MAHMOOD INSIGHT

AI and Core Banking Modernisation

A Global Outlook

Trends, proven use cases and a practical roadmap for bank leadership

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This paper draws on published disclosures from banks, technology vendors and research firms, cited in full in the Sources section. Reported outcomes are presented as indicative ranges that illustrate what has been achieved elsewhere; they are not forecasts for any individual institution.

1. Executive summary

Artificial intelligence is changing core banking modernisation in two complementary ways. It is reducing the cost, time and risk of the modernisation programme itself, from understanding legacy code and local customisations to migrating, reconciling and testing data. And once a bank operates on a real-time, open core, AI becomes an operating layer across the institution: product and pricing, credit, financial crime, payments, operations and customer service.

Across the world's leading banks, AI has moved from the innovation budget into core infrastructure. The largest institutions now fund it as a baseline operating cost, the major core banking vendors are embedding co-pilots and AI agents directly into their platforms, and capital markets are rewarding the banks that can demonstrate results. At the same time, the industry is deploying AI faster than it can evidence value, and only a minority of banks have moved autonomous agents into production.

The banks pulling ahead share a common pattern. They treat data quality and model governance as the foundation, adopt the AI capabilities their core vendors are already shipping, start with use cases where value is measurable and risk is contained, and use AI to make their next modernisation step cheaper and safer.

> **The central message**
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> AI shifts the constraint in core modernisation from code to data and governance. The competitive question is no longer whether a bank uses AI, but whether it can prove the value AI creates and scale it safely.

2. Eleven global trends

The following trends define the global landscape for AI and core banking as of October 2026.

1. AI is funded as infrastructure, not innovation

JPMorgan Chase now treats AI as a baseline operating cost alongside cybersecurity and payments. Its 2026 technology budget is USD 19.8bn, of which USD 1.2bn is directed to AI and modernisation. The bank reports USD 1–1.5bn in annual value, more than 230,000 employees on its internal AI platform and around 450 generative AI use cases in production, saving 3–6 hours per employee each week. Capital markets are rewarding this approach: the five leading banks in the Evident AI Index gained 33.6% over a year, against a sector median of 9.9%.

2. Deployment is outpacing proof of value

The 50 banks tracked by Evident announced 93 new AI use cases in the second quarter of 2026, a 45% increase on the prior quarter. Yet only 27% disclosed measurable outcomes, down from 41%, and only 16 banks report AI value at group level. Demonstrating value is becoming a differentiator in its own right.

3. AI agents lead the conversation, not yet production

In Bank Director's 2026 survey, 72% of banks use generative AI but only 30% have deployed agentic AI. The main barriers are concerns about autonomous decision-making, weak returns where technology preceded a clear business outcome, and gaps in data and governance. Research by IDC

found that organisations with strong governance were 15 times more likely to report strong returns. Notably, 83% of banks rely on AI embedded in vendor products rather than building in-house.

4. AI is moving into the core platform

Temenos, Infosys Finacle, Mambu and 10x all now position AI as native to the core rather than a layer added on top. A common architecture is emerging: a banking knowledge graph, Model Context Protocol (MCP) connectivity that allows AI agents to call core functions under controlled permissions, and agents that progress from listening, to advising, to acting.

5. Modernisation is becoming progressive, and AI makes it cheaper

Banks are increasingly modernising one domain at a time, such as deposits and then lending, rather than through a single large cutover. AI tools for code conversion and data migration are compressing programme timelines, and AI agents can now draw data from existing cores, which reduces the need to replace a core solely to access the information it holds.

6. Real-time is the baseline, and resilience is designed in

Real-time processing has shifted from differentiator to expectation. Operational resilience is now engineered into the architecture from the outset, reflecting tightening regulatory expectations.

7. Growth is shifting to document-intensive work

Commercial banking and wealth management use cases tripled in the second quarter of 2026, led by agentic know-your-customer (KYC) processes, end-to-end credit automation and adviser support tools.

8. Regulation is tightening around credit decisions

Under the EU AI Act, AI used for creditworthiness assessment and credit scoring is classified as high-risk, requiring human oversight, explanations for rejected applicants, impact assessments and incident reporting. Fraud detection is excluded from this category. Following the EU AI Omnibus, which entered into force on 27 July 2026, these obligations now apply from 2 December 2027. Many regulators outside the EU look to this framework as a reference point.

9. AI agents are beginning to transact

FIS, Visa Intelligent Commerce and Mastercard Agent Pay are building the infrastructure for AI agents to complete purchases on a customer's behalf using pre-approved credentials, with FIS making its platform available to issuing banks from the first quarter of 2026. McKinsey estimates agentic commerce at USD 3–5 trillion globally by 2030. For card issuers, this reshapes authorisation, fraud controls and dispute handling.

10. Tokenised deposits are reaching the core

JPMorgan Chase, Bank of America, Citi and Wells Fargo are building a tokenised deposit network through The Clearing House, targeted for the first half of 2027. Infosys Finacle and Temenos both identify tokenisation as a 2026 priority. Core platforms will increasingly need to operate conventional and tokenised ledgers side by side.

11. Smaller, sovereign models and a broader vendor field

Domain-specific small language models that can run within a bank's own environment are gaining ground, particularly where data residency matters. The vendor landscape is also widening: Microsoft's share of bank AI announcements has fallen from 37% in early 2024 to 18%, while

vendors outside the largest seven now account for around 60%, with Mastercard among the top three.

