

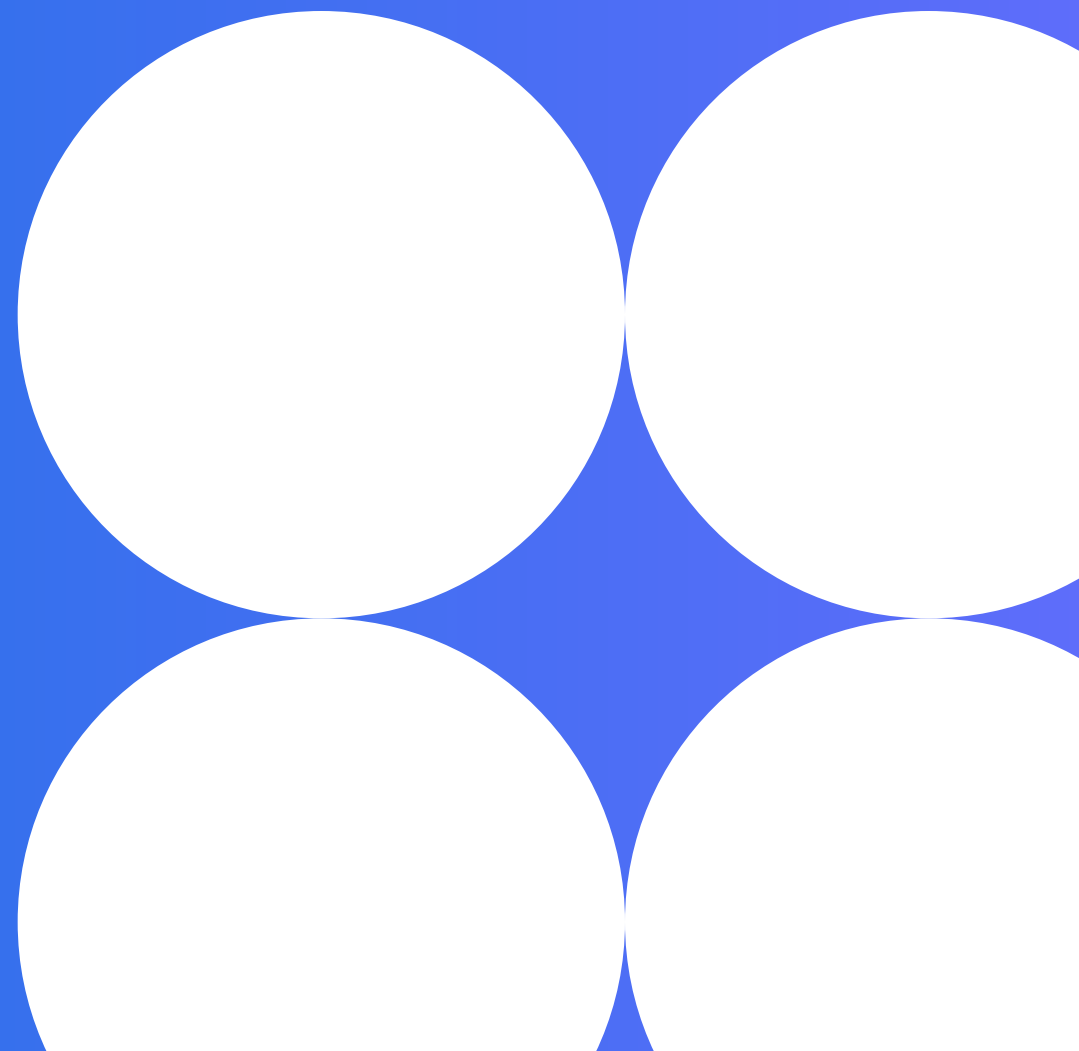


Celent.

Celent Report — Retail Banking Core Systems

Next-generation core
banking edition

[Download the report](#)



Thought Machine View



Thought Machine has managed to achieve strong traction in the top end of the market, which has allowed it to develop a strong product library across both the retail and corporate banking sides.

Daniel Mayo & Craig Focardi
Principal Analysts, Banking &
Retail Banking
Celent

The banking industry is undergoing a seismic transformation, with financial institutions racing to adopt next-generation core technology to stay ahead or challenge the status quo. Thought Machine has emerged as the clear leader with Vault Core, an enterprise-grade core banking engine powering the world's most ambitious financial institutions such as JPMorgan Chase, Lloyds Bank, Standard Chartered, and Intesa Sanpaolo.

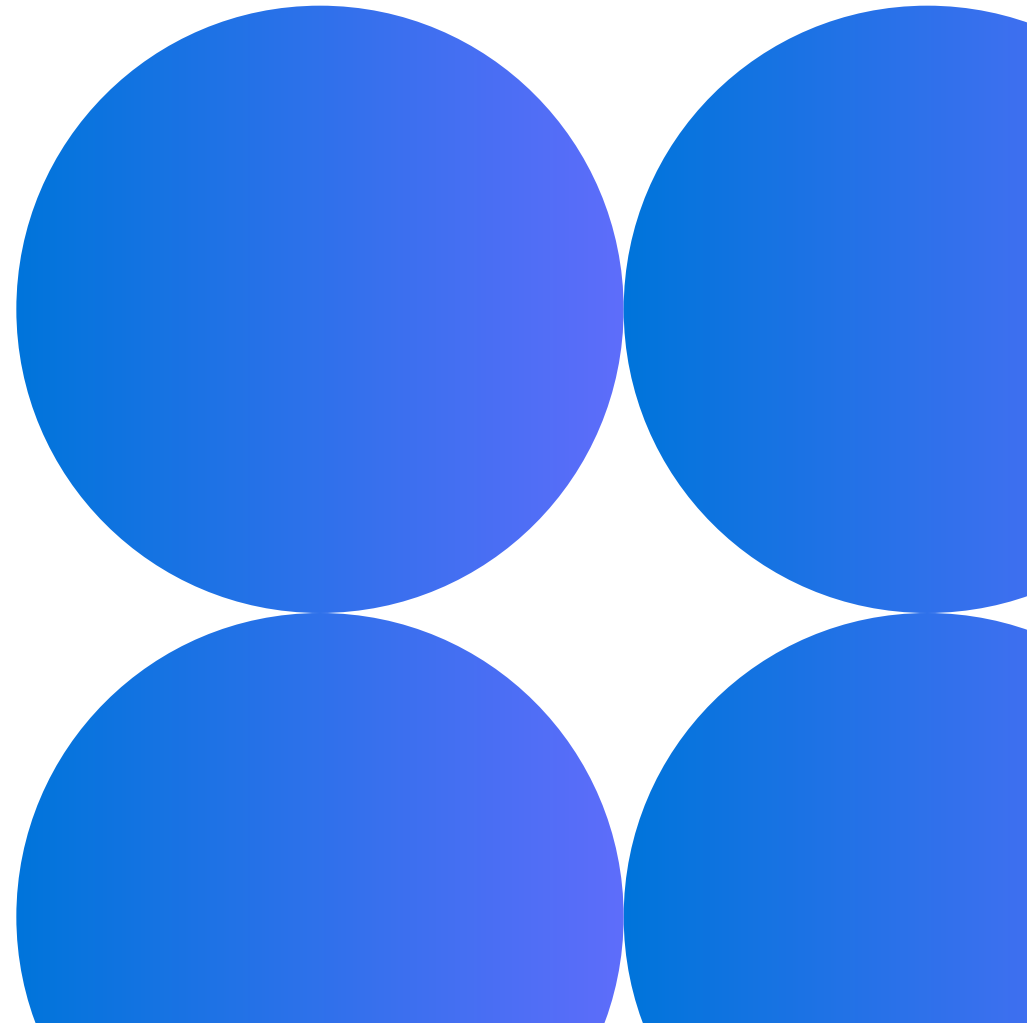
In its latest report, Celent names Thought Machine as the only global Luminary in next-generation core banking, ranking it in the highest position for Mid to Large banks in the Americas, EMEA, and Asia-Pacific. We also received more xCelent awards than any other provider, highlighting our leadership in both Advanced Technology and Breadth of Functionality.

Thought Machine had a standout year in 2024, securing major core banking transformation deals and launching Vault Core 5, its most advanced release yet. With 80% of clients now live on Vault Core, the shift to next-generation banking is accelerating.

Celent defines next-generation core platforms as cloud-native, real-time, API-first, and microservices-based, leveraging continuous delivery and event-based orchestration to drive improvements in efficiency and speed. Vault Core 5 exceeds these standards, delivering:

- Unmatched performance rigorously tested in real-world conditions to support the world's largest banks.
- Smart contract capabilities, enabling banks to build and iterate on products quickly using developer-friendly code.
- Complete multi-entity support, accommodating all banking models and product verticals, from retail to corporate, on a single platform.

