabilities, such as build your own encryption, secrets, tokenization, data privacy, IP validation and more, empowering banks truly adopt security-by-design in their end-to-end operations. In addition, Finacle clients can benefit from a wide range of cybersecurity services with pre-integrated third-party and homegrown security products offered by the Infosys CyberNext platform.

User & Customer Access Layer

← For Bank Employees

For Bank Customers →

2FA - SAML - ADFS - SAML Assertion
- RBAC & Identity Mgmt - Multi - Entity Access control -
Tran Limits - Exception Authorization

Authentication / Authorization - Biometric - Adaptive
- Virtual keyboards / Captcha - Extensive Audit

Integration & API Layer

Channel / User Credentials - Certificates - Non repudiation - JWT - OAuth 2.0

Application Layer

Preventive & Detective controls - 4-eyes principle - Tran limits - Multi-level exception matrix - Encryption SHA2,
AES, Blowfish - Thorough audit, also for inquiries - Before/After values for parameters

Database & Data Layer

DB security - A/c Balance Checksum for fraud handling - Input Data validation - Session Management - OWASP
guidelines - Data Encryption - Data Masking - PII (Data Privacy) - Tokenization

Cloud Platform (On-Prem / Public Cloud / Private Cloud)

← Platform

Transport Layer →

Secure VPC - VPN - WAF - IAM - Vault -
Secrets - HIDS - Vulnerability Management - SIEM
based events monitoring

SSL / TLS - Encryption - Client IP validation - PGP Keys
encryption - mTLS - NFS / SFTP / Secure File Portal

Extensive capabilities across multiple layers

Customer success stories

Helping banks establish robust security foundtions with multi-layered ca- pabilities



ICICI Bank established robust security infrastructure leveraging Finacle's multi-layered security framework spanning user access, application, integration, and data security

Holistic on-prem security



Embedded security capabilities of Finacle SaaS offering helped **Australian Military Bank** achieve full compliance with APRA's stringent CPS234 information security mandates

Embedded SaaS security

A UK based Financial Institution

A prominent financial institution in U.K. enhanced security monitoring and gained robust incident detection and response capabilities with the Infosys CyberNext platform

Value-added services



At AMB, we aspire to be a great niche bank by transforming into a modern, nimble, new age digital bank. We chose Infosys Finacle so we could easily adapt to the dynamic and complex banking landscape, while serving our members' financial needs in a secure manner. The openness of Infosys Finacle means we can readily meet emergent regulatory and customer demands. The Infosys team displayed exemplary commitment to help us not only go live in a very short time but also support ongoing service enhancements. It has been a true partnership to get to this point and positions us well for the future.

John Ford, Erstwhile Chief Executive Officer, Australian Military Bank





Recomposing
Banking with Finacle

4. Data Architecture

The data economy is here and now

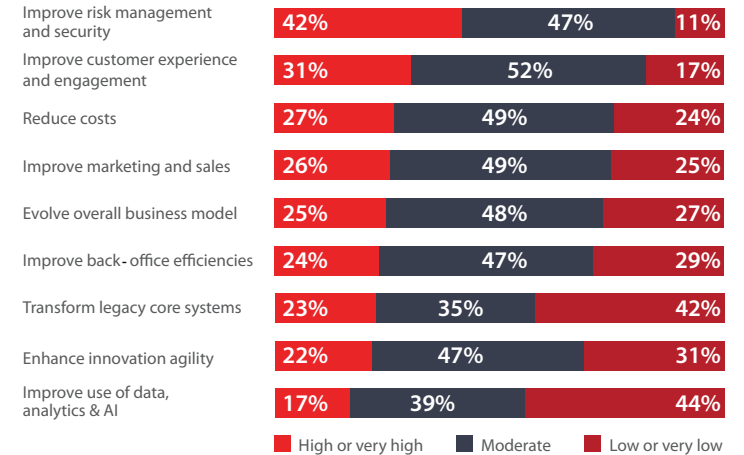
It's time banks mine their data and draw value

For decades, banks have sat on a mountain of underutilized customer data. In a recent research by Infosys Finacle and EFMA, respondents named this as the area where they struggled the most, with only 17% rating themselves high on the value unlocked through data, analytics, and AI. Overall, 51% of respondents considered inadequate data analytics capabilities as a major impediment to holistic digital transformation.

This needs to change. And fast. The ability to capture and crunch data into actionable insights is one of the most valuable resources for banks today. No matter

what the targeted outcome – superior customer experience, better risk management, insights-driven interaction or personalized service delivery – real-time access to data, combined with advanced analytics, is critical to scale digital success.

