AI-Enhanced Core Banking Systems: Evaluation and Recommendations

Introduction

The core banking platform is the technological heart of any digital bank or fintech. Modern entrants and mid-sized fintech companies need core systems that are not only rich in features, but also leverage AI and modern architecture to deliver innovative products quickly. Regulatory demands are growing as well – especially in the EU with frameworks like MiCA (Markets in Crypto-Assets) for crypto businesses – making compliance capabilities a crucial factor. This report evaluates several leading **AI-enhanced core banking systems** against key criteria and recommends the best options for three target groups: **medium-sized fintech companies**, **new digital banking entrants**, and **firms under the MiCA regulatory framework**. The analysis is organized by five evaluation dimensions and includes comparison tables for clarity. Finally, specific platform recommendations are given for each use case, highlighting solutions that are MiCA-ready, fast to market, and scalable without legacy baggage.

Key Evaluation Criteria for Modern Core Platforms

To assess each core banking system, we use the following criteria:

- **Technical Capabilities:** Breadth of banking features and modules, use of AI/ML (e.g. for analytics, personalization, fraud detection), and overall flexibility to create new financial products. Platforms that support innovative features (such as event-sourced ledgers or embedded crypto asset handling) are noted.

- **Architecture:** The fundamental design of the system – whether it is cloud-native, API-first, microservices-based, and if it uses modern patterns like event-driven processing or event-sourced ledgers. A modern architecture typically enables easier integration and faster innovation.

- **Security Measures:** Built-in security and data protection, including encryption, access controls, auditing, and adherence to industry standards (ISO 27001, SOC 2, etc.). We consider the platform's approach to ensuring data integrity and defense against cyber threats.

- **Regulatory Compliance:** Support for compliance with banking regulations and standards – e.g. MiCA for crypto, PSD2/Open Banking,

GDPR data privacy, AML/KYC, Basel III capital requirements, etc. This includes whether the system provides audit trails, regulatory reporting tools, and keeps up with changing laws.

- **Scalability & Suitability:** Performance at scale (high transaction volumes, real-time processing) and the platform's suitability for the target organizations. We evaluate if it can scale elastically in the cloud, handle growth without performance issues, and how well it fits new or medium-sized fintechs in terms of resource requirements and customization needs.

Each core banking platform will be examined through these lenses. Table 1 below provides a summary comparison of the platforms across the five dimensions, followed by detailed discussion.

Comparison of Leading Core Banking Platforms

The core systems evaluated include **Thought Machine Vault**, **Finray's Corebanq**, **Intellect eMACH.ai**, **Mambu**, **Temenos Transact**, **Finxact**, and **Oracle Flexcube**. These platforms represent a mix of cutting-edge fintech-focused solutions and modernized versions of established core banking software. All are *"AI-enhanced"* to some degree, though they vary in how AI/ML is applied. They also differ in architecture and approach – from cloud-native startups with event-sourced ledgers to incumbent platforms that have been re-engineered for the cloud.

Table 1 – Platform Comparison by Key Criteria:

Core Platform	Technical Capabilities & AI	Architecture (Cloud, APIs, Microservices)	Security & Compliance	Scalability & Suitability
Thought Machine Vault	– Programmable products via "smart contracts"; real-time processing (no batch) and multi-currency/asset support. Notable for flexibility: banks can build any product from code, with pre-built product library for faster setup.	– Cloud-native, microservices architecture (available as SaaS or private cloud). Uses an **event-sourced** real-time ledger; provides a single source of truth and streams all data via APIs.	– Rigorous security: ISO 27001 certified & SOC 2 Type 2 compliant. Data encrypted and privacy controls in place (GDPR compliant). Immutable transaction log provides full audit trails; built for regulator "as-of" reporting and meets global compliance needs.	– **Highly scalable** by design – elastic cloud scaling and active-active multi-region support. Early large-bank deployments show it handles high volumes in real time with no downtime. Suitable for any size bank (from neobanks to tier-1) due to its modern design.
Finray Corebanq	– Rich banking functionality including multi-currency accounts and real-time processing. **Integrated crypto asset support** (buy/sell, fiat–crypto exchange) built-in, making it standout for digital asset offerings.	– Cloud-native, API-first and modular. Fully **event-driven microservices** architecture. Multi-tenant SaaS deployment with RESTful APIs and webhooks; includes rate limiting/throttling for stability.	– Strong security: role-based access control, multi-factor auth, TLS 1.3 encryption in transit, and encryption at rest. Continuous audit logging; aligned to ISO 27001 standards. **MiCA-compliant** for crypto assets, with one-to-one crypto transaction traceability for regulators.	– Designed for high throughput: event-driven processing allows scaling without performance loss. Cloud elasticity enables on-demand scaling; no known scalability issues in production. Well-suited to fintechs (Corebanq is marketed to banks, fintechs, and embedded finance providers).
Intellect eMACH.ai	– Comprehensive banking features (retail/SME focus) with **285+ microservices** and 1,200+ APIs pre-built. Allows rapid product creation using AI-driven tooling (e.g. 3-minute digital onboarding, BNPL modules, real-time analytics).	– Follows the **"Events-driven, Microservices-based, API-enabled, Cloud-native, Headless"** (eMACH) design principles. Runs on AWS cloud, highly modular and composable; includes a fintech marketplace for easy integrations.	– Advanced security protocols protect against cyber threats. Robust encryption of data and fine-grained access controls in place. Compliant with major regulations in its markets (UK, EU, Nordics) for data privacy, AML, consumer protection, etc., out-of-the-box. Built-in AML/KYC engines support safe operations.	– **Cloud-native scalability**: designed to horizontally scale as the bank grows. No performance constraints noted; supports incremental addition of services and load. Suitable for mid-size banks and ambitious new entrants seeking a full-featured core.