As banks modernise to meet the demand for AI-driven and personalised user experiences, Vault Core stands as the industry's most advanced and proven solution. The future of banking is here, and Thought Machine empowers you to shape it. Read Celent's full analysis of Thought Machine's market position in this report.



CELENT

RETAIL BANKING CORE SYSTEMS: NEXT- GENERATION CORE BANKING EDITION

2024 xCelent Awards, Powered by VendorMatch

Daniel Mayo & Craig Focardi

A division of Oliver Wyman

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The following report is an excerpt of the full Celent report of the same name. While it is abridged (containing Executive Summary and selected profile), it has not been sponsored or altered by Thought Machine. Full report is available to Celent clients at www.celent.com

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1

EXECUTIVE SUMMARY

NEXT-GEN CORE BANKING PLATFORMS ARE GAINING TRACTION DUE TO A COMBINATION OF ARCHITECTURE EVOLUTION AND NEW MIGRATION PATH OPTIONS

Core banking system (CBS) technology has witnessed a fundamental shift over the last five years. Next-generation core banking has become mainstream.

While the conception of some next-generation core platforms dates to the early 2010s, the last five years have seen a notable acceleration in interest across the banking sector, with maturing understanding of next-generation concepts and pervasiveness of live and in-progress deployments of next-gen cores. The market has shifted from early adopter to early majority phase, with consideration of next-gen cores (and certainly next-gen capabilities) common in CBS sector.

Though reasons are multifaceted, two key factors underlie this:

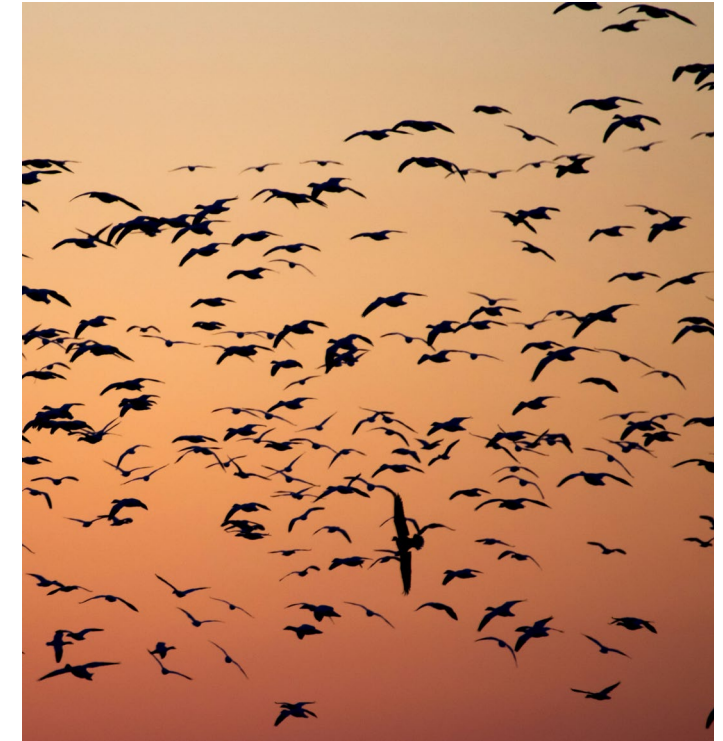
- The first concerns **architectural** developments and requirements with next-gen core presenting key answers to addressing many of the limitations and pain points with previous generation cores.
- The second concerns **transition**. Next-gen cores offer a wider range of modernization options, with lower upfront cost and reduced risk that has altered the calculation for the “stick or twist” dilemma that has held back modernization – in many cases for decades.

While next-gen cores are still maturing, and many incumbent CBS providers have responded, the core banking market itself has permanently changed.



ARCHITECTURE PRINCIPLES

Cloud-native, real time, API-first, microservices-based architectures leveraging continuous delivery, cloud computing, and event-based orchestration have changed dynamics around cost, speed, deployability, upgradability, and maintenance costs.



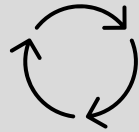
MIGRATION PATHS

Move from monolithic/modular platform to components and microservices has broadened modernization options, while ecosystem approach enables both greenfield and coexistence models

NEXT-GEN CORE ARCHITECTURE PRINCIPLES HAVE BEEN DRIVEN BY THE CONFLUENCE OF SEVERAL **BUSINESS** AND **TECHNOLOGY** TRENDS

DIGITAL BANKING

Rise of fully digital neobanks has reset expectations for real time, true end-to-end digital banking



EVERGREEN, CONTINUOUS DELIVERY, API-FIRST

Platforms are designed and built for implementation, ability to integrate into ecosystem, and continual change

CUSTOMER-CENTRIC PROPOSITIONS

Product and service propositions constructed around the customer, not built in product siloes

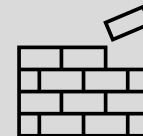


CLOUD NATIVE

Able to harness automation, scalability, security, availability, speed, and usage-based cost benefits of cloud computing

EVENT-DRIVEN, DATA INSIGHT

Propositions are smart — able to react to events — with data used to drive decisions and enhance service and engagement



COMPOSABILITY

Architected around capabilities, with building blocks that can be individually scaled and assembled/reassembled to meet business needs and enhance existing systems

CELENT HAS EVALUATED 13 NEXT-GEN CORE VENDORS WHICH OFFER NEW-BUILT, CLOUD-NATIVE BANKING PLATFORMS



EMERGENCE OF NEXT-GEN CORE PROVIDERS HAS REFRAGMENTED A CONSOLIDATING VENDOR LANDSCAPE WITH **DIVERSIFICATION** OF PLATFORM TYPES

Next-gen core providers have refragmented the CBS landscape with creation of new market segments.

During the 2000s and early 2010s, there was significant consolidation in the CBS vendor landscape (in the US and international markets, respectively), with new deal win volumes concentrating within the top providers. These “modern traditional” platforms typically offered universal banking platforms with broad functionality across core banking, payments, operations, digital banking, and physical channels.

The emergence of next-gen providers has reversed that trend driving fragmentation of deal volume and emergence of more targeted and diverse propositions. Celent has identified key next-gen types:

- **Product cores** – often targeting larger institutions, these provide focused product functionality, typically covering product ledger, product management, although often supported by payment engines.
- **Broad cores** – supporting digital direct banks, providing product capabilities, digital onboarding, and card payments as well as enablement for digital banking.
- **BaaS platforms** – multi-tenant cores specifically targeting banks providing banking services through other institutions (Note that specific BaaS providers are **not covered** in this report, although many next-gen cores do support this market.)



BROAD CORES

Wide platform functionality supporting digital processes and products, especially neobanks, digital direct banks, and payment or electronic money institutions, with card issuing, digital onboarding and product processing (often stronger on deposits).



PRODUCT CORES

High performance product ledgers with advanced product creation and management, designed to support the complex products and top-end performance requirements of top-tier institutions, and work alongside wider enterprise architectures.

BROAD CORES TYPICALLY OFFER WIDER FUNCTIONALITY ACROSS THE BANKING ARCHITECTURE SPECTRUM, WITH PRODUCT CORES CONCENTRATED IN BANKING PRODUCTS

NEXT-GEN CORE FUNCTIONAL ARCHITECTURE MAPPING

- Diagram shows a stylized enterprise architecture mapping of key functionality areas that support a bank across front to back office.
- These have been mapped to indicate **typical** functionality provided by the two main types of next-gen core platforms: **product cores** and **broad cores**. While individual platforms do not necessarily fit completely or neatly into these categories, most providers have a primary functionality focus that aligns to one of these groupings.
- Note: **broad cores** also typically provide product core capabilities, i.e. their total functionality coverage is a combination of broad core and product core mapping.
- Roadmap** coding (e.g., “Roadmap Product Core”) shows where the respective type of next-gen vendors are typically prioritizing their functional R&D investment, although many have some capabilities in these functional areas already.
- Additional modules** indicates where vendors often provide functionality, but this is typically provided either as an add-on to the primary core platform, or pre-integrated (with built adaptors) with ecosystem partners. Again, it should be noted that some platforms have these areas as part of the primary platform offering.
- Non-core** functions are typically not provided as part of next-gen platforms but will integrate into them. While they may be provided through defined ecosystem partners in some cases, generally these will be systems directly obtained by institution rather than the vendor.
- It should be noted that platform functionality is not static and functional coverage develops and enriches over time (such as shown by roadmap areas). For example, some “Product Core” providers have developed payment engine capabilities as sister platforms or through strategic partnerships/acquisition.