With advances in distributed file systems that handle large data sets running on commodity hardware, growing acceptance of OLTP and OLAP architectural constructs, transition towards event-driven business applications to enable real-time data extraction, and increasing sophistication of machine learning algorithms, the time is ripe to unlock value from data.



Underutilization of data is a key impediment for banks' digital transformation strategies

Question - How successful has your organization been with these digital transformation strategies to date?

Source: Efma Infosys Finacle 'Innovation in Retail Banking Report 2020'



Maximize data potential with Finacle

Establish a foundation for insights-driven banking

Built on the fundamentals of layered OLTP and OLAP architecture, real-time data processing, and principles of embedded insight, the Finacle Digital Banking Platform offers a robust foundation to unlock data-driven insights.

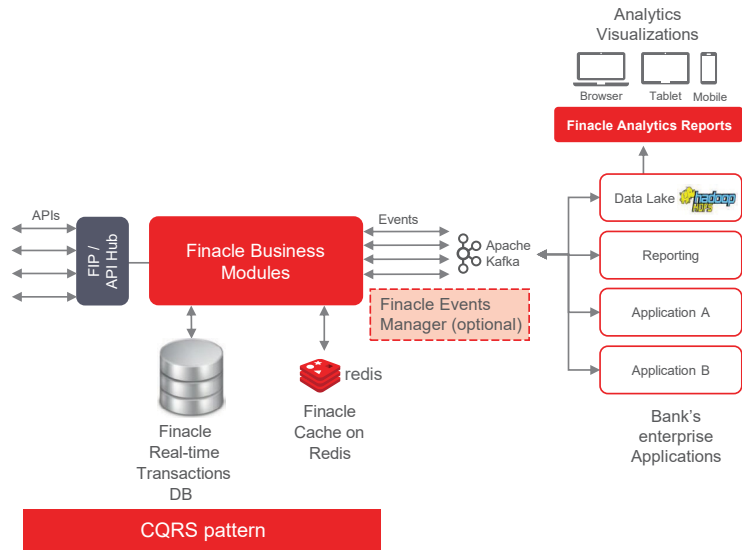
Finacle is a fully real-time banking platform. All transactions are processed and posted in real-time, irrespective of the channel of origination. The data from OLTP stores is populated in the OLAP data store and Finacle Data Lake via event streaming and asynchronous interfaces. The Finacle Data Lake (FDL),

built on HDFS architecture, offers a BIAN-inspired data model and acts as the OLAP data foundation for analytical and operational reporting needs. The data lake has been designed with domain-based data marts to power ever-growing data sets. These domain-oriented data marts decentralize data ownership to create a self-serve data infrastructure.

The Finacle Insights solution processes the data for a variety of insights and offers that as APIs to be integrated in various business applications. The insights

are embedded in the user journeys to create contextual business value.

To cater to growing, population-scale, real-time analytical requirements, Finacle is creating graded data stores to balance the needs for velocity, veracity, volume and variety in various consumption scenarios such as machine learning, analytics or data-intensive applications across the organization. The tiered data structure forms the basis of Finacle's CQRS pattern to segregate OLTP and OLAP workloads. The CQRS model serves data via both APIs and events to promote a ubiquitous data consumption model.



Robust data capabilities to power insights-driven banking

Customer success story

Sohar International leveraged Finacle to enhance customer-centricity with insights-driven banking

The bank leveraged big data and advanced analytics to deliver right insights at the right time, thereby enabling superior CX and efficient internal operations



Increased alternative revenues and fees from up-sell/ cross-sell opportunities



60% reduction in time taken across processes – review, reconciliation, due-diligence, etc.



More than 67% reduction in human resource utilization across effected processes



Introduced contemporary products and services to suit various customer segments





Working with Infosys Finacle, we have redesigned our digital channels around our customers' needs to offer a simple and informative payments experience. Our vision is to 'use customer insights' to provide proactive digital prompts and notifications, allowing our customers to make and manage their payments more efficiently and securely. By incorporating Infosys Finacle into our technology strategy, we have been able to create operating efficiencies across products and channels to accelerate digital transformation, introduce new customer features and take advantage of emerging technologies

Michael Vallance, Managing Director & Head of Transaction Banking,
Santander Corporate and Commercial Bank





Recomposing
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5. API and Eventing Architecture

Differentiating with APIs

Building robust foundations for composable banking propositions



There is a lot going on in banking and APIs are right at the center of all this action. They play a foundational role in banks' pursuit of composability, by virtue of their ability to weave together and expose a host of independent fit-for-purpose components in a plug-and-play approach. They also enable banks to explore new business models and monetization approaches by curating ecosystems to aggregate and bundle financial as well as non-financial products.

