



Bocconi Students Fintech Society

The core-banking revolution

www.bsfintechsociety.com



What is it?

Core Banking System is a **back-end system** that **processes** daily banking transactions, and posts **updates** to accounts and other financial records.

Why is it relevant?

- The rapid and continuous evolution of the Banking Sector has outlined the need to **fasten Banking operations**.
- The trial to find the **convergence of services** and **technologies** has defined multiple software for accounting transactions and core banking operations.
- The evolution and the increasing number of people using online Banking Services showcased the need to develop more **sophisticated software** to cope with it.
- In 1970 all banking **transactions** were **registered once a day**, while now they are recorded **instantly**.
- In the last 30 years, most banks moved to core banking applications to support their operations creating a **Centralized Online Real-time Exchange (CORE)**.
- All the bank's branches could access applications from **centralized data centers** and record all transactions in a **faster way**.

Sources: Deloitte, Excel Publication, ICAI, Virtusa, Wikipedia



The **environment** of the Banking System today is quite **different** from what it was in the past. **Specific features** and **functions** have been developed since the 70s and the following are a common trend worldwide:

- Focus on **Customer Relationship** (Service Oriented Architecture SOA).
- Introduction of **Value Added Services**.
- Connectivity of branches.
- Multiplicity of **Delivery Channels** (ATM, Credit Card, Mobile Banking, Internet Banking).
- Focus on **MIS** and **Risk Management**.
- Focus on **Reduction of Transaction Cost**.
- **Bank liability and asset accounts**: savings, fixed deposits, current accounts, loans, mortgages and credit facilities.
- Bank **General Ledger**, Bank **Financials** and **Audit trails**.
- **Payment systems & Real Time Gross Settlement**.
- Reporting and compliance with **regulatory requirements**.

Sources: Deloitte, Excel Publication, ICAI, Virtusa, Wikipedia



Costs:

- Requires **manual software deployment** as well as **persistent maintenance costs**.
- Increasing costs are a result of **inefficiency** and lack of experts for an **outdated** system.
- Industry's **low ROE** requires to cut costs in order to **remain competitive** and **not lose market share**.

Personalization:

- Legacy Core Banking's architecture does not allow to give a **customer-centric personalized experience**.
- Newer banks take advantage of **social media presence** and **data analysis** to rapidly respond to customers' needs while **improve the overall experience**.

Time to marketize:

- Banks are required to **launch products quickly** in order to **differentiate** from competitors.
- **Legacy Core Banking can't compete with modern systems** due to monolithic architectures, poor legacy code and slow manual delivery.

Ecosystems:

- Partnerships are becoming vital to survive in such an environment, but outdated and complex Core systems **hamper the connectivity** with partners, further discouraging innovation.

Sources: Deloitte, Excel Publication, Fisglobal, ICAI, McKinsey & Company, Virtusa, Wikipedia



Machine Learning:

- An **artificial intelligence** which learns more about a subject as it ingests more **data**.
- With additional data from customers, machine learning can be utilized to improve the banking system by **analyzing the users' interaction** with the platform and outputs **personalized answers**.

Reduced time to the Market:

- Cloud-based platforms can quickly and easily deploy **new products and services** in response to **customers' expectations** and market changes.

Customer interactions:

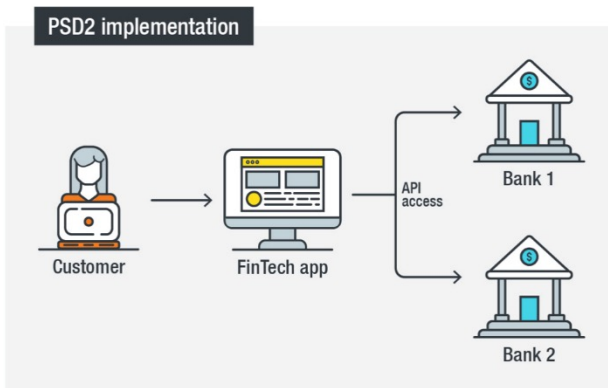
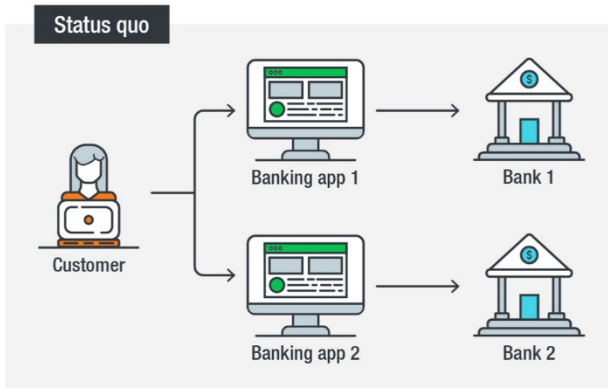
- Customers expect the ability to access all their bank information's' from **any internet-enabled device** at any time of the day and night **within a time span of minutes**, or possibly even less.
- This would not be possible with outdated banking systems.

Open Banking:

- This allows banks to **share information about financial services with third-parties** with the authorization of the individual.
- This would not only reduce costs to acquire information for the banks but also **increase revenues** thanks to **partnerships**, in addition to providing **additional services to the customer**.

Sources: Deloitte, Excel Publication, Fisglobal, ICAI, McKinsey & Company, Virtusa, Wikipedia

Open Banking is the system under which banks share their APIs and share consumers' financial data with third parties, to improve customer experience and facilitate transactions.



Open Banking is the system in which consumers' **financial data is shared** between unaffiliated parties, **improving competition and driving innovation** within the financial system.

It is regulated in the EU by the Payment Service Directive 2 (**PSD2**), in force since the 14th September 2019. Its main purposes are enhancing **consumer protection**, promoting **innovation** and **improving the security** of payment services.