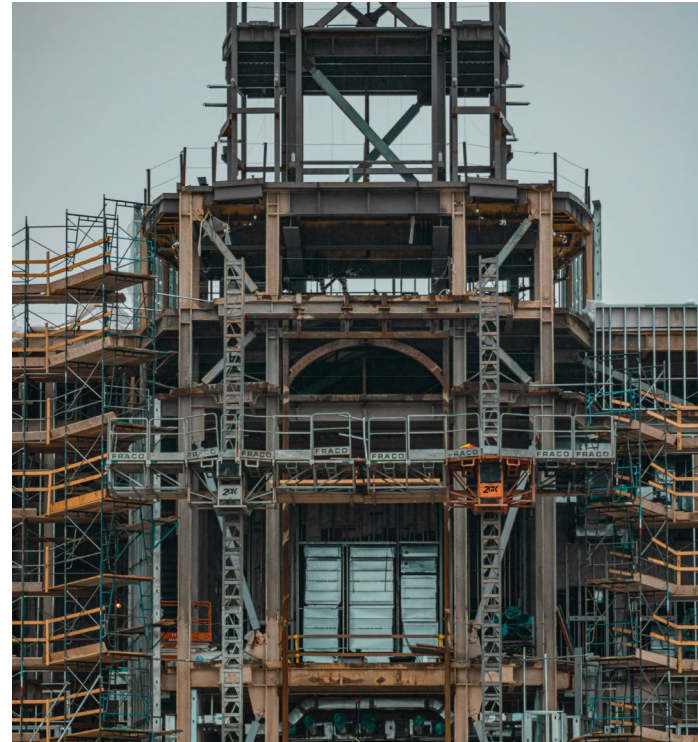
CELENT HAS EVALUATED THE NEXT-GEN CORE PROVIDER MARKET ACROSS **FOUR** VIEWS, CONSIDERING SIZE & STRATEGY, ALONGSIDE REGIONAL COVERAGE

The optimal choice of next-gen vendor depends on institution tier, modernization approach, and geographic coverage.

Given the fragmentation of the next-gen provider landscape, and the diversity of types and approaches, consideration of which vendors are most appropriate will depend on an institution's own characteristics and strategic approach to moving toward next-gen architecture. (While such consideration is salient when selecting any vendor, the relative maturity of the market makes it more so for next-gen cores).

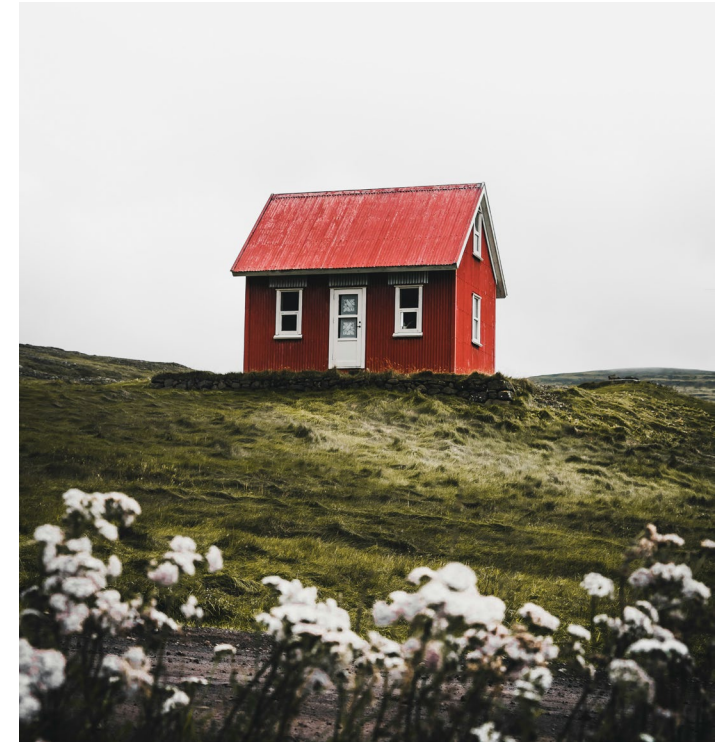
Consequently, rather than a single evaluation, Celent has created four views:

- **Mid-large bank modernization** – Tier 1-4 banks looking to deploy next-gen cores as part of broader modernization (at least side-core, but with intent for migration)
- **Small banks & digital** – Tier 5-6 banks looking for next-gen cores, as well as specialist institutions, fintechs, or larger banks looking to create digital direct banks
- **Americas** – next-gen core providers that have primary go-to-market focus (and clients) within North, Central, or South America
- **EMEA & Asia-Pacific** – next-gen core providers that have primary go-to-market focus (and clients) within Europe, Middle East, Africa, or Asia Pacific



MID-LARGE BANKS

Banks above US\$20 billion in assets, often with complex legacy architecture looking for cloud-based progressive renovation. Often looking for best-of-breed capabilities, with stronger functional preference weighting toward **product core** capabilities (e.g., product creation and management)



SMALL BANKS & DIGITAL

Banks below US\$20 billion assets, specialty institution, or institutions looking for greenfield digital capabilities, often requiring broader capabilities and thus weighted toward **broad core** breadth. While may include migration, this is often relatively low volumes (e.g., in hundreds of thousands rather than millions)

NEXT-GEN CORES ALL HAVE CLOUD-NATIVE ARCHITECTURES, BUT EXPERIENCE AND TECHNICAL DEPTH STILL MATTERS

EVALUATION CONSIDERATIONS

- Next-gen core vendors have been evaluated using Celent’s Technical Capability Matrix (TCM) – this considers relative strength across **Advanced Technology** and **Breadth of Functionality**.
- Note: Inclusion criteria required active **bank** clients using core banking capabilities for deposits or lending. This excludes some providers providing core banking capabilities only to nonbank sector (e.g. mobile money, fintechs). Other inclusion criteria also applied.
- Given all vendors are ‘next-gen’ cores, it should be noted that level of technology capability required for inclusion is, by definition, **strong** (certainly compared to modern integrated cores). All cores will use cloud-native architectures and benefit from scalability and resilience of cloud computing (whether public or private). Given platforms have recently been developed, they similarly use modern languages and approaches.
- Evaluation is based therefore on **relative** maturity of technology and technical architecture, particularly considering proven experience (based on client deployments) in more complex scenarios.
- For example, has the vendor supported multi-region, or multi-cloud deployments? While most can benefit from cloud, how far has deployment gone is supporting more extreme volumes (e.g. 500k+ transaction per second), and what are the associated running costs of cloud infrastructure? These are weighted for the different institution types (mid-large bank, and small & digital) as appropriate.
- Conversely, as platforms are new, functional breadth and depth are often relatively low (compared to Modern Traditional platforms). When functional coverage and capabilities are evaluated across products and line of business, particular attention is paid to configurability, extensibility, banking product creation experience, product maintenance, and ability to support innovation and institutional agility. Again, functional capability breadth is weighted to reflect the needs of the institution type.
- For both dimensions, **live clients** using capabilities increases scoring. **Regional** positioning will also reflect this, which is why positioning may vary across the matrices while platforms themselves will be the same. A “Developing Solution” within a regional context would likely indicate relatively few clients within the region, although the platform itself would still provide merit for consideration.

TECHNICAL CAPABILITY MATRIX (TCM)