Open banking-related regulatory and industry interventions are nudging banks towards the API economy. While most banks now have the API infrastructure in place to comply, forward-thinking banks are looking beyond mere compliance and are focused on commercializing APIs through new products, business models, and partnerships.

They are also looking to augment capabilities such as consent management, event management, TPP management, sandbox, developer portal, event hub and more, thus making the API infrastructure more holistic and all-inclusive.

As a result of banks stepping up their API game, models such as Banking-as-a-Service and Embedded Finance are gaining prominence. These developments will help banks to unlock new revenue streams, monetize data and insights, expand distribution of existing products, and co-create new propositions with FinTechs.

Furthermore, APIs and event-driven interactions offer banks the arsenal to derive the value of near-real-time integrations across the ecosystem, facilitating data access and driving in-context opportunities.

36% > Of globally available open banking products go beyond regulatory requirements¹

>85% > Of UPI transactions in India are powered by Google Pay, Walmart backed PhonePe and PayTM²

72% > Of top 50 global banks have API platforms¹

Sources: (1) Research by Platformable, 2020 (2) NPCI Statistics



Realize the power of APIs and Events with Finacle

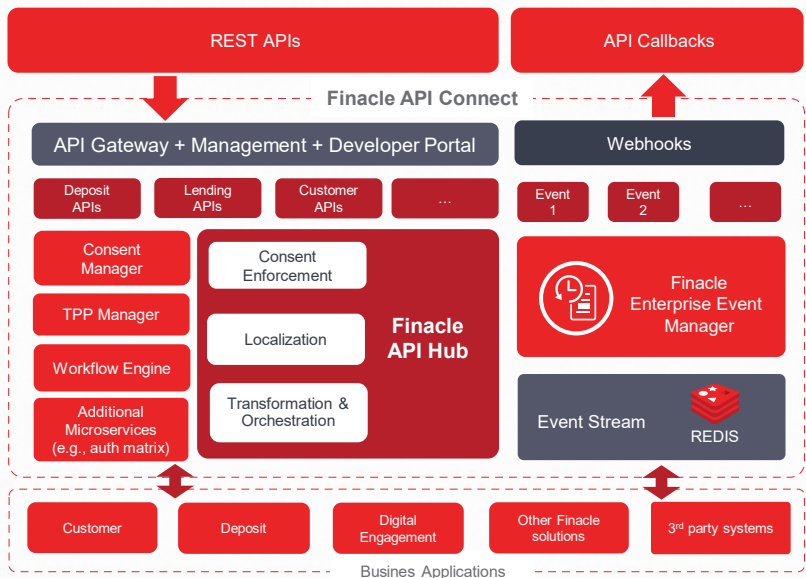
Scale your API banking journey to drive ecosystem composability

The Finacle Digital Banking Platform enables banks to transform into agile, scalable and open enterprises, ready to benefit from new-age possibilities. All of the solution capabilities are exposed through APIs to enable banks to easily connect and co-innovate with customers, partners and the extended developer ecosystem.

The platform, powered by Finacle API Connect – a suite of API capabilities – helps banks to accelerate ecosystem innovation and launch comprehensive API banking offerings with ease and agility. These include-

- **Business API Suite** – A vast catalog of BIAN-inspired pre-pack aged business APIs powering various banking functions, bundled into domain packages
- **API Hub** – A unified platform to design, develop, and orchestrate API interactions with multiple enterprise applications; offers a GUI-based API Flow Builder and an API Workflow Manager
- **Event Hub** – A dedicated hub to define, detect and publish business events from across any of the digital banking applications. The Kafka-based event streaming platform is capable of handling millions of events a day
- **API Management** – A pre-configured set of tools to manage the end-to-end API lifecycle; offers an API gateway to facilitate exchange of API calls at scale
- **Developer Portal** – A portal to register and manage clients, prospects, and developers with a sandbox environment and self-service account management tools

With its comprehensive API-led capabilities, Finacle is helping banks and FIs of all types, segments and sizes to explore futuristic business models such as Banking-as-a-Service, Embedded Finance, Marketplace Banking and Open Finance.