Mambu	– Cloud-native **SaaS core** supporting a broad range of products (deposits, loans, payments) with a composable approach. Offers extensive open APIs for quick integration and an analytics module for business insights. (AI features are via add-ons/integrations rather than built-in).	– Multi-tenant, microservices architecture on public cloud (AWS, GCP, etc.). Modular "building block" design; API-first platform that enables Banking-as-a-Service and fast innovation.	– Emphasizes strong security: data encryption at rest and in transit, secure access controls, and continuous monitoring. Regular audits and certifications (e.g. ISO 27001) as a SaaS provider. Provides compliance support for AML, KYC, and data privacy via integrated tools and marketplace partners.	– **Highly scalable** multi-tenant cloud platform – resources scale on demand to support from start-ups to large institutions. Generally no major scalability issues. Large banks use Mambu mainly for specific segments or digital spinoffs rather than the entire core, making it ideal for fintech and mid-size deployments.
Temenos Transact	– Extremely feature-rich universal core (originating from T24) used by 3,000+ banks globally. Supports retail, corporate, wealth banking with deep out-of-the-box functionality. Incorporates **AI-driven** modules for personalized customer experience and integrated financial crime/fraud detection (AML, sanctions screening).	– Cloud-native and API-first (can run on any major cloud or on-premise). Modular architecture with microservices for scalability. Offers containerized deployment (Temenos Banking Cloud) and a rich API set for open banking integration.	– Bank-grade security with multi-layer defenses. Temenos SaaS is SOC 2 and ISO 27001 certified. Follows secure SDLC and Cloud Security Alliance best practices; provides immutable transaction logging for audit integrity. Extensive compliance suites: built-in support for Basel III, IFRS 9, AML/KYC, GDPR, etc., plus country-specific regulatory modules. Regular updates to keep pace with evolving laws.	– Proven **high scalability** – runs in some of the world's largest banks and can handle very high transaction volumes. Elastic scaling and multi-region resilience available in cloud deployments. **Considerations:** Implementation and core conversion can be complex and lengthy for very large banks. For new or smaller fintechs, Temenos offers a SaaS model, but the breadth of features can be overkill if not needed.
Finxact (Fiserv)	– Modern, open core platform enabling real-time processing for deposits, loans, and more. Supports multiple asset classes and 24/7 operations by design. Provides a robust set of modern RESTful APIs that allow fintechs and banks to rapidly create and modify	– **Cloud-native SaaS** core (runs on AWS). Fully microservices and event-driven; every function is exposed via JSON APIs. Uses an ACID-compliant transaction engine with temporal data storage for "as-of" date queries (enabling easy reconstruction of past ledger	– Implements bank-grade security leveraging AWS best practices (encrypting data, frequent key rotation, least-privilege access controls). High availability with multi-AZ clustering on AWS. Provides comprehensive audit trails down to every transaction	– **Highly scalable** by design – elastic cloud infrastructure and an optimized data engine support high transaction volumes in real time. No end-of-day batch constraints. Finxact is designed to grow with any size institution while maintaining performance. It

	products, facilitating fast innovation. (Finxact itself doesn't embed AI features, but it integrates easily with AI/analytics services via its APIs.)	states). Essentially an event-sourced approach under the hood for auditability.	message. Adheres to industry standards (SOC 2, etc.) and supports data privacy and resiliency requirements in regulated environments.	has proven itself with several U.S. banks migrating from legacy cores and supports large-bank requirements. Very suitable for new digital banks or mid-size banks seeking a no-legacy core platform.
Oracle Flexcube	– Full-featured universal banking system covering retail, corporate, investment banking services in one platform. Supports omni-channel real-time processing (online, mobile, branch, ATM, etc.). Leverages AI/ML for **smart fraud detection**, automated credit decisions, and predictive customer insights as part of its offering.	– Modernized into a cloud-ready, microservices-based architecture (from its legacy roots). Can be deployed on Oracle's cloud or in hybrid cloud setups. Exposes an API-first framework and is Open Banking/PSD2 ready for third-party integration.	– Advanced security features: **blockchain-enabled** transaction security and audit trails, biometric authentication support, and real-time AML transaction monitoring. Regularly updated for global security standards. Strong disaster recovery and failover capabilities (leveraging Oracle Cloud Infrastructure). Compliance-wise, it has built-in Basel III, IFRS9, GDPR, FATCA, etc., and an API marketplace to help banks meet PSD2 and open banking mandates.	– **Highly scalable** core proven in 600+ banks across 140 countries, from small banks to some of the largest global banks. Capable of very high performance transaction processing. However, on-premise deployments at large scale may require significant tuning of Oracle databases and hardware. For new fintechs, Flexcube's rich features can be excessive, and the legacy complexity (despite modernization) could mean longer time-to-market compared to newer, nimbler cores.

Key Insights: All these platforms have embraced cloud and API-first principles to varying extents. **Newer entrants** like Vault, Corebanq, Finxact, and eMACH.ai were designed from scratch with microservices and event-driven ledgers, giving them an architectural edge in flexibility. **Incumbent platforms** (Temenos, Oracle) have been refactored to be cloud-ready and containerized, while retaining very comprehensive banking functionality built over decades. In terms of technical capabilities, Temenos and Oracle offer the broadest feature sets (suitable for large multi-segment banks) and embed AI for things like personalization and fraud detection. The newer systems focus on *openness and innovation* – for instance, Thought Machine's "smart contract" approach allows coding any product, and Finxact's open APIs let banks easily integrate fintech partners or develop new services rapidly.

Security is uniformly a high priority across all platforms, with cloud providers' best practices, encryption, and certifications in place in most cases. A notable differentiator is the **audit and ledger design**: event-sourced ledgers (in Vault, Finray, Finxact) inherently provide immutable transaction histories ideal for regulatory audit and crypto asset traceability. This ties closely into regulatory compliance capabilities – e.g., Finray explicitly touts MiCA crypto-asset compliance and one-to-one traceability for crypto transactions, which is crucial for firms dealing with digital assets. Likewise, Thought Machine Vault and Temenos Transact have been integrated with digital asset custody platforms (Metaco, Taurus, etc.) to enable banks to handle cryptocurrencies within a compliant framework. We will next discuss each evaluation dimension in detail, highlighting how the platforms compare on each.

Technical Capabilities and AI Features

Modern core banking systems differ in their functional breadth and use of AI/ML. **Temenos Transact** and **Oracle Flexcube** stand out for their extremely broad functionality across retail, corporate, and other banking verticals – these systems come with a wide array of modules (loans, deposits, payments, treasury, wealth, etc.) and are used by thousands of banks worldwide. They have also infused AI-driven features: Temenos has modules for personalized customer insights and integrated fraud/AML checks using AI, while Oracle uses machine learning for fraud detection, credit scoring, and customer analytics. This makes them very feature-rich, though possibly more than what a mid-size fintech or new bank initially requires.

In contrast, **newer platforms** focus on flexibility and specific innovative capabilities. **Thought Machine's Vault** allows banks to construct any financial product via code – its unique **smart contract-based product engine** lets developers define products (accounts, loans, wallets, etc.) with complex behavior entirely in software. This is paired with a library of ready-made product templates to jump-start development. Vault processes everything in

real-time (no end-of-day batch), which enables instantaneous updates like interest accrual, fee calculation, and balance updates. While Vault itself doesn't include built-in AI modules for, say, fraud detection, it provides the foundation for banks to plug in any AI analytics they want, and its flexible ledger can handle novel products like stablecoin accounts or buy-now-pay-later plans with ease.

Finray's Corebanq provides all standard retail banking capabilities (multi-currency accounts, payments, etc.) but notably has an **integrated crypto engine** allowing customers to buy/sell cryptocurrencies and exchange between fiat and crypto within the core system. This feature is particularly relevant for fintechs that plan to offer crypto services alongside traditional banking. Finray's platform is built for *auditability* (every transaction is tracked), which, combined with the crypto support, positions it well for use-cases like digital asset banks under MiCA.