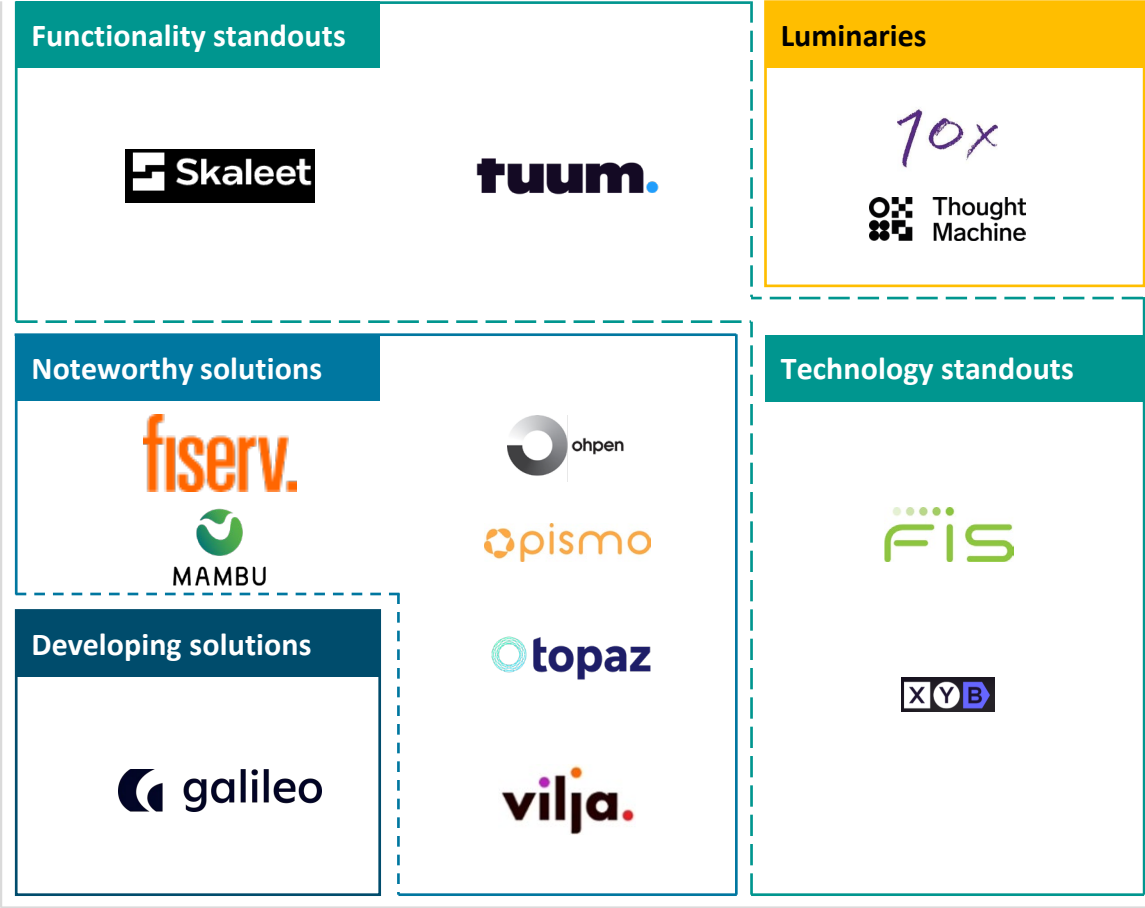
Five categories are based on the sophistication and breadth of its technology and functionality	
I. Luminary:	Excels on both Advanced Technology and Breadth of Functionality.
II. Technology Standout:	Excels in Advanced Technology but doesn’t yet have as many features as leading competitors (low on Breadth of Functionality). Often newer, these solutions typically have chosen a focused set of functionalities to begin their journey.
III. Functionality Standout:	Excels in Breadth of Functionality, but the technology isn’t as advanced as leading competitors. Often more established, these solutions have built out a robust set of features with technology that may not be cutting-edge.
IV. Noteworthy Solution:	Relatively lower on both dimensions, yet still worthy of consideration by some financial institutions.
V. Developing Solution:	Typically, new to the market and low on either Advanced Technology or Breadth of Functionality. Has the potential to mature into a more robust offering over time.
Solutions are not ranked within each assigned category; they are listed alphabetically.	

TOP-LEVEL EVALUATION CRITERIA

ADVANCED TECHNOLOGY	BREADTH OF FUNCTIONALITY
Technical architecture; event-based, microservices	Functional availability across banking products and lines of business
Data models, data management, and ability to use data	Functional availability across banking platform
Integration approach and methods (including API strategy and approach)	Product creation and management
Platform configurability and development approach	Advanced product creation capabilities
Cloud deployment / SaaS capabilities	Platform user experience and speed
Scalability and performance	Ability to support regulation
Ability to support standard and emerging business models	Ability to support localization

CELENT TECHNICAL CAPABILITY MATRIX OF NEXT-GEN CORE BANKING PLATFORMS FOR MID-LARGE BANKS

Breadth of
Functionality



Solutions are not ranked within each assigned category; they are listed alphabetically.

MID-LARGE BANKS

This Celent TCM considers typical functionality and performance requirements for next-gen cores for bank with over US\$20 billion assets, with greater consideration of ability to support progressive renovation, advanced product creation, and banking product functional coverage. This weights functionality within [banking products](#) relatively highly.

The platforms deemed **Luminaries** are 10x Banking Platform (10X) and Vault Core (Thought Machine). Both are product cores, with strong product creation capabilities that can support the performance and transformation needs of large banks. Thought Machine has extensive client experience supporting a breadth of models. 10x Banking has top-tier client experience, with both providing strong product configurability and extensibility.

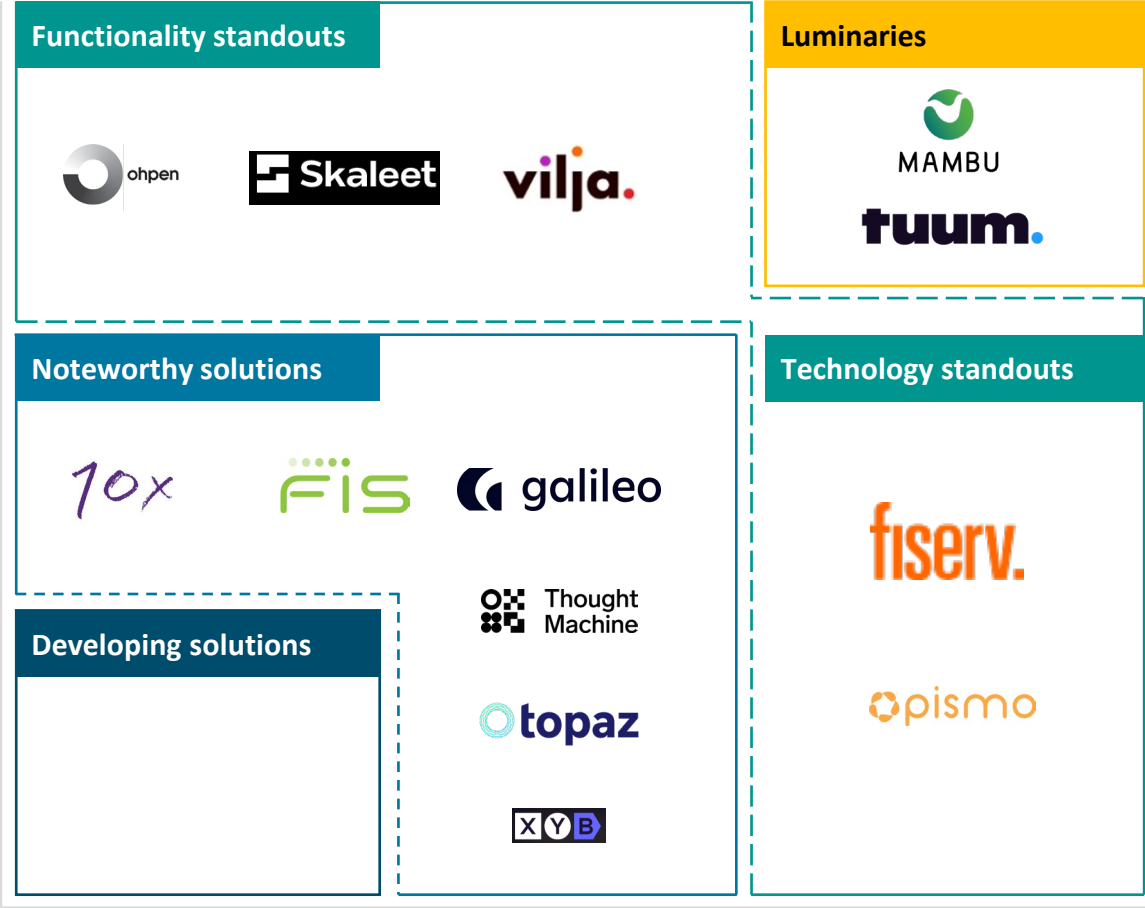
The platforms deemed **Technology Standouts** are MBP (FIS) and XYB Platform (XYB). MBP is a product core, built from scratch by FIS as cloud-native component base core. XYB is a recent entrant and is a broad core but has high performance characteristics and component granularity having been developed with top-tier clients.

The platforms deemed **Functionality Standouts** are Core Banking Platform (Skaleet) and Next Generation Core Banking Platform (Tuum). Both are broad cores, with wider banking product coverage, with Tuum strong in mid-market, and Skaleet strong in French-speaking markets.

Advanced
Technology

CELENT TECHNICAL CAPABILITY MATRIX OF NEXT-GEN CORE BANKING PLATFORMS FOR SMALL AND DIGITAL BANKS, AND SPECIALITY INSTITUTIONS

Breadth of
Functionality



Solutions are not ranked within each assigned category; they are listed alphabetically.