End-to-end API capabilities

Customer success stories

Enabling banks reap the API banking advantage with robust foundations

Marcus

Marcus by Goldman Sachs is creating new benchmarks for banking-as-a-service success with Amazon, and JetBlue



Paytm, a superapp, drives a true marketplace and more than 25% of the open banking transactions in India



ICICI PayLater virtual credit card opened in under 2 minutes. Works on an open banking payment ecosystem



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6. Process Architecture

Smarter processes hold the secret to bank profitability

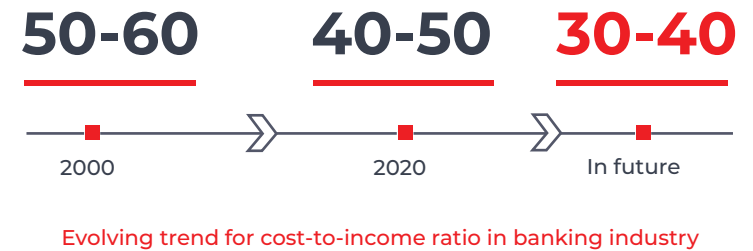
Building customer-centric, digital-first processes

Digitization has rewritten the cost efficiency norms in banking. On an average, the cost-to-income ratio of the top 1000 banks globally stands at 50%, which drops to about 40% in the digitally advanced banks among them. However, the cost-to-income ratio of new-age digital-only banks is about half that of established banks. The pressure on incumbent banks to match the new efficiency benchmarks is intense.

For banks, the key to driving down cost-to-income ratio lies in optimizing their business processes, reducing cost overheads and building customer-centric design

into banking operations. However, the complex legacy technology laden with system siloes and manual intensive processes continues to stifle their progress.

To succeed, they need a technology platform which facilitates digital-first banking operations with comprehensive digitization, automation and industrialization of business processes. Such a platform will leverage modern technological enablers, such as BPM, APIs, Eventing, RPA, DLT and other automation tools, to deliver real-time straight through processing across user journeys.



Automation-first process design

Scale process digitization and automation with Finacle

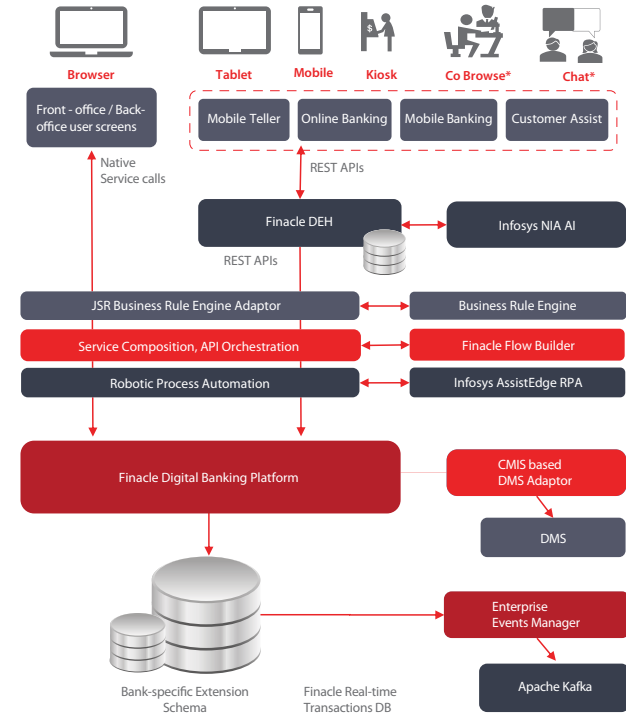
Finacle's digital banking platform enables real-time straight through processing, driven by rules, APIs, and events, and supported by in-house RPA and AI platforms. It helps banks to seamlessly automate workflows across applications, saving precious effort, time and money. The platform's integrated flow builder drives automation with service composition and API/events orchestration.

Finacle's in-house RPA (AssistEdge) and AI (NIA) platforms deliver assisted and rule-based process automation. Further, its blockchain-powered solutions

take efficiency to new levels by automating inter-organization processes for trade finance, payments and digital identity ecosystems.

The API-first, event driven architecture enables banks to experience better agility, efficiency, and adaptability in their operations, leading to reduced cost and significant gains in their cost-to-income ratio.