Mambu, as a SaaS core platform, takes a composable approach: it covers essential banking products (loans, deposit accounts, etc.) and lets institutions assemble what they need via APIs. It emphasizes integration with fintech partners for extended capabilities – for example, a Mambu user might plug in a third-party AI-based credit scoring service via API. Mambu includes analytics and reporting tools, but AI features like advanced fraud detection are generally delivered through its marketplace or partners rather than built in. The advantage here is speed and simplicity: fintechs can launch new products quickly on Mambu's flexible core, then attach specialized services as needed.

Intellect eMACH.ai is explicitly branded as an "intelligent" core. It claims over 285 microservices covering various banking functions and the ability to rapidly create new products using **AI tools and automation**. For example, Intellect advertises a *three-minute digital onboarding* process, indicating heavy use of AI for ID verification and risk scoring during onboarding. It also supports modern offerings like Buy-Now-Pay-Later and integrates with a fintech marketplace, which suggests it's geared towards banks that want a cutting-edge, fintech-like product set. While specifics of its AI components aren't detailed in our sources, the platform's naming ("AI") and features imply built-in intelligent analytics, possibly for customer personalization or automated decisions.

Finxact focuses on enabling product innovation through technology rather than providing out-of-the-box AI. It supports real-time processing for a wide variety of asset classes and account types (it is *"agnostic to asset classes, currencies and time zones"* as an AWS marketplace description notes). Its strength is the robust API and the fact that every aspect of the core is exposed as a service, which allows a bank or fintech to easily integrate external AI services (for fraud scoring, marketing analytics, etc.) on top of it. Finxact doesn't

bundle AI modules natively, but its openness makes it easy to compose with AI/ML tools externally. Notably, Finxact has been used by some banks in partnership with a crypto custodian (Anchorage Digital) to offer crypto services on top of the core – again pointing to flexibility as a key capability.

In summary, **medium-sized fintechs** that need a broad feature set may lean toward platforms like Temenos or Intellect eMACH (which come with many ready features and some AI), whereas **new digital banks** often prioritize flexibility and speed – making Vault, Mambu, or Finxact attractive for their composability and lack of bloat. For those looking to incorporate **crypto and digital assets**, Finray Corebanq is uniquely equipped with native crypto handling, and both Thought Machine and Temenos have demonstrated integration with digital asset platforms to support crypto products.

Architecture (Cloud, API, Microservices, Event-Sourcing)

All evaluated platforms have embraced *cloud compatibility* and *API-first design*, but the degree of cloud nativeness and architectural modernity varies. **Cloud-native, microservices architectures** are crucial for agility and scalability. They allow updates and new features to be deployed as independent services and let banks scale components as needed.

Among the platforms, **Thought Machine Vault, Finxact, Finray Corebanq, Intellect eMACH.ai, and Mambu** were built from the ground up with modern architecture: - **Vault** runs in the cloud (offered either as SaaS by Thought Machine or deployable in a bank's private cloud) and is fully microservices-based. Its standout architectural feature is the **event-sourced ledger**: every state change is stored as an immutable event, and the current state is derived from the event log. This yields a single source of truth that can be reconstructed to any point in time, and it streams all ledger updates in real-time via APIs. In practice, this means Vault can easily integrate with other systems (via its streaming APIs) and ensures consistency across services. - **Finxact** is also cloud-native (running on AWS) and uses a **fully event-driven microservices architecture**. All functionality is exposed through RESTful JSON APIs. It employs a temporal data store which is effectively an event-sourced approach, allowing "as-of" queries on data (useful for auditing and back-in-time analysis). Finxact's system of record is ACID-compliant, ensuring transactional integrity even in a distributed microservice environment. - **Finray Corebanq** is similarly described as **cloud-native and API-first** with a modular microservices architecture. It is multi-tenant (supporting multiple institutions or business units on one platform instance) and event-driven, using webhooks to notify external services of events. The design includes built-in rate limiting and throttling to maintain performance in a multi-tenant cloud scenario. Internally, it uses an event-sourced ledger for auditability, aligning with modern patterns. - **Intellect eMACH.ai** explicitly follows the architectural

pillars in its name: Events-driven, Microservices-based, API-enabled, Cloud-native, and Headless. In practice, it's deployed on cloud (AWS) and is highly modular – banks can choose components and quickly integrate or remove services. Being headless means the core provides APIs but no mandated user interface, so banks can build their own user experiences on top or integrate with any digital channels via the APIs. - **Mambu** has a multi-tenant SaaS architecture on public cloud infrastructure (they work with AWS, Google Cloud, etc.). It is fully microservices-based and uses a "composable" approach: instead of one monolithic system, it's a collection of services and integrations that a bank can mix and match. It is also an API-first platform – essentially all operations (from creating accounts to posting transactions) can be done via API, which is ideal for embedding banking services in apps or integrating with other fintech products.

For **Temenos Transact and Oracle Flexcube**, the architecture is more of an evolution from legacy: - **Temenos Transact** has been transformed in recent years into a **cloud-friendly, microservices** architecture. Historically a monolithic core (T24), it's now offered in a modular manner and even as a containerized solution (Temenos Banking Cloud). It supports deployment on all major public clouds or on-prem. Temenos provides a rich set of REST APIs, which align it with open banking and fintech integration needs. While the core codebase has legacy origins, the latest versions support microservices scalability – large banks have broken apart modules (e.g., using only the payments engine separately) in some cases. - **Oracle Flexcube** also started as a traditional core system but has been **modernized to a microservices and API-driven architecture**. Oracle has made it possible to deploy Flexcube on Oracle Cloud Infrastructure or other clouds. It exposes an API layer for integration and meets open banking standards (PSD2) so that third parties can safely connect to the core. The presence of microservices suggests Oracle decoupled some of its core functions into separate services for easier scaling and updating. However, given Oracle's reliance on its database technology, some parts may still be more centralized compared to a born-in-the-cloud platform.

Event-sourcing and real-time processing are particularly relevant for fintechs that require instant updates (e.g., card transactions updating balances immediately, or crypto trades reflecting instantly in accounts). On this front, Vault, Finxact, and Finray have an edge as they inherently operate in real-time with event-driven updates. Mambu also operates in real-time and as a multi-tenant SaaS, it handles scaling behind the scenes. Temenos and Oracle, while real-time capable, historically had end-of-day batch components (for interest posting, etc.), but those are largely optional now if running in a continuous processing mode on modern infrastructure.

API-first design is universal among these platforms – each provides extensive APIs for all core functions. This is crucial for **open banking (PSD2)** compliance and for enabling fintech ecosystems. For example, Finxact prides itself on 100% API coverage, Mambu and Vault similarly allow full programmatic access to accounts, transactions, customer data, etc. Oracle and Temenos provide API gateways or marketplaces for accessing their APIs. Finray's documentation highlights OpenAPI/Swagger definitions for its REST endpoints and even webhook callbacks for events.

In summary, if a fintech prioritizes the *most modern architecture* with no legacy constraints, **Thought Machine Vault, Finxact, Finray Corebanq, Mambu, and Intellect eMACH.ai** are top choices – all built cloud-native, microservices, and often leveraging event-sourced design. **Temenos and Oracle** have robust architecture as well, but some legacy underpinnings mean they might be slightly less nimble (though still scalable and now cloud-deployable). All platforms are API-first, which is essentially a prerequisite in today's banking landscape for integration and innovation.