SMALL AND DIGITAL BANKS AND SPECIALTY INSTITUTIONS

This Celent TCM considers typical functionality and performance requirements for next-gen cores for banks under US\$20 billion in assets, covering traditional banks or specialty institutions. It also covers digital banks (neobanks or bank greenfield) regardless of parent asset size. This includes stronger consideration of the wider [banking platform](#).

The platforms deemed **Luminaries** are Mambu SaaS Core Banking Platform (Mambu) and Next-Generation Core Banking Platform (Tuum). Mambu is a product core that offers a configurable platform which supports a wide range of institution types, with significant client experience and ecosystem network. Tuum offers a broad modular platform that also supports a best-of-breed model and gives users control of product development.

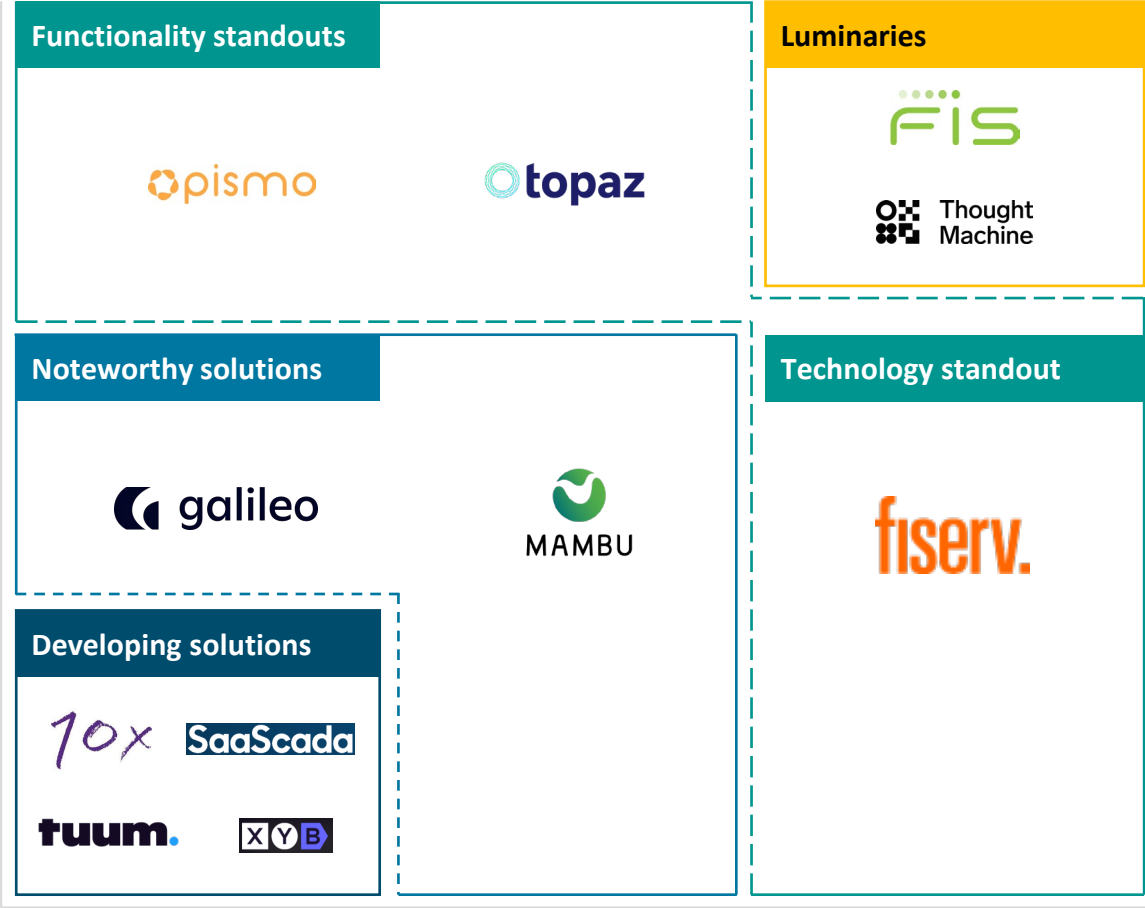
The platforms deemed **Technology Standouts** are Fiserv (Finxact) and Pismo Platform (Pismo). Fiserv Finxact is a product core (albeit supported with Fiserv’s broader solution portfolio) which provides an event-driven, microservice architecture. Pismo Platform is a broad core with ability to support small and large digital banks with strong technology as well as cards capabilities.

The platforms deemed **Functionality Standouts** are the Ohpen Platform (Ohpen) and Next Generation Core Banking Platform (Skaleet) and Vilja Platform (Vilja). All are broad cores, with Ohpen offering depth in investments, pensions, mortgages, and savings. Skaleet offers strong payments capabilities, and Vilja offers strong origination and risk and compliance capabilities across retail, SME and commercial as well as mortgages.

Advanced
Technology

CELENT TECHNICAL CAPABILITY MATRIX OF NEXT-GEN CORE BANKING PLATFORMS FOR AMERICAS

Breadth of
Functionality



Solutions are not ranked within each assigned category; they are listed alphabetically.

AMERICAS

This Celent TCM considers typical functionality and performance requirements for all institutions operating with primary geographic presence in the Americas (North America, Central America, and South America). Note many vendors operate in either North America or Central & South America. Also note that evaluation includes relevance for small to large banks, specialty institutions, fintechs, and digital banks with consideration across greenfield, side-core, and migration deployments.

The platforms deemed **Luminaries** are MBP (FIS) and Vault Core (Thought Machine). Both have established client bases in the region, with FIS strong in North America and Thought Machine across both regions.

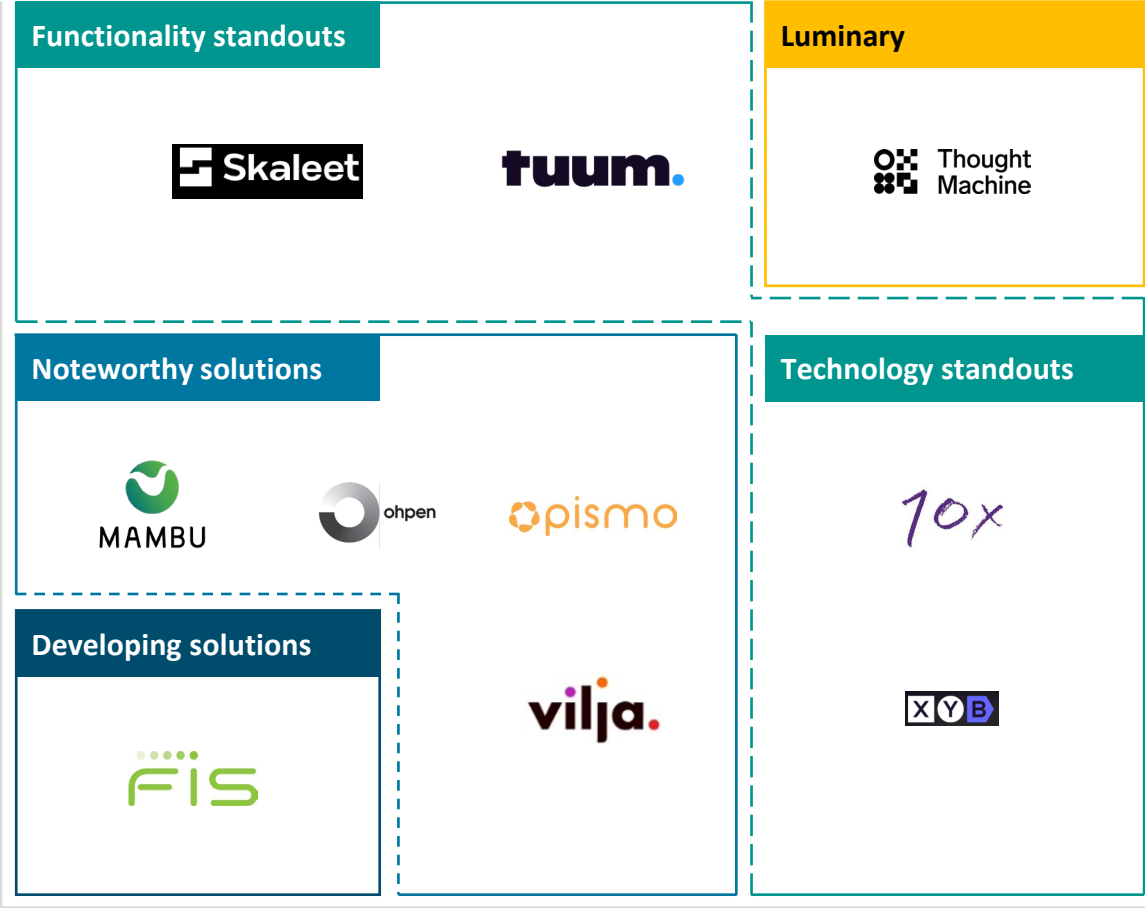
The platform deemed **Technology Standout** is Fiserv (Finxact) which has a North American-focused client base.