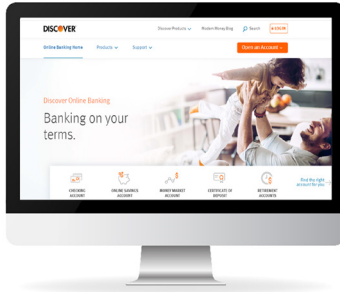
An assessment of the top 1000 global banks confirms that institutions powered by Finacle have a 3.9 percentage point lower cost-to-income ratio than their peers.



Advanced architecture to drive process excellence

Helping banks streamline business processes with robust automation

3.9 percentage point lower cost-to-income ratio than others; top performing client at 16%*



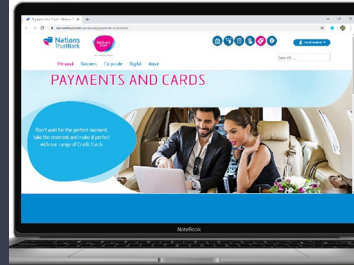
RPA at Nations Trust Bank delivered as much as 90% reduction in operational costs in select processes



19% average improvement in straight through processing rates, with over 18% gaining more than 40% improvement^



With Finacle, Discover Financial Services improved quality of customer service with most common customer requests requiring 40% fewer clicks



Leveraging Finacle Trade Connect, banks could reduce Letter of Credit processing cycle time by 75%



Source - ^ Independent client value assessment, 2020, * Bankers 1000 database analysis 2020



Federal Bank is proud to be associated with Infosys Finacle on the Trade Connect solution. This solution which supports R3's Corda as a DLT is a great example of how blockchain and distributed technologies can transform banking and finance globally. Solutions like this, we believe, bring improved efficiency, reduce timelines and mitigate risks. The solution looks promising and will be able to reduce the end-to-end transaction time by more than half while reducing the load of data entry for the bank considerably. We look forward to working very closely with the Infosys team to bring in all the stakeholders to the network to bring increased transparency and efficiency to the process

Shalini Warriar, Chief Operating Officer, Federal Bank





Even as our customers shift and readjust how they bank in these challenging times, it is our continuous endeavor to provide them with a world class customer experience. When combined with the flexibility to elastically scale our applications and microservices, we will be better placed to meet our digital transformation goals. We're investing in this new platform to gain exponential benefits in reducing costs, increasing efficiency, lowering cost to serve and ultimately, a better customer experience. Finacle's microservices and API based architecture forms the foundation on which we react to market requirements faster and remain ever ready to serve digitally native customers.

Sankarson Banerjee, Chief Information Officer, RBL Bank





Recomposing
Banking with Finacle

7. System Architecture

Shift towards cloud-native architecture

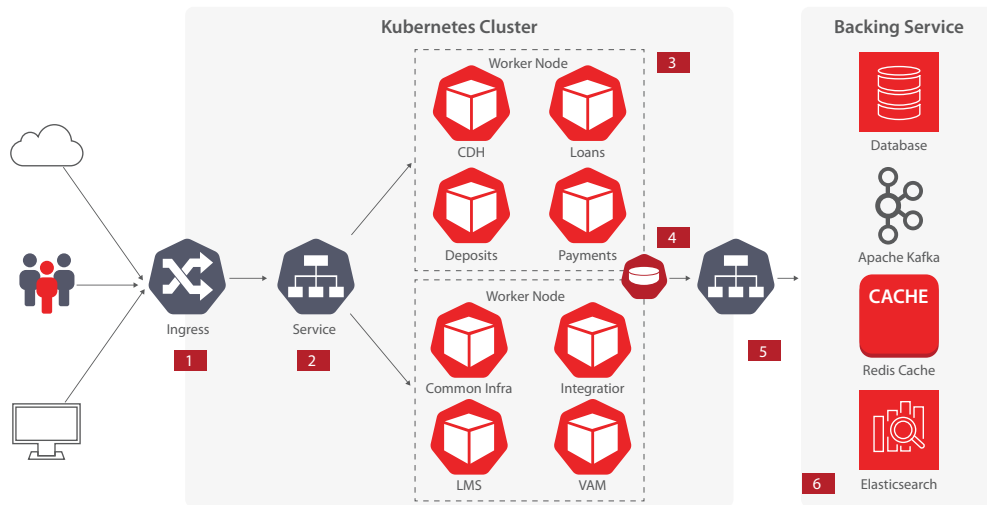
Future-proofing IT infrastructure to gain scale, speed, and flexibility

With customers switching to anytime, anywhere banking on digital self-service channels, transactions have increased exponentially with the occasional spike driving numbers up even further. Banks are turning to the cloud for its flexible capacity that can be scaled dynamically on-demand. But growing cloud adoption – and the associated transition – is also leading to heterogeneous environments, with applications spread across on-prem or public/ private clouds.