Security and Data Protection Measures

Security is paramount in core banking due to the sensitive financial data and critical transactions these systems handle. All platforms in this evaluation implement **strong security controls**, though there are differences in certifications and special features.

Common security features across the board include encryption of data at rest and in transit (TLS for API calls, database encryption), role-based access control (RBAC) to ensure only authorized staff or services can perform certain actions, and audit logging of user activities and transactions. For cloud-based systems, leveraging the cloud provider's security infrastructure (like AWS security tools or Azure's security services) is also common.

Highlights by platform: - **Thought Machine Vault:** Emphasizes rigorous security from day one. Vault is ISO/IEC 27001 certified and SOC 2 Type 2 accredited, indicating it has a formal information security management system and audited internal controls. The platform enforces strict data privacy compliance (e.g., GDPR in Europe). Vault also adheres to various regulators' outsourcing guidelines (like those from the EBA in Europe, MAS in Singapore, etc.), which is important for banks that need to vet cloud vendors. All transactions in Vault are immutable and fully auditable, which means security of transaction integrity is very high (tamper-proof ledger). - **Finray Corebanq:** Implements robust security measures typical of a fintech-focused system. According to the documentation, it uses RBAC down to endpoint and record level, **multi-factor authentication** for users, TLS 1.3 for data in transit, and strong encryption at rest. It continuously logs audits and performs compliance

checks. Finray aligns with ISO 27001 standards and explicitly mentions compliance with **EU MiCA** crypto-asset regulations. This indicates that Finray built controls for secure handling of crypto assets (e.g., custody, private key management via partners, or ensuring traceability) into the platform. Few core banking systems currently mention MiCA, making this a differentiator for crypto-focused security and compliance. - **Intellect eMACH.ai:** It's noted to have advanced security protocols against cyber threats. While details aren't given, this likely includes all the expected measures (firewalling, intrusion detection, secure coding practices). Data encryption and access controls are in place. Being a modern platform, it would also support things like container security if deployed on cloud. Intellect highlights that it is *fully compliant with data protection laws (GDPR, etc.)* and has integrated AML/KYC, which means security extends to preventing financial crime as well. Having AML/KYC modules implies automated checks on transactions and customer data to flag suspicious activity – an important security aspect for banks. - **Mambu:** As a multi-tenant SaaS, Mambu's reputation rests on strong security. Mambu provides encryption for data, rigorous access controls, and continuous security monitoring. They undergo regular security audits and hold certifications like ISO 27001. Operating on the cloud, they also likely follow AWS/GCP security best practices (network isolation, etc.). Mambu's trust by many fintechs and banks indicates a proven security track record. - **Temenos Transact:** Temenos offers a *"bank-grade"* security environment. Their SaaS is SOC 2 and ISO 27001 certified. They also incorporate secure software development practices and align with Cloud Security Alliance controls. A notable feature is *immutable transaction logging*, which ensures once a transaction is written it cannot be altered – important for both security and audit. Given Temenos' long history with large banks, it also supports granular access control, dual authorization (maker-checker) for sensitive actions, and thorough audit trails – features often required by incumbent banks' security policies. - **Oracle Flexcube:** Oracle brings some unique security angles. It mentions **blockchain-enabled transaction security** – likely meaning it can optionally record hashes of transactions on a blockchain for tamper evidence, or use distributed ledger tech for certain processes (this could be part of Oracle's broader blockchain offerings integrated with Flexcube). It also supports biometric authentication (probably in digital channels module) and real-time AML monitoring of transactions. Oracle's platforms are typically compliant with a slew of global security standards and offer strong disaster recovery (especially if using Oracle's cloud with its autonomous database and replication features). Oracle likely provides encryption and key management integrated with its database solutions. - **Finxact:** Finxact leverages AWS security — data encryption (likely using AWS KMS for keys), regular key rotation, and a least-privilege approach to IAM. High availability is built in via multi-AZ deployment (redundant across data centers). For audit, every transaction message is traceable, and they can

reconstruct every action for compliance. Finxact being SOC 2-compliant is implied. Essentially, Finxact follows modern cloud security best practices rigorously, which is vital for any bank trusting a newer provider.

In general, **all platforms meet major security benchmarks** like encryption, RBAC, audit logs, etc. The *cloud-native ones* (Finxact, Finray, Thought Machine, Mambu, Intellect) benefit from more recent tech stacks and can implement zero-trust architectures more easily, whereas the *established ones* (Oracle, Temenos) have caught up via certification and add-ons like blockchain audit or third-party integrations.

One security consideration is **operational security and updates**: SaaS models (Mambu, Finxact to an extent, possibly Finray if offered as SaaS) mean the vendor handles security patching and updates continuously. Self-hosted or on-prem models (Oracle, maybe Temenos if on-prem) require the bank's IT to manage patches, which can lag. For a fintech without large IT teams, a SaaS core with vendor-managed security is often attractive.

Regulatory Compliance Support

Regulatory compliance is a make-or-break area for core banking, especially as fintechs enter the realm of being regulated banks or crypto-asset service providers. A core banking system should ideally help the institution meet regulatory requirements rather than being a hindrance.

Baseline compliance features common to many systems include: audit trails (for every transaction and change), reporting tools for regulators (like generating reports for Basel III capital ratios or anti-money laundering suspicious activity reports), support for multi-currency accounting (important for Basel and IFRS standards), and data privacy compliance (GDPR). Also, **Open Banking/PSD2** compliance (secure customer data sharing via APIs and strong customer authentication) is a newer requirement in many regions that core systems need to accommodate.

Standout observations: - **MiCA (Markets in Crypto-Assets) readiness:** MiCA is an EU regulation focusing on crypto assets and will impose requirements like maintaining certain capital, proper record-keeping of crypto transactions, transparency, and possibly real-time reporting of crypto trades. Among the platforms, **Finray Corebanq** explicitly positions itself as MiCA-ready – it provides **one-to-one traceability for crypto transactions** and aligns with EU crypto-asset standards. This means if a fintech under MiCA needs to demonstrate an auditable trail of all customer crypto operations, Finray can deliver that out-of-the-box. **Thought Machine Vault** also is very suitable here: while not explicitly stated as "MiCA" in marketing, its immutable event ledger and ability to handle crypto through integrations (e.g., integration with Metaco for custody) let a bank maintain a unified ledger of fiat and crypto with full