The platforms deemed **Functionality Standouts** are Topaz Core Banking SL (which is now part of Stefanini Group) and Pismo Platform (Pismo). Both have strong client bases in the South American market, although Pismo has also gained clients in North America.

Advanced
Technology

CELENT TECHNICAL CAPABILITY MATRIX OF NEXT-GEN CORE BANKING PLATFORMS FOR EMEA AND ASIA PACIFIC

Breadth of
Functionality



EMEA AND ASIA-PACIFIC

This Celent TCM considers typical functionality and performance requirements for all institutions operating with primary geographic presence in EMEA region or Asia Pacific. Note that evaluation includes relevance for small to large banks, specialty institutions, fintechs, and digital banks with consideration across greenfield, side-core, and migration deployments. Most vendors here are European headquartered.

The platform deemed **Luminary** is Vault (Thought Machine), which also achieved the same positioning in the Americas.

The platforms deemed **Technology Standouts** are 10x Banking Platform (10x) and XYB Platform (XYB). 10x has client base across Europe and Asia Pacific, while XYB is currently primarily based in Europe.

The platforms deemed **Functionality Standouts** are Next Generation Core Banking Platform (Skaleet) and Next Generation Core Banking Platform (Tuum). Both have client bases largely in the European region.

Advanced
Technology

Solutions are not ranked within each assigned category; they are listed alphabetically.

CELENT **XCELENT** AWARDS WINNERS FOR ADVANCED TECHNOLOGY AND BREADTH OF FUNCTIONALITY ACROSS THE FOUR MAIN MARKET SEGMENTS

MARKET SEGMENT	 Advanced Technology 2024	 Breadth of Functionality 2024
MID-LARGE BANK		
SMALL & DIGITAL BANK, SPECIALTY INSTITUTION		
AMERICAS		
EMEA & ASIA PACIFIC		

XCELENT AWARDS

Based on overall scores for advanced technology and breadth of functionality, Celent has selected the shown vendors as xCelent award winners. Given the diversity both with the vendor landscape and in market requirements, these have been divided into four segments:

- **Mid-large bank** - banks above US\$20 billion assets worldwide, with particular consideration of the ability to support progressive transformation and advanced product creation and innovation weighted towards **banking product** functionality
- **Small & digital bank, specialty institution** – banks below US\$20 billion assets, digital banks (neo- and direct banks for parents of all bank tiers), and specialty institutions with consideration of product capabilities and ability to support the digital bank and broader digital processes, with scoring weighted towards wider **banking platform** functionality
- **Americas** – all bank institutions (traditional, direct, and specialty, as well as nonbanks) operating primarily in North, Central, or South America regions
- **EMEA & Asia Pacific** – all bank institutions (traditional, direct, and specialty, as well as nonbanks) operating primarily in Europe, Middle East, Africa, or Asia Pacific

KEY **VIRTUES** CELENT SEES AS CRITICAL FOR CORE BANKING PLATFORMS – HYGIENE FACTORS REMAIN CRITICAL ALONGSIDE NEWER ARCHITECTURE PRINCIPLES

1



Cloud-native

Ability to harness full elasticity, agility and automated provisioning of cloud

6



Extensive automation

End-to-end process orchestration with high levels of STP

2



API-first / ecosystem enabled

Openness to innovate with ecosystem at scale

7



Continuous product innovation

High flexibility and configurability to enable product innovation and management

3



Data orientated

Ease of harnessing data to prove insight and improve outcomes

8



DevOps pipeline

Ability to roll out and iterate innovations with speed

4



Scalability

Ability to scale effortlessly to meet volume growth of digital and open banking/payments world

9



Robust security

Security-first design supporting zero trust principles

5



Component-based design

Enable iterative and rapid build

10



Resilience

24x7x365 with automatic and fast recovery

2

**NEXT-GEN CORE BANKING PLATFORM PROFILE:
THOUGHT MACHINE**

VENDOR SUMMARY: THOUGHT MACHINE

BUSINESS OVERVIEW

Name	Thought Machine	Product Name	Vault Core
Founded	2014	Original Release	2017
HQ	London, UK	Clients	30-50
Website	thoughtmachine.net	Platform summary	Product Core
Revenue	\$50-\$100m	Primary deployment model	Public & Private Cloud
Employees	500-750	Primary cloud partners	GCP & AWS

TARGET MARKETS	Asia Pacific			Europe				MEA		Americas		
Regions	CA	SEA	OC	EE	NE	SE	WE	AF	ME	NA	CAC	SA
Tiers	Tier 1		Tier 2		Tier 3		Tier 4		Tier 5		Tier 6	
Institution types	Traditional banks		Neobanks		Fintechs		EMIs		Specialty		Other	
Line of business	Retail			SME		Corporate		BaaS			Other	
Key markets	Mid-Large banks across EMEA and Asia Pacific											

Primary
Secondary
Tertiary
Nontarget

STRATEGIC POSITION

Platform Overview

Thought Machine was founded in 2014 with a mission to enable banks to deploy modern systems and move away from the legacy IT platforms that plague the banking industry. It seeks to do this through its highly configurable, single cloud-native platform, Vault Core. This was built from day one by alumni from Google, GFT, Fiserv, AWS, and Barclays, with the aim of supporting the complex needs of the largest institutions.

Vault Core is a core system of record and product engine that includes a real time ledger, universal hosting, and an API-based microservices architecture. It supports any financial product, including deposits, loans, and mortgages, as well as products not typically run from the core, such as credit cards and cryptocurrencies, based on a Universal Product Engine rather than individual product-specific modules.

Vault Core includes a product software development toolkit (SDK), which gives banks the tools with full control to build, test, and launch products with no reliance on Thought Machine as a vendor.

Position against competitors and philosophy

Vault Core uses its Universal Product Engine and smart contract-based product building framework to allow any financial product to be implemented. Banks can configure and launch them without changing any underlying platform code. This allows Vault Core to be deployed and configured to any financial market without modifications to the underlying platform.

Vault Core is a cloud-native core system with API-based microservices architecture. It operates in the cloud, without a single line of code from the legacy systems. It's also cloud agnostic; it runs on AWS, GCP, and Azure, and can be run on the premises using Red Hat OpenShift.

Its Universal Product Engine gives banks full control of their product road maps and timelines. Banks have the freedom to build any financial product without the constraints of the core system, whether by themselves or by leveraging a rich library of prebuilt configurable financial products Thought Machine calls "Smart Contracts".

Marquee Clients

JPMORGAN
CHASE & CO.

bpi**france** **S|E|B**

 **BCAsyariah**



LLOYDS BANK

INTESA  SANPAOLO

ING 

 standard
chartered

FUNCTIONAL DETAILS: THOUGHT MACHINE

PLATFORM NAME: VAULT CORE

PLATFORM SCOPE

Vault Core is a cloud-native core banking product which enables independent product design, execution, and ledger functionality with digital account origination. The second product, Vault Payments, is a payment processing engine for account-to-account and card payments compatible with all major schemes, with flows and rules configured by the client.

FUNCTIONAL DIFFERENTIATORS

1. Flexibility & innovation - Vault Core allows banks to create and configure any type of banking product, providing significant flexibility in product management and customisation allowing creation of complex event-based hybrid products.
2. Smart Contracts – products characteristics can be configured in the Python programming language by the bank or partner. These can be configured at a group or account level.
3. Single platform - Vault Core is designed such that it can handle multiple bank instances, entities, product lines and bank types from the single platform. This includes retail, business, and corporate banking.
4. Product management - product variants can be achieved through parameters rather than as new products.
5. Real time processing - system processes transactions in real time, offering up-to-the-minute accuracy that enhances customer satisfaction and operational efficiency.
6. Regulatory compliance - Thought Machine regularly updates Vault Core to ensure compliance with evolving regulatory requirements across different markets, reducing compliance burdens for banks.

ROADMAP PRIORITIES

1. Enhanced performance - continued focus on reducing latency and improving the handling of large volumes of accounts, currently certified against 30 millions accounts but targeting up to 100 million accounts
2. Robust configurability – enhancement of its flexible configuration layer allows banks to customise operations and product offerings extensively without changes to underlying platform code.
3. Smart Contracts - expansion of capabilities allowing banks to manage a wide range of products through a minimal set of smart contracts, enhancing both flexibility and control
4. Development of additional features to support complex business and corporate banking needs, such as handling high-volume transactions and providing advanced lending tools
5. Introduction of capabilities for managing multi-entity banking environments efficiently, enabling centralised control with distributed operations.