To meet these emerging requirements, a containerized, cloud-neutral architecture with microservices and deployment automation is called for. With this, banks can achieve much-needed scalability in operations with faster and flexible deployment. The contemporary architecture will bring new synergies to the software development lifecycle by shortening the release cycles and enhancing speed-to-market. Banks using

containers will save significant infrastructure costs and see their applications' DevOps lifecycle become much more efficient and productive.

What's more, container orchestration platforms, such as Kubernetes, will enable elastic load balancing with auto-scaling of IT infrastructure, to maintain high IT performance under peak workloads.



Modern architecture to future-proof IT operations



Leapfrog the competition with Finacle's modern system architecture

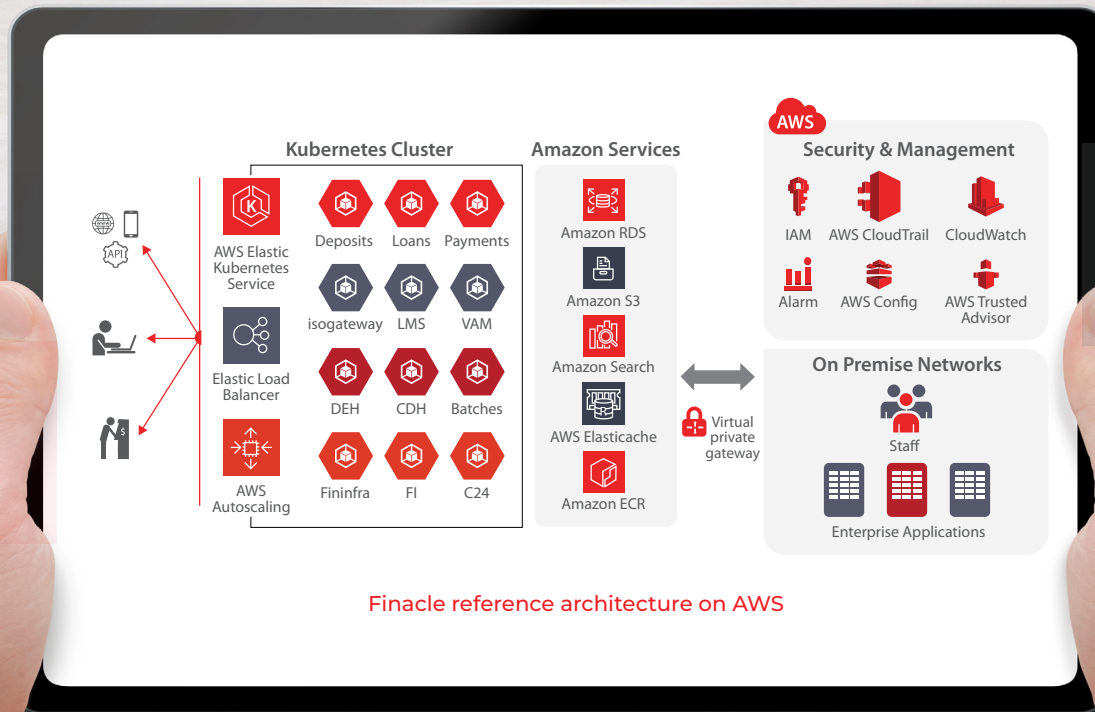
Drive seamless, resilient IT operations with a modular approach

Finacle offers a comprehensive set of containerized and Kubernetes-orchestrated banking applications that are built to cover all servicing channels, enterprise capabilities and business functions. The suite adheres to CNCF Standards and follows the 12-Factor App Methodology to build and run business apps.

Finacle's containerized deployment on Kubernetes includes the following considerations:

- A web application firewall that provides for DNS configuration and web security
- An elastic load balancer that enables auto-scaling of application containers with automated failovers
- A network load balancer on an elastic Kubernetes services cluster with an optional Istio service mesh that routes traffic to the worker nodes deployed across availability zones availability zones
- An elastic file system that stores user-level as well as batch logs and reports
- A provision for multi-AZ database instances including RDS services with varied open-source stacks
- Additional web servers to provide enhanced security to ensure no endpoint from the defined service cluster is exposed directly outside the virtual private cloud
- End-to-end DevOps CI/CD pipeline to simplify deployment

Additionally, the Finacle platform offers preventive monitoring through the Finacle Assure Service, extends support for end-to-end managed services for SaaS services and provisions for automated backups in cloud.