auditability. Vault can store both fiat and *"non-fiat"* (crypto) balances on the same platform and produce historical reports for regulators easily. **Finxact**, through partnership with Anchorage, has shown it can support banks in offering crypto in a compliant way – it provides the core ledger and connectivity, while Anchorage provides regulated custody. So Finxact can be part of a MiCA solution (though MiCA is EU and Anchorage is US, the concept of integrating a regulated crypto custodian holds). - **Traditional banking regulations: Temenos Transact** and **Oracle Flexcube** come with very extensive regulatory support because large banks operate in complex regimes. Temenos has modules or configurations for **Basel III** (capital adequacy calculations), IFRS 9 (loan loss accounting), **GDPR** compliance, and various local requirements. It also supports **AML/KYC** through built-in or add-on components, and regularly updates its regulatory library as laws change. Oracle similarly includes compliance for Basel III, IFRS9, FATCA (tax reporting for US persons), and so forth. Oracle's API marketplace helps banks comply with Open Banking by exposing the required interfaces. In short, these incumbent systems ensure that a bank's core calculations and reports can satisfy regulators globally – which can reduce the need for external reporting systems. - **AML/KYC and fraud:** Modern fintech cores often integrate with specialized providers for AML and fraud detection. **Intellect eMACH.ai** includes AML/KYC engines natively, which means from day one it can perform watchlist checks, transaction monitoring for suspicious patterns, etc. **Mambu** facilitates AML/KYC via integrations or marketplace add-ons (they have partners that provide those services on top of Mambu's core). **Finray** has "transaction screening with external compliance providers" and KYC workflows as part of its features, showing a focus on compliance processes. Temenos and Oracle have their own financial crime modules or integrate with their other products (Temenos has an FCM – Financial Crime Mitigation – suite, Oracle has OFSAA for AML). - **Open Banking (PSD2) compliance:** All API-first platforms inherently support open banking, since they can expose data securely to third parties with customer consent. For example, Oracle and Temenos explicitly mention PSD2 readiness. Finxact and Mambu's entire model is essentially open API, which covers this need. For a new bank in Europe, the core system must allow features like AISPs (Account Information Service Providers) and PISPs (Payment Initiation) to connect – an API layer and strong security (OAuth2, etc.) is needed, which these systems provide. - **Reporting and audit:** Having a **temporal or event ledger** (Vault, Finxact, Finray) is a big advantage for compliance because you can generate an "as-of" report of balances or transactions at any historical date very easily. Regulators often ask for data as of quarter-end or to reconstruct what happened leading to an incident – event-sourced cores make that straightforward. Traditional systems achieve this via audit logs and backups, but not as elegantly. Vault's ability to retrieve any past state from its event store is a clear compliance benefit. - **Geo-specific**

compliance: Intellect eMACH.ai notes compliance with UK, EU, and Nordic regulations out-of-the-box, which presumably means it's configured for things like **GDPR, PSD2, European Banking Authority guidelines**, as well as perhaps Nordic open banking standards or real-time payment network integrations. This is useful for new digital banks that want a core that doesn't need heavy modification to satisfy local laws. - **Auditability and control:** Many of the platforms stress *auditability*. Finray's event ledger and continuous logs, Finxact's message traceability, Vault's immutability – these all ensure that an auditor or regulator can be given a reliable trail of all activities. That is particularly crucial for MiCA (crypto) where every movement of crypto needs to be tracked to prevent misuse, and for things like **Basel III** where calculations depend on accurate historical data.

Overall, **Temenos Transact** and **Oracle Flexcube** are the most *immediately comprehensive* in regulatory coverage for traditional banking (a medium-sized fintech that aspires to become a full bank might find all necessary compliance features readily available). **Thought Machine Vault, Finxact, and Finray** excel in *audit and traceability*, aligning well with stringent audit requirements and crypto regulations. **Mambu and Intellect** cover compliance needs through a mix of built-in capabilities and integrations, which is often sufficient for mid-tier financial institutions and allows flexibility.

Scalability and Performance for Fintech Needs

Scalability addresses whether a core banking system can handle growth in customers and transactions without performance degradation, and how suitable it is for different sizes of institutions (startups vs large banks). **All the evaluated platforms claim high scalability**, but their track records and architectures give some nuance:

- **Thought Machine Vault:** Designed for web-scale from the beginning. Vault can **elastically scale** on cloud infrastructure and even supports active-active multi-region deployment for resilience. This means a bank can run Vault across multiple data centers or cloud regions, improving both performance and uptime. Thought Machine has reported that even large, tier-1 banks using Vault have seen strong performance with real-time processing and no need for downtime windows. Because Vault is relatively new (launched mid-2010s), it doesn't yet have decades of production stress in hundreds of banks, but early indications (e.g., deployments in Europe and Asia) suggest it can scale to millions of accounts. For a medium fintech, Vault can start small on a cloud instance and seamlessly scale as users grow, making it future-proof for growth.

- **Finray Corebanq:** Also built for scale on cloud, Finray uses event-driven processing which is generally very scalable (events can be processed in parallel and the system can be scaled out horizontally). It also has

throttling controls to maintain performance under peak loads. Finray's production references might be fewer (as it's newer), but they report no known scalability issues in current deployments. It's likely targeted at small to mid-size institutions initially, but the cloud-native design means it could scale further with proper infrastructure. For a fintech focusing on crypto and rapid growth, Finray's ability to handle increasing transaction volumes (especially if crypto trading volumes spike) is critical and seems well accounted for.

- **Intellect eMACH.ai:** Being cloud-native and microservices, eMACH.ai can **scale horizontally** – i.e., by adding more service instances under a load balancer as usage grows. The platform supports incremental deployment, meaning a bank can start with a small set of services and gradually increase usage. Intellect hasn't indicated any upper limit; since it's used by at least one Tier 1 bank (for a specific business line), it likely can handle fairly large scale if needed. There have been no reported performance constraints, so for a medium-sized bank or rapidly growing digital bank, eMACH.ai should be able to accommodate user growth by simply scaling the underlying cloud resources.

- **Mambu:** As a multi-tenant SaaS, Mambu's scalability is one of its selling points. They have fintech clients that started small and grew into multi-country banks on the same core. Mambu **allocates resources on demand** – so if your transaction load doubles, the platform (and the Mambu ops team) will scale up the database and app infrastructure behind the scenes. There are examples of Mambu handling millions of users (e.g., digital banks like N26 started on Mambu). Generally, no major issues are noted up to medium-large scale. However, as the source notes, very large Tier-1 banks tend not to use Mambu as their sole core for all operations; instead they might use it for a specific digital product line. This suggests that while Mambu can scale technically, there might be functional limits or complexities in using it for extremely complex, large operations (or simply that large banks have other cores and use Mambu tactically).

- **Temenos Transact:** Temenos is **proven at very high volumes** – it runs in large global banks with tens of millions of customers and extremely high daily transactions (including core banking for international banks, etc.). In terms of raw scalability, it has records of processing thousands of transactions per second in benchmarks. When deployed on cloud with elastic scaling, it can achieve multi-region support. The caveat is that scaling Temenos for a huge bank can become a complex project (data partitioning, tuning its databases, etc.), which is why replacing a legacy core with Temenos is often a multi-year effort for big institutions. For a **medium-sized fintech or a new bank**, Temenos definitely can scale beyond their needs; the challenge might be that the *complexity and*

configuration needed to use Temenos effectively could slow down a fast launch. That said, Temenos has tailored offerings for smaller banks (model bank implementations) that can be more manageable. In terms of performance, a fintech using Temenos likely wouldn't outgrow it — it's more whether they can manage it efficiently as they scale.