Banking Products

Customer Information	Relationship Pricing	Product Catalog	Hybrid / Combo Products
Retail Transaction Accounts	Consumer Loan Servicing	SME Transaction Accounts	SME Loan Servicing
Retail Saving Accounts	Mortgage Servicing	Corporate Transaction Accounts	Commercial Loan Servicing
Islamic Banking	Revolving credit	Cash Management	Trade Finance

Origination

Digital Onboarding	Consumer Loan Origination	Mortgage Loan Origination	Corporate Loan Origination
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Cards & Payments

Debit Cards	Credit Cards	Card Issuing	Real Time Payments
Virtual Cards	Prepaid Cards	Payment Engine	ACH Origination
Merchant Services	Open Payments	Bill Pay	P2P Payments

Customer engagement

Branch / Teller	Digital Banking	Contact Center	ATM
Open Banking	Advisor	eStatements	ECM
Marketing	Customer Loyalty	Sales / CRM	Notifications

Risk & Compliance

Collateral Management	Know-Your-Customer	Fraud	Anti Money Laundering
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Finance & Other

General Ledger	Treasury Management	Collections	Financial controlling
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Data & Analytics

Data Warehouse	Data Layer	Reporting	Analytics
Base core module (with live clients)	Base core module	Additional module	
Composable ecosystem module	Additional module (different code base)	Integration to third party	

TECHNICAL OVERVIEW: THOUGHT MACHINE

Vault Core's architecture has been designed to run any bank. Clients can configure Vault Core to run any banking product through its smart contracts, regardless of complexity. Vault Core allows scheduled processing with the scheduler and calendar components, moving the bank away from forced batch-based processing. Vault Core supports scheduled and real time processing, high-throughput double-entry booking for posting, and real time reconciliation and reporting. All balances are captured in time series in Vault Core. Additionally, Vault Core supports operational workflows.

PLATFORM



Code Base	Golang, Python, Typescript, Java, JavaScript
Process Type	Vault Core is 100% real-time and event-driven. Vault Core is designed to run 24x7 and the Core will keep running without batch processing. It provides capabilities to achieve materialised End of Day view of the bank via functions supported in our Smart Contract framework, our APIs and real time event streams.
Batch Support	Vault Core uses a scheduler component completely configurable via Smart Contracts. This allows the bank to define when schedules will run on a per-account basis instead of a batch process. However, certain features can be used in the Smart Contract to help banks relate real time events together for their upstream consumption as a batch, if necessary.
Core Code Modification	Not common; it follows a "configuration as code" philosophy through Smart Contracts.
Interface	Vault Core is a headless, core banking system of record product. They include a management dashboard.

DATA



Databases Supported	PostgreSQL, CockroachDB
Data Schemas	Model built from ground up. Data is exposed via public facing RESTful APIs. APIs follow a modified version of the Google API Guidelines for create, read, update, delete (CRUD) operations and resources.
Polyglot / Temporal Data	Not supported / Supported
Extending Data Model	Clients can only store data in the model Thought Machine provides.
Data Model Governance	Vault Core exposes all data via public RESTful APIs. Direct interaction with the underlying data is not supported. Its APIs follow an official deprecation and breaking change policy to ensure changes do not affect the client. Major deprecations are raised and discussed with all clients directly via Customer Advisories.

INTEGRATION



Approach to Integration	Vault Core exposes Kafka and RESTful HTTP APIs through which the client can integrate. The Thought Machine client services team provides both architectural and tactical advice for designing and implementing the integrations based on client needs.
Integration Methods	It supports web services, HTTP, RESTful HTTP style services, and JSON format.
% Exposed as APIs	100%
API management	Vault Core architecture is microservices-based. The real-time synchronous interfaces are RESTful/gRPC APIs and for asynchronous/streaming workloads Apache Kafka is used. Vault Core offers a suite of APIs that can be integrated with client-facing web channels via RESTful web services. Bank can use an API gateway as an API management layer to integrate Vault Core with the external systems.

CUSTOMER BASE AND DEPLOYMENT MODEL: THOUGHT MACHINE

CUSTOMER SUMMARY SHEET



Target market for Vault Core is the full spectrum of banks, although sweet spot is mid-large bank and established challengers.



Thought Machine has 40+ clients in production and is working with over 50 institutions with notable presence with Tier 1 and 2 banks across regions.



It has seen very strong growth over last 2 years, particularly in EMEA and Asia Pacific markets, with both Tier 1-4 and specialty institutions



It has a high presence (over 15 clients) with specialty institutions / fintechs.

PRICING MODELS

✓ Preferred
○ Additional

- ✓ Subscription
- Enterprise License
- Perpetual License
- Term License

PRICING FACTORS

- ✓ Per Account
- Per User/Seat
- Asset Size
- ✓ Per Module/Service

CLOUD SUPPORT

- The Vault platform runs on all major cloud infrastructure providers, including Amazon Web Services, Google Cloud Platform, or Microsoft Azure. It also runs on IBM cloud and supports Red Hat OpenShift.
- It support a universal cloud hosting model - clients can choose between deploying Vault Core as a Software-as-a-Service offering and hosting Vault Core in their chosen cloud environment, whether public, private, or hybrid.
- Cloud native architecture supports multi-region, multi-cloud, and active-active cloud deployments to offer high operational resilience and security.



INSTALLATIONS BY SIZE



By Assets

✓ At least one client

- ✓ Tier One: \$<500bn
- ✓ Tier Two: \$100-\$500bn
- ✓ Tier Three: \$50--\$100bn
- ✓ Tier Four: \$20-\$50bn

Tier Five: \$1-\$20bn

Tier Six: <\$1bn

Credit Unions

✓ Specialty Institutions

INSTALLATIONS BY REGION

Asia Pacific	Americas	Europe	MEA
✓ Central Asia	✓ North	✓ East	✓ Africa
✓ South East Asia	✓ Central	✓ North	✓ Middle East
✓ Oceania	✓ South	✓ South	
		✓ West	

IMPLEMENTATION

Preferred Implementation Approach

- Thought Machine’s Client Services team leverages an implementation framework for Vault Core that is designed to be flexible and adapts around the bank’s own maturity and experience of Vault Core. Based on the objectives, goals, and desired outcomes of a given client, the implementation plan is designed to deliver value early and drive a plan for strategic success.
- The key objectives of Thought Machine’s framework are:
 - To enable its clients and partners to autonomously deliver Vault Core by providing an ecosystem of support services and assuring deployment through a robust, lightweight governance and intervention approach.
 - To achieve zero failed deployments of Vault Core and progress deployments to production in reduced timescales while providing excellent customer experience and engagement.
- To provide accelerated time to value, Thought Machine has two key high-level delivery principles:
 - Support the client to realize value as fast as possible utilising the Vault platform.
 - Support the client to become self-sufficient as soon as possible.
- Thought Machine’s systems integration approach is flexible, and it supports models where:
 - The bank does the integration themselves, in which case the client implementation team will work with the bank teams to design, configure, and deploy Vault.
 - The bank prefers to engage a systems integrator, in which case the client implementation team will work with the bank’s chosen systems integrator to configure and deploy Vault.
- Thought Machine has partnered with a range of global and local partners to provide systems integration services and other services such as Vault Banking Layer configuration (e.g., Smart Contracts). Its partners have an established Thought Machine Vault practice with the relevant skills required for Vault implementation.

INITIAL INSTALL



Typical implement. timing 1 to 3 months



Team size and composition 1-5 people (from Thought Machine)

Implementation approach Bank or third party system implementors



Bank	Vendor	External services
50%	20%	50%

Migrations Vault Core supports multiple approaches for bringing the client live. Most of its clients tend toward coexistence scenarios, allowing Vault Core to become the system of record for several product families at a time. Smart Contracts and modern APIs allow it to replicate most financial products from other cores, easing transition. Migration deployments are supported, with coexistence followed by a cutoff and full migration recommended.



CONFIGURATION, LOCALIZATION, AND PARTNERSHIP: THOUGHT MACHINE



APPROACH TO REGULATORY SUPPORT AND LOCALIZATIONS IN NEW MARKETS

- Vault Core supports regulatory compliance via configuration. The Smart Contract system allows financial institutions to parameterize most regulatory features and configurations.
- Thought Machine regularly updates Vault Core to ensure compliance with evolving regulatory requirements across different markets, reducing compliance burdens for banks
- Smart Contracts allow products to be configured to local needs.