The implementation relies on the use of **APIs**, consisting in **protocols that allow different applications to share data** and functionalities. Banks can expose their data to Third Party Payment Services Providers to develop **new apps and services tailored to the customer**. The value added by Open Banking practice can be seen in three directions:

- Aggregation services: access and display of **financial data from multiple providers**
- Budgeting and debt management services: help **analyze** financial data
- Debt Advisors, Product Comparison services: offer **personalized recommendation**

The Open Banking system allows to **create value outside the traditional banks** letting third parties own primary customer relationship.

Sources: Business Insider, Investopedia, Deloitte, European Commission, BBVA



Applications

- Managing all the **current accounts, savings, mortgages, loans and credit cards in one place**
Customers would easily be able to **compare competing products** from different providers.
HSBC (e.g. Connected Money), Barclays and other traditional banks use this kind of Open banking application
- Monitoring of **spending habits**
- **Saving money** on daily transactions.
- Implementation into **personal finance** management tools



YOLT



Credit Kudos is an Open Banking driven application which offers **free online service** which uses an individual's financial data to assess their financial behaviour and work out **whether they are eligible for a range of financial services** and demonstrate their creditworthiness.



*Apple's most recent acquisition of Credi Kudos, for about \$150M, shows how **big tech giants are rounding out their portfolio** to deliver end-to-end bank-like services and raring to grab significant market share from the incumbents*

Sources: McKinsey & Company, Financial Times, Computing and Commerce Association



Problems and risks

Privacy and the **security of consumers' finances** are the main concerns in the open banking environment.

Main risks:

- Hacking.
- Data loss.
- Data protection violations.
- Fraud.
- Identity theft.



*A research from EY showed that **48% of consumers had a negative opinion** on open banking due to security concerns.*

Possible solutions

- **Collaboration** between banks, fintech partners and **regulators** to **develop standard rules**.
- **Transparency** to build customers' trust
- Use of **encryption technology** to make sure sensitive information is **protected from cybercriminals**.
- Improvements in authorization and **authentication technologies**, including biometrics.
- Development of **proactive cybersecurity**, that identifies system's issues before a cyberattack.

Sources: Investopedia, Forbes, EY, Financier Worldwide



The requirements for change

Most financial services institutions are running their core banking platform on **static and inflexible** legacy mainframe technologies.

This generates many issues opening up new scenarios for **innovation and advancement**:

- **Real-time** data processing Standards-based interfaces and **open APIs**
- **Extensible functions** and domain-driven separation of concerns
- **Secure** authentication, authorization, encryption, and audit logging
- **Infrastructure-independent deployments** across an edge, hybrid, and **multi-region / multi-cloud environment**
- High and Elastic **scalability**
- True **decoupling** and back pressure handling
- **Cost-efficient** model
- **Flexible architecture** for agile development

Adopting cloud-native infrastructure is critical for success in building next-generation banking software, providing **unique value to customers**



Thought Machine - Vault

- Thought Machine is a UK-based company whose core product, **Vault Core**, is a **cloud-native next generation banking platform**.
- Vault Core is written using the **latest software engineering techniques** to help **simplify the technical and operational complexity of banking**, whilst maintaining the advantages of **security and reliability**.
- It is built and developed purely as a **core banking engine** in the Cloud with flexible capabilities and API integration.

Vault machine can be **deployed** in various methods:

- **Digital greenfield banks:**
Existing banks launching **entirely new, digital first banks** with the ambition to migrate clients over.
- **Coexistence:**
Banks **build new, cloud-native technology stacks alongside their existing core**. For seamless end customer experience and **ease of replacement** of mainframe components with modern platforms.
- **Migration:**
Full data migration where a bank **moves** all of its existing products, ledgers and account records from a **legacy system to Vault's core**.

Sources: Thoughtmachine



Case Study–Intesa San Paolo

Project year: 2022-2026

Deployment method: Digital greenfield

Challenges:

Four-year plan for the **creation and evolution of Isybank**, covering **cost reduction, technology modernization, customer experience** and more

Solutions:

Provide **core banking technology** for Intesa's **Isybank** with **high level of self-service**, configurability for the future, and technology which could eventually be incorporated into the bank's broader technology stack.



Migration

Millions of customers who will eventually be **migrated onto Isybank**, through **migration tooling** that **de-risk** and **minimizes core banking migration timelines**.

Multi-currency

Vault Core is designed to support a **high degree of banking complexity and flexibility** as they service millions of customers, in **multiple currencies**.

Sources: Thoughtmachine



- Headquartered in **London, UK**
- Finastra offers **financial software products** and solutions to the retail banking, transaction banking, lending, and treasury capital markets.
- Offices in **42 countries**, serves **90** of the **world's top 100 banks** by asset size.
- **1.9 billion** in annual revenue

Key strengths:

- **Open and Agile:**
Industry standard REST APIs integrate with third-party vendors enabling transformational banking, driving improvements and innovating across the business.
- **Focus on customer experience:**
Multi-channel, consistent digital user experience.
- **Insight and Analytics**
With front, middle and back-office connectivity and integrated advanced analytics, Finastra generates the insight needed to become a consumer-focused sales machine.



- Headquartered in **Geneva, Switzerland**
- Temenos specialises in **enterprise software** for banks and financial services.
- The software is cloud-native and cloud-agnostic; it can run on any cloud, with any choice of cloud provider and it can work just as seamlessly on premise.
- **2 billion USD** cumulative **R&D investments**.
- The first technology solution provider to provision a complete core banking system on the public cloud in 2011.
- Supports any size of financial organization from the smallest to the largest thanks to its ability to scale appropriately in the cloud or on-premise.

Sources: Finastra, Temenos