Finacle reference architecture on AWS

Customer success stories

Helping banks future-proof their operations with a modern platform

GOLDMAN SACHS TRANSACTION BANKING

The major Wall Street investment bank powered its global corporate treasury transformation with a containerized Finacle deployment on private cloud

SANTANDER

The leading European bank leveraged the Finacle Digital Suite on public cloud to launch a new inter-bank cash management system for its corporate customers

FECREDIT

With a containerized deployment of the Finacle Digital Banking Suite in a SaaS model, FECredit lowered TCO and accelerated time-to-market for new initiatives



EdgeVerve's corporate DBPP differentiates with state-of-the-art architecture. The vendor's cloud strategy goes beyond cloud-based delivery models and also considers banking application ecosystems and platform-as-a-service plans, for example. Further strong points of the DBPP are its active ecosystem of system integrators and its support of APIs. EdgeVerve is a good option for corporate banks that want to mix, and match select Finacle capabilities within a digital transformation project and those seeking a technologically advanced and comprehensive DBPP that has strong technology strategy and shows a strong focus on the cloud.

The Forrester Wave: Digital Banking Processing Platforms (Corporate Banking), Q3 2020





Recomposing
Banking with Finacle

8. User Experience Architecture

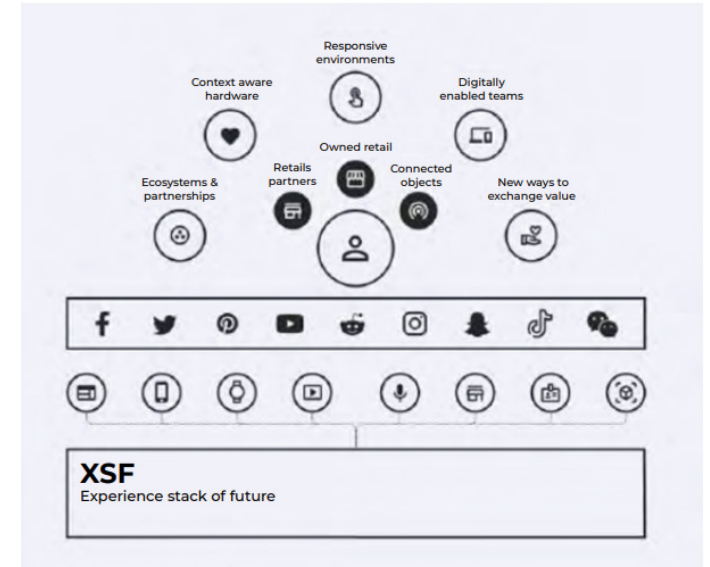
Composable digital experiences

Resetting the UI/UX benchmarks in banking

As the customer experience benchmarks are being reset by the likes of Netflix and Amazon, the mandate is clear for banks to imbibe hyper-personalization in their service delivery. The customer experiences of today can no longer be channel-bound, unidimensional and siloed. Building truly customer-centric customer experience calls for banks to reimagine their UI/UX strategies, and deliver distinct, cohesive and consistent experiences tailored to their customer personas.

To do this, banks must embrace continuously iterative, nimble front-end innovation attuned to the changing customer needs, in conjunction with back-end optimization for modularity, adaptability and performance.

An experience stack built on a low-code, no-code platform, with a clear front-to-back decoupling and a headless architecture, is at the center of this overhaul. It allows banks to compose custom, consistent, and best-of-breed frontend experiences unhindered by back-end restrictions and differentiate with a persona centric approach of orchestrating contextual experiences at the right stage, time and touchpoint of customer journey.



Source: Futurex

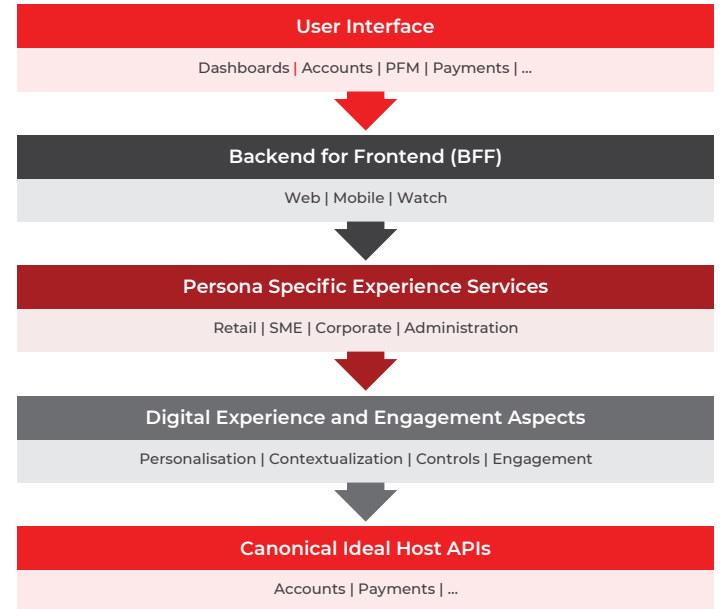
Drive experience composability with Finacle