PLATFORM CONFIGURATION

- All new financial product changes can be self-serviced via the Smart Contract system. Platform upgrades are self-service post version release.
- Thought Machine provides an out-of-the-box set of financial product accelerators that can be used as the basis for client-specific financial products.



CI/CD

It employs a modern CI/CD pipeline that executes tests to public APIs on all code changes.



Versioning

It offers a set of tools and an approach that works, customers can use this if they wish.



Testing

As part of the acceleration library, they provide a testing library to enable unit and system tests.



Upgrades

Less than three months.

PRODUCT/PRICING CONFIGURATION

- Products are created via configuration as code in the form of Smart Contracts. Smart Contracts are written as strictly controlled and limited Python Code that is loaded and executed by Vault Core.
- Once built, Smart Contracts are configured via parameters on the RESTful APIs. Parameters can be controlled on a per-account basis, allowing product variants to be achieved via parameters instead of deploying brand new products.
- Smart Contracts can be delivered by the bank, SI partners, or Thought Machine.
- Smart Contract upgrades and parameter changes are completely managed via the API and can be self-serviced without vendor intervention.

✗ Enterprise-wide product designer

✓ Centralized product repository

✓ Customer-specific pricing

✓ Pricing based on households

✓ Regional pricing

✗ Analytics on top of pricing

✓ Promotions on products and services

✓ Rewards programs on products

IMPLEMENTATION PARTNERS



FINTECH/FUNCTIONAL PARTNERS (NON-EXHAUSTIVE)



CLOUD-NATIVE TOOLS



KEY BENEFITS & CELENT EVALUATION: THOUGHT MACHINE

KEY BENEFITS

- Flexibility—Vault Core allows banks to create and configure any type of banking product, providing unparalleled flexibility in product management and customization.
- Cloud Native—Being fully cloud native, Vault Core supports seamless scaling, reducing hardware constraints and allowing banks to expand services without the limitations of traditional banking infrastructure.
- Real Time Processing—The system processes transactions in real time, offering up-to-the-minute accuracy that enhances customer satisfaction and operational efficiency.
- Reduced Operational Risk—Automation and the elimination of legacy systems help reduce operational risks associated with manual processes and outdated technologies.
- Cost-Efficiency—By automating many core banking processes and reducing reliance on physical data centers, Vault Core can significantly lower operational costs.
- Enhanced Security—Built with modern security frameworks and compliance measures, Vault Core ensures high levels of data protection and security for banking operations.
- Agility—The platform’s agility facilitates quick responses to market changes, allowing banks to rapidly launch new products.
- Integration Capabilities—Vault Core integrates smoothly with other banking systems and services, enhancing its functionality and usability.
- Regulatory Compliance—Thought Machine regularly updates Vault Core to ensure compliance with evolving regulatory requirements across different markets, reducing compliance burdens for banks.
- Customer Experience—By enabling faster and more reliable banking services, Vault Core directly contributes to a better, more satisfying customer experience.

CELENT OPINION

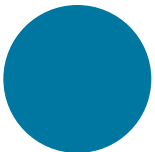
Thought Machine is the leading next-gen core for mid-large banks looking to build future state architectures

Vault Core is primarily a product core next-gen platform, providing product and account engines as well as a ledger. It has become the leading platform for larger banks looking to shift to cloud-native next-gen architecture, offering proven cloud architecture and advanced product design. While it supports fintechs, neobanks, and Tier 1–4 institutions, institutions in its sweet spot are looking to lead and differentiate through their own product design (being they large banks or fintechs), able to create their own application ecosystems and manage their own products. While this can be achieved through consulting/ system integrator partners, it makes most sense for institutions that have their own internal IT capability that has (or is shifting to) cloud-native approaches.

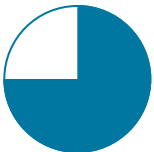
While still a relatively young provider, Thought Machine has managed to achieve strong traction in the top end of the market, which has allowed it to develop a strong product library across both the retail and corporate banking sides. It has also gained important experience in supporting large institutions in managing migration, in addition to greenfield-type deployment models.

CELENT EVALUATION

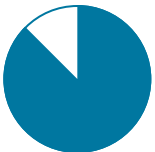
ADVANCED TECHNOLOGY



BREADTH OF FUNCTIONALITY



CLIENT BASE



Luminary

MID-LARGE BANK

AMERICAS

EMEA & ASIA PACIFIC

Noteworthy solution

SMALL AND DIGITAL BANK,
& SPECIALITY INSTITUTION



Advanced Technology 2024

MID-LARGE BANK

AMERICAS

EMEA & ASIA PACIFIC



Breadth of Functionality 2024

MID-LARGE BANK

EMEA & ASIA PACIFIC

3

APPENDIX



CONTACT US



DANIEL MAYO, PRINCIPAL ANALYST, BANKING

dmayo@celent.com

<http://www.linkedin.com/in/daniel-mayo-468530>

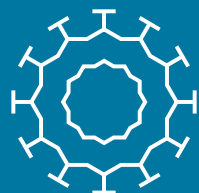


CRAIG FOCARDI, PRINCIPAL ANALYST, RETAIL BANKING

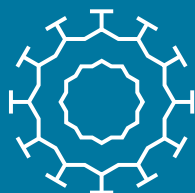
cfocardi@celent.com

<https://www.linkedin.com/in/craigfocardi/>

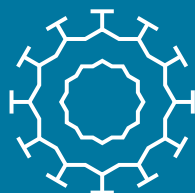
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For more information, please contact info@celent.com or: **Daniel Mayo** dmayo@celent.com | **Craig Focardi** cfocardi@celent.com

Americas

USA

99 High Street, 32nd Floor
Boston, MA 02110-2320

[+1.617.262.3120](tel:+1.617.262.3120)

USA

1166 Avenue of the Americas
New York, NY 10036

[+1.212.345.3960](tel:+1.212.345.3960)

USA

Four Embarcadero Center
Suite 1100
San Francisco, CA 94111

[+1.415.743.7960](tel:+1.415.743.7960)

Brazil

Rua Arquiteto Olavo Redig de Campos, 105
Edifício EZ Tower – Torre B – 26º andar
04711-904 – São Paulo/SP - Brasil

[+55 11 5501 1100](tel:+55.11.5501.1100)

EMEA

United Kingdom

55 Baker Street
London W1U 8EW

[+44.20.7333.8333](tel:+44.20.7333.8333)

Switzerland

Tessinerplatz 5
Zurich 8027

[+41.44.5533.333](tel:+41.44.5533.333)

Spain

Paseo de la Castellana 216, Pl. 13
28046 Madrid
Spain

[+34 91 531 79 00](tel:+34.91.531.79.00)

Asia-Pacific

Japan

Midtown Tower 16F
9-7-1, Akasaka
Minato-ku, Tokyo 107-6216

[+81.3.6871 7008](tel:+81.3.6871.7008)

Hong Kong

Unit 04, 9th Floor
Central Plaza
18 Harbour Road
Wanchai

[+852 2301 7500](tel:+852.2301.7500)

Singapore

8 Marina View, Asia Square Tower 1, #09-07
Singapore 018960

[+65 6510 9700](tel:+65.6510.9700)

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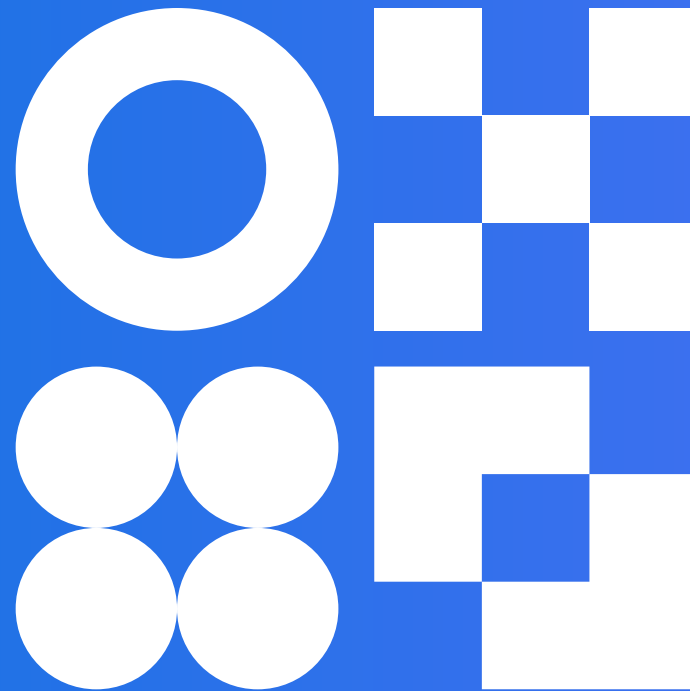
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