- **Oracle Flexcube:** Likewise, Oracle Flexcube has been deployed in some of the world's largest banks, which means it **can handle very large scale** operations. It's known for high-performance transaction processing. However, as mentioned, achieving peak performance with an Oracle-based system might require significant **hardware and tuning** if on-premise. Oracle's core relies heavily on the Oracle Database; scaling that vertically (bigger servers) or horizontally (sharding) can be done but needs expertise. Oracle has cloud-optimized versions now which help offload some of that complexity. For a medium or new fintech, Flexcube can certainly be scaled down to fit, but it might be more "enterprise" grade than necessary and could introduce overhead (both in running it and cost of scaling it).

- **Finxact:** Finxact is designed to **grow with any size institution** without changing cores, which was a key goal (so that a bank doesn't have to re-platform as they become large). It uses cloud scaling, meaning if transaction volume spikes, new instances of services can spin up. It also avoids batch processes, which can become bottlenecks in legacy systems. Finxact already has some significant banks (and being under Fiserv now, it could be offered to large Fiserv clients), and it's positioned as suitable even for large regional banks. Finxact's use of temporal data store suggests it can handle a lot of data history while still performing well. In practice, Finxact's scalability will leverage AWS scaling – adding more compute and perhaps splitting workloads by functional domain. So far, they have reported success with multi-million customer banks in the U.S..

Suitability for new vs medium fintechs: The *scalability* is closely tied to how suitable a platform is for a given size/type of institution: - For **new market entrants (startups, challenger banks)**, a system that is **cloud-based, quick to implement, and can start small** is ideal. Mambu is a prime example used by many neobanks – you can configure products and go live in months, and it will scale as your user base grows, without you worrying about infrastructure. Finxact and Finray could also appeal here: Finxact if you have a strong tech team that wants an API-only core and perhaps if you are U.S.-based (since Fiserv can provide it as a service), and Finray if you specifically need crypto capabilities from day one (for a crypto-friendly neobank in Europe, for example). Thought Machine Vault has been used by new banks (like Atom Bank in the UK); it requires building product definitions, but Thought Machine provides support and it can give a new bank a cutting-edge, scalable core that

will last them long-term. Intellect eMACH.ai might be slightly more than a very small startup needs, but a well-funded new bank could use it to get a comprehensive suite quickly (especially if they want to leverage Intellect's existing microservices for many features rather than building in-house). - For **medium-sized fintech companies** (perhaps fintechs that have a few hundred thousand to a few million customers, or established fintechs expanding into banking), scalability is about ensuring the core won't become a bottleneck as they grow further. At this stage, they might need more advanced features and compliance, so Temenos or Oracle could come into consideration if they are hitting limitations of a simpler system. However, many mid-sized fintechs still opt for modern cores like Vault or Mambu to avoid the complexity of legacy. Thought Machine, Finxact, or Intellect could be great fits here because they combine scalability with modern flexibility – the fintech can customize products and not be constrained, while knowing the system can scale to many millions of accounts. Temenos Transact in its SaaS form could be an option if the fintech wants a very proven system and doesn't mind using a more heavyweight solution to prepare for becoming a large bank. - For **MiCA-regulated firms** (which could be crypto exchanges becoming regulated, or fintechs offering stablecoins, etc.), scalability also means handling potentially high-volume, high-volatility transactions (crypto markets run 24/7). Systems like Finray and Finxact (with Anchorage) demonstrate they can handle 24/7 operations and bursty loads. The ability to process continuously (no downtime) is critical for crypto trading – Vault, Finxact, Finray all do real-time posting with no daily batch windows. Oracle and Temenos can be configured for 24/7 as well, but historically some banks had end-of-day processes. A MiCA firm might prefer a new architecture designed for continuous operations. Cloud scalability (adding more nodes quickly when usage spikes) is another plus in crypto contexts; the cloud-native cores inherently do this, whereas scaling an on-premise Oracle deployment quickly is harder. So suitability-wise, crypto-focused fintechs will lean towards the cloud-native, event-driven cores for both their flexibility and on-demand scaling.

In conclusion, **scalability is not a concern for any of these platforms at the volumes a medium fintech or new digital bank would generate** – all have demonstrated capacity well beyond that. The differentiator is more about *ease and cost of scaling*: The cloud-native SaaS cores (Mambu, Finxact, etc.) scale out with minimal effort from the bank's side, whereas scaling traditional cores might involve more planning (though their upper limits are very high). None of the platforms have known hard limits that would impede growth, so a recommendation will hinge on other factors like functionality and speed to market, with confidence that each can support future scale.

Recommendations and Use-Case Fit

Finally, we translate the above findings into specific recommendations for the target scenarios:

1. Medium-Sized Fintech Companies

Medium-sized fintechs (e.g., established fintech lenders, payment companies expanding into banking, or digital banks scaling up) require a core that balances **comprehensive functionality** with **agility**. They may need more features and regulatory support than a brand-new startup, but still want to avoid the slow pace of legacy systems. Key priorities are likely flexibility for product innovation, robust compliance as they become more regulated, and scalability to support a growing customer base.

Recommended Platforms for Medium Fintechs:

- **Thought Machine Vault Core** – *Best-in-class flexibility and future-proof scale*. Vault allows a fintech to differentiate by coding custom products (interest algorithms, novel account types, etc.) while relying on a proven, cloud-native backbone. It has strong security/compliance credentials (used by regulated banks). A medium fintech with a capable tech team can leverage Vault to roll out unique offerings and be confident in scaling to millions of users without re-platforming. Its event-sourced ledger and API-first design also mean it will integrate well with the fintech's existing services and data warehouse. Vault's adoption by mid-sized banks and even larger banks indicates it can meet complex needs as the fintech grows.

- **Mambu** – *Quick deployment and broad out-of-box capabilities*. Mambu's composable SaaS platform is very appealing to medium fintechs that want to launch new product lines fast (e.g., a fintech adding deposit accounts and cards to a payments app). It covers standard retail banking features and has a rich ecosystem of integrations (for cards processing, KYC providers, etc.), reducing development effort. Mambu is certified and compliant with major standards, which is crucial as the fintech grows and faces more oversight. Its cost-effective SaaS model can also be financially attractive (35–50% more cost-effective than legacy providers by some accounts). Importantly, Mambu will scale with the business and has been proven in mid-size institutions without major hiccups.

- **Intellect eMACH.ai** – *Comprehensive "bank-in-a-box" with modern tech*. For a fintech approaching the size of a small bank, eMACH.ai offers a wide array of microservices (285+ services) that can be turned on as

needed. This means the fintech can quickly add capabilities (e.g., trade finance, or new payment types) by configuring what's already available, rather than building from scratch. Its cloud-native, events-driven architecture ensures the fintech isn't bogged down by legacy issues. Also, the AI-driven components (like automated onboarding and analytics) can help a medium fintech improve operations and customer experience without separate projects. Given it's used by at least one large bank's expansion, it has credibility for scaling and compliance. It could be slightly heavy for a very small fintech, but for a mid-sized one looking to become a full-spectrum digital bank, eMACH.ai is a strong contender.