Finacle's advanced architecture helps banks unlock the value of experience composability. The multi-layered experience stack offers comprehensive capabilities to compose persona-specific, contextual user experiences.

A host of banking specific canonical models and compensatory functions help banks abstract the complexity of their host systems. The platform provisions for user-driven configurations to compose and offer persona specific experience services with digital personalization, contextualization and controls as key aspects.

A wide array of Backend for Frontend (BFF) APIs are also available. These APIs wire the experience services and enable banks to ensure seamless user interactions across multiple front-end applications.

What's more, banks can also leverage Finacle Experience Studio – A dedicated tool which enables them build custom user experiences for web and mobile in a drag-and-drop manner. The studio comes with a rich library of banking experience widgets, pre-integrated partner components, pre-built templates, themes and styling options.





**Join the Finacle
Digital Banking
Community**

Experience that speaks for itself

The industry-leading performance of Finacle clients reflects our commitment to scaling digital transformation. An assessment of the top 1000 banks globally revealed that institutions powered by Finacle enjoy-

- 33 % higher returns on assets than others, with average returns on assets at 1.2% and **top-performing client at 4.7%**
- 19 % higher returns on capital than others, with average returns on capital at 15.6% and **top-performing client at 33%**
- 3.9 % points lesser costs to income ratio than others, with the average ratio at 47.2% and **top-performing client at 16%**

33 % higher returns on assets

19 % higher returns on capital

3.9 % points lesser costs to income ratio

Source – Assessment of the top 1000 banks in the world by the Banker, 2020

Industry- leading platform

Year after year, Finacle is chosen as a leader in independent industry assessment by major analyst firms.

Gartner

Infosys Finacle was rated as a leader, 14th time in a row in 2022 Gartner® Magic Quadrant™ for Global Retail Core Banking



Rated as a leader in Everest Group PEAK Matrix® Wealth Management Products Assessment 2023

FORRESTER®

Rated as a leader in The Forrester Wave™: Digital Banking Processing Platforms For Corporate Banking, Q3 2022

Rated as a leader in The Forrester Wave™: Digital Banking Engagement Hubs, Q3 2021



Recognized as the best-selling banking solution provider in IBS Intelligence Sales League Table 2021

Most awarded solution suite in the industry

Finacle and its clients have won 30 industry awards for exemplary transformation programs in the last 12 months. This makes Finacle the most awarded solution suite in the industry

Celent Model Bank

- Kasikorn Line

MEA Finance Banking Technology Summit and Awards

- Best Cloud-Native Digital Banking – Infosys Finacle

Banking Tech Awards 2022

- Infosys Finacle - Best Digital Solution Provider
- ICICI Bank
- Kline
- Union Bank of India

Global Finance Awards 2022

- Finacle Digital Banking Solution Suite – Best Open Banking and API Provider
- Emirates NBD
- Bank Raya Indonesia
- Co-operative Financial Services
- Übank
- Union Bank of India

Retail Banker International Asia Trial blazer Awards

- Übank
- Union Bank of India
- ICICI Bank
- Punjab National Bank

The Digital Banker Awards 2022

- Infosys Finacle - Best Core Banking, Best CX Suite
- Emirates NBD - Wealth Hub of the Year

IBSi FinTech Innovation Awards 2022

- Emirates NBD

IBSi Neochallenger Awards 2022

- Bank Raya
- Übank

MEA Finance Industry Awards

- Best Open Banking & API Banking Provider





Future-proof your banking technology with a composable platform

The digital banking revolution is on. Keeping pace with the changing market dynamics requires banks and FIs to strengthen their foundations by embracing a modern technology platform. Join the global community of banking leaders who are innovating and transforming with Finacle.

For more information, contact finacle@edgeverve.com

www.finacle.com