- **Temenos Transact (SaaS)** – *Enterprise-grade depth if needed*. If the fintech's strategy requires a **very extensive product set or plans to operate in many countries**, Temenos Transact might be considered even at mid-size. It brings practically every banking feature (from retail loans to Islamic banking modules), which could fast-track the fintech's service expansions. Moreover, its built-in compliance for various regimes can reduce the burden of building those capabilities in-house. Temenos now offers a cloud SaaS model targeted at challenger banks, which templatizes many processes and could mitigate the complexity issue. This would suit a medium fintech that has the funding and intent to become a large bank and wants a core system that they will *never outgrow*. The trade-off is potentially longer implementation and needing skilled Temenos resources. But the reward is a rock-solid, scalable core proven in big leagues. For example, a fintech aiming to be a pan-regional bank might choose Temenos to satisfy multi-country regulators out-of-the-box.

In summary, **Vault and Mambu** emerge as top choices for mid-tier fintechs – Vault for those prioritizing ultimate flexibility and innovative product capabilities, and Mambu for those who value speed, ease, and pre-integrated functionality. **Intellect eMACH.ai** is an excellent middle-ground for a fintech wanting a lot of features with modern architecture, essentially providing a ready-made digital bank stack. **Temenos** is a more conservative choice if enterprise-grade breadth is required; it is future-proof but comes with more overhead. Finxact and Finray (discussed below) could also serve a medium fintech, but we highlight them more for the other categories, though they are by no means unsuited for mid-size usage (Finxact, for instance, can scale up to large banks).

2. New Market Entrants in Digital Banking

New entrants – such as startup digital banks, fintechs launching their first banking product, or even non-banks entering finance – typically prioritize **fast time-to-market, low complexity, and cost-effectiveness**. They need a core

that can be launched quickly with essential features, and that will not burden a small tech team. At the same time, they value flexibility to differentiate (since as newcomers they often compete via unique offerings or superior UX). Key considerations are also vendor support and whether the core can start small (maybe even as a managed service) to reduce upfront effort.

Recommended Platforms for New Entrants:

- **Mambu** – *Top choice for speed and simplicity.* Mambu's cloud banking platform is specifically known for enabling rapid launch – in some cases, digital banks have gone live in a few months using Mambu's out-of-the-box capabilities. It handles the "heavy lifting" of core processes as a service, allowing a new entrant to focus on customer experience and marketing. With Mambu, a neobank can configure products (like a basic deposit account or loan) through its composable system and leverage Mambu's existing integrations for payments, KYC, etc. This significantly cuts down development time. Being multi-tenant SaaS, the startup doesn't worry about infrastructure or updates. Importantly, Mambu has relatively low legacy overhead – it's modern and easy to work with, as evidenced by many fintech successes on it. It's also *pay-as-you-grow*, which is budget-friendly for a startup. For new entrants, Mambu offers arguably the fastest path to a working digital bank.

- **Finxact** – *API-first core for innovators.* Finxact is ideal for a fintech that wants a **developer-friendly** core banking platform. A new entrant can use Finxact's rich set of APIs and sandbox to start building products quickly. Because Finxact is headless (no built-in channels), a fintech with a strong engineering team can craft a bespoke mobile or web app on top while Finxact handles all the ledger and account management behind the scenes. Finxact being cloud-native means the fintech can start small (perhaps in a shared environment or via a BaaS provider partnership) and scale as needed. Notably, Finxact is now backed by Fiserv, which offers it via a "core-as-a-service" model to digital banks; this could be a good route for entrants to get both the modern tech and the reliability of a major vendor. Finxact's design (real-time, event-driven) ensures a new bank can offer modern features like instant payments and real-time balance updates from day one. If the new entrant's competitive edge is technology (for example, offering programmable banking or unique integrations), Finxact is a great foundation.

- **Finray Corebanq** – *Perfect for crypto-focused new banks.* For any entrant planning to deal with crypto assets or target the crypto-savvy market under upcoming regulations, Finray offers a compelling proposition. It natively supports crypto transactions (buying, selling, converting with fiat) as part of the core system, which can save a huge

amount of integration effort that others would need with third-party crypto platforms. Finray's MiCA compliance out-of-the-box means a startup in the EU's crypto banking space can confidently build on it without worrying that the core won't meet regulatory expectations. Beyond crypto, Finray still provides all the regular banking functions, and being API-first and cloud-based, a small team can work with it relatively easily. As a newer platform, Finray likely also offers close support to early clients, which can help a new entrant get up and running. Thus, for a fintech that wants to be *"crypto-bank"* or incorporate digital assets seamlessly alongside traditional banking, Finray Corebanq is highly recommended.

- **Thought Machine Vault (Banking-as-a-Service deployment)** – *Innovative, with BaaS partner support.* For a startup that has a unique product vision (maybe something no existing core does easily), Vault could be used via a Banking-as-a-Service provider or accelerator program. While deploying Vault directly as a startup might be complex, Thought Machine has partnered with firms (and big banks) to offer Vault-based services. If a new entrant can tap into those, they get the benefit of Vault's modern core without having to implement it alone. This is ideal for a fintech creating a novel product (Vault's smart contracts will let them do things that fixed-function cores might not). Additionally, if a new bank's strategy is to scale quickly to multiple markets, Vault's single-instance multi-entity capability means they could run all their operations in one core instance across countries, simplifying expansion. Vault would require more engineering at the outset than Mambu, but for well-funded entrants with a tech focus, it can be a differentiator. We include it here as a forward-looking choice: for example, a fintech incubated by a bigger bank could use Vault to power its new digital bank with support from Thought Machine's team.

In summary, **Mambu** is often the default recommendation for new digital banks because of its proven fast time-to-market and ease of use. **Finxact** is a strong alternative for tech-centric startups, especially in North America or those wanting ultimate control via APIs. **Finray** is unmatched for crypto-friendly new banks – a niche but increasingly relevant category with MiCA licensing on the horizon. **Vault** (via partners) is a visionary pick for those who want cutting-edge innovation potential from day one, though it's a bit heavier lift than the plug-and-play SaaS options.

Importantly, all these choices have **no heavy legacy overhead** – they are modern systems built for cloud, which means a new entrant won't be slowed by legacy constraints or forced to manage data centers. They can focus on

acquiring customers and building features, while the core handles reliability and compliance.

3. Firms under the MiCA Regulatory Framework (Crypto-Focused)

MiCA will regulate crypto-asset services in the EU, impacting crypto exchanges, wallet providers, stablecoin issuers, and digital banks dealing in crypto. Such firms need core systems that can handle **both crypto and fiat**, ensure **traceability of crypto transactions**, integrate with blockchain custody or node infrastructure, and comply with stringent reporting and security requirements (e.g., proof of reserves, anti-money laundering for crypto transactions, etc.). They also need the system to support event auditing and possibly real-time notification to regulators of large transfers.

Recommended Platforms for MiCA-Oriented Firms:

- **Finray Corebanq** – *MiCA-ready by design*. Finray's Corebanq was seemingly built with crypto integration in mind. It offers **integrated crypto asset support** (including an engine for fiat-to-crypto exchange and crypto transaction processing), which is exactly what a MiCA-regulated business will need. Moreover, its ledger provides **one-to-one traceability for crypto transactions**, satisfying the key compliance requirement of MiCA to have full audit trails of crypto asset movements. Security alignment with MiCA (like how private keys are managed or how on-chain/off-chain records are reconciled) is a highlight, and Finray explicitly advertises compliance with EU crypto standards. A crypto exchange turning into a regulated institution could use Corebanq as a unified system to manage customer fiat accounts, crypto wallets (through the integrated module or external hookups), and all transaction history in one place. This drastically simplifies compliance reporting because the core itself can generate any required report of crypto flows (versus a patchwork of exchange databases and accounting systems). Finray is likely the **top recommendation** for any fintech whose main business is crypto but now needs a full banking ledger to meet regulation.

- **Thought Machine Vault Core** – *Unified ledger for fiat and crypto through integration*. Vault's event-sourced core ledger is extremely useful for crypto businesses because it can store crypto transactions as simply another set of events, and provide a unified view of a customer's fiat and crypto holdings. Thought Machine has demonstrated integrations with digital asset custody platforms (e.g., integration with METACO's custody solution) that allow Vault to handle stablecoins, tokenized assets, and even NFTs alongside regular accounts. This means a bank or fintech can use Vault to offer crypto trading or custody services

in a **secure and compliant way**, with the core banking system keeping track of every movement off-chain that corresponds to on-chain transactions. For MiCA, such an approach is ideal: the regulated entity can show regulators a complete internal ledger of all crypto customer activity, which reconciles to the blockchain via the custody integration. Vault's strong compliance focus (audit trails, as-of reporting) aligns with regulatory expectations for transparency. Additionally, Vault's ability to scale and handle real-time processing is crucial for crypto markets that operate non-stop. We recommend Vault for MiCA cases, particularly for those aiming to offer a wide range of crypto products (like stablecoin accounts, crypto loans, etc.) since Vault's flexible product engine can accommodate novel crypto-financial products (e.g., interest-bearing crypto deposits via smart contract logic).

- **Finxact** – *Foundation for crypto via partnerships.* Finxact on its own is a strong real-time core, and while it doesn't natively handle private keys or on-chain interactions, it has proven it can integrate with crypto custody services (Anchorage Digital in the US) to allow banks to offer crypto buying/holding within the core banking context. For a MiCA context, a similar model could be employed (for example, partnering with a European qualified custodian or leveraging an API to a crypto custody platform) and using Finxact as the book of record for all off-chain transactions. Finxact's temporal audit capabilities mean it can recreate any past state, which is useful for compliance investigations. Also, Finxact is built to handle multi-asset and 24/7 operation, which suits crypto services that have no downtime. If the firm's strategy is to integrate crypto services into a broader banking offering (and perhaps if they are already aligned with Fiserv/Finxact's ecosystem), Finxact is a viable choice. It doesn't shout "crypto" in its marketing, but it's architecturally capable and simply relies on integration for the crypto-specific pieces. Under MiCA, where separation of duties (like an independent custodian) may be encouraged, Finxact's approach of connecting to an external custodian could actually fit well (the core handles records and customer UX, the custodian handles on-chain assets).

- **Temenos Transact (with Crypto-Asset Module)** – *Option for incumbents entering crypto.* While a crypto startup may not choose Temenos first, it's worth noting that Temenos has integrated with crypto custody solutions (like Taurus) to allow its core banking clients to manage crypto assets. If a more traditional financial institution is applying for a MiCA license (say a bank launching a crypto asset service), they might extend their existing Temenos core to cover this. Temenos provides the reliability and rich compliance frameworks (for overall banking) and can now plug into digital asset custody/trading systems.

For a pure fintech under MiCA, Temenos might be too heavy, but for completeness: it *is* positioning to be MiCA-ready for its clients. We mention it as a recommendation primarily for established players adding crypto – they can leverage their known core system rather than adopting a new one.

For most **crypto-native firms** coming under MiCA, the priority is a core system that doesn't treat crypto as an afterthought. **Finray Corebanq and Thought Machine Vault** both treat crypto as a first-class citizen in different ways (one by native features, the other by flexible integration and ledger support), making them top picks. They both ensure *auditability and traceability*, which will be the keywords for MiCA compliance. They also allow these firms to offer hybrid products (like a single app where customers see fiat and crypto balances together and move between them seamlessly), which is likely a winning proposition. **Finxact** is also a strong contender especially for those who want an API-driven approach and the ability to plug into best-of-breed external crypto services – a modular strategy that regulators might appreciate (clear delineation between core banking and crypto custody operations, for example).

In all cases, the recommended platforms for MiCA provide **scalability (for high volume crypto trading)** and **no legacy constraints** that would struggle with new asset classes. They are built to be updated quickly, which is important as crypto regulations can evolve rapidly – e.g., if MiCA introduces new reporting rules, these modern platforms can adapt faster (through configuration or vendor updates) than legacy cores.

Conclusion

The landscape of core banking systems is undergoing a renaissance with AI and cloud technologies enabling unprecedented flexibility and performance. For **medium-sized fintechs**, platforms like **Thought Machine Vault** and **Mambu** offer a balance of innovation and reliability – enabling growth and differentiation without sacrificing compliance or scalability. **Intellect eMACH.ai** and **Temenos Transact** cater to those needing broad functionality and proven frameworks as they scale toward being full-service banks.

For **new digital bank entrants**, speed and agility are key: **Mambu** stands out for rapid deployment, while **Finxact** and **Finray Corebanq** empower tech-focused challengers (especially those with unique crypto or product integration needs) to hit the ground running. These systems minimize legacy overhead, allowing new players to focus on customer acquisition and experience.

Finally, in the **MiCA era of crypto-regulation**, having a core system that is crypto-aware is a competitive and compliance necessity. **Finray Corebanq** provides a turnkey solution for crypto-fiat banking with MiCA compliance built-in, and **Thought Machine Vault** offers a powerful route to unify digital assets with traditional banking through its event-sourced ledger and integrations. Firms that choose these platforms will be well-equipped to demonstrate robust control and transparency over crypto transactions – turning regulatory compliance into a strength rather than a hurdle.

In summary, the *"best"* AI-enhanced core banking system depends on the institution's profile, but the leading choices identified in this report all share certain virtues: **cloud-native scalability, rich APIs, strong security, and adaptability**. Banking executives and architects should weigh the criteria and comparisons provided (Table 1 and discussions) to select a platform that not only meets their current needs but also positions them for future innovation and regulatory landscapes. With the right core platform, medium fintechs and new banks can accelerate their roadmap, and crypto-focused firms can confidently bridge the gap between traditional finance and the digital asset economy.

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