3. How AI is reshaping the modernisation programme

The most immediate economic impact is inside the modernisation programme itself. Each stage of a traditional core banking programme now has an AI-assisted equivalent supported by published evidence.

Programme stage	How AI is applied	Evidence
Discovery and reverse-engineering	AI agents read legacy code and local customisations and extract business rules and product logic into documentation	Thought Machine and AWS (September 2026): legacy COBOL is extracted, consolidated, rebuilt as modern product code and validated, with human review at each stage
Product and requirements	Natural-language design of customer journeys and products; product set-ups generated from the existing catalogue	Temenos Conversational Studio; Temenos Composable Retail Deposits and Lending for domain-by-domain modernisation
Customisation rationalisation	Coding assistants refactor or retire bespoke code and build extensions on the new platform	Temenos Copilot for Workbench; Emirates NBD reports that more than 25% of its production code is AI-generated
Data migration	Field mapping, data cleansing, pipeline conversion and automated reconciliation	Commonwealth Bank of Australia: 61,000 data pipelines and around 10 petabytes moved in nine months, 229,000 tests and full reconciliation, with more than 250 engineers reviewing AI output
Testing	Test cases generated from requirements; regression testing at scale	Temenos Copilot test generation; Commonwealth Bank tested every pipeline three times
Cutover and stabilisation	Monitoring of end-of-day processing and anomaly detection	Temenos Close of Business Observer (2026 release)

Implications for established core platforms. For banks running mature platforms such as Temenos Transact (T24) or Infosys Finacle, the local developments accumulated over many years are often what make upgrades slow and costly. AI that documents and rationalises this code is one of the most effective ways to reduce upgrade risk. In parallel, AI agents can now reach existing cores through APIs, MCP or the same screens staff use, so banks can unlock the data in their current core without first replacing it. This materially changes the economics of the replace-versus-extend decision.

4. The vendor landscape

Temenos

At its 2026 Community Forum, Temenos embedded an agentic suite of co-pilots and a Conversational Studio across core banking, digital banking and financial crime mitigation. These are supported by a banking knowledge graph, MCP connectivity and an agent framework that operates in three modes: listen, advise and act. Its May 2026 release added a Core Copilot for branch officers and managers, a Workbench Copilot for developers building extensions, and a financial crime agent for instant payments; one Tier 1 bank reports automating more than 20% of sanctions-screening alerts with that agent. Composable Retail Deposits and Lending allow banks to modernise one domain at a time, and Temenos SaaS on AWS now extends to digital banking and payments.

Infosys Finacle

Finacle's Data and AI Suite, launched in October 2024, combines a data platform built on a BIAN-inspired lakehouse with automated pipelines; an AI platform offering pre-trained models, no-code tooling, synthetic data generation and bias detection; and generative AI assistants for knowledge retrieval and IT support. Its 2026 outlook emphasises embedded co-pilots, real-time fraud detection, AI in onboarding and payment orchestration, and agents that act autonomously, for example in managing credit limits or recurring payments. Finacle also anticipates a shift from large to small, domain-trained language models that can be deployed on-premises, supporting data sovereignty and governance.

Cloud-native platforms

Thought Machine, Mambu and 10x position AI as native to fourth-generation, cloud-native cores. Mambu's Core MCP exposes hundreds of core operations to AI applications under permissions the bank controls, while Thought Machine's collaboration with AWS addresses migration directly. These platforms are setting the benchmark that established vendors are moving to match.

5. Where AI creates value across the bank

The table below sets out use cases by business domain, alongside the strongest published outcome identified for each. McKinsey ranges are drawn from its analysis of more than 200 core banking engagements.

Domain	Use case	Reported outcome
Product and pricing	AI-assisted configuration, simulation and launch of products and pricing changes	Product launch cycles 50–80% faster (McKinsey); one regional bank launched more than 40 product variants in 18 months and improved retention by 9%
Retail credit	Real-time decisioning on core and credit bureau data	5–15% more approvals at similar risk; one bank moved from hours to seconds and increased approvals by 12% in target segments

Domain	Use case	Reported outcome
Corporate credit	AI agents draft credit memos from annual reports, research and internal data	DBS: 1,500 staff, more than 70 tasks supported, targeting at least 30% less time on memos, which previously took up to 40% of relationship managers' time
Collections	Early detection of payment stress and tailored restructuring offers	Emirates Islamic has repositioned collections as "financial wellness intervention"
Financial crime	Machine-learning anti-money laundering detection replacing static rules; alert triage	HSBC: more than twice as many suspicious activity reports, processed four times faster; Temenos financial crime agent automates more than 20% of sanctions alerts
Payments	AI agents supporting cross-border payment processing	First Abu Dhabi Bank: cross-border payments 75% faster
Relationship management	AI support for relationship managers	First Abu Dhabi Bank: revenue per relationship manager up 30%
Operations	Reconciliations, exception handling and end-of-day monitoring	20–40% reduction in manual work (McKinsey)
Branch and contact centre	Co-pilots for branch staff; conversational customer service	Temenos Core Copilot for branch roles; Bank of America's Erica has handled more than 2 billion requests since 2018
Islamic banking	Automated Sharia screening and compliance checks across the product lifecycle	Emerging practice at Emirates Islamic, Al Masraf and Turkiye Finans
Knowledge and IT support	Retrieval from policy and procedure libraries; IT ticket resolution	Infosys Finacle Knowledge and Support AI Assistants
Engineering	Code generation and conversion	JPMorgan Chase: 10–20% productivity gains in code creation and conversion; Emirates NBD: more than 25% of production code
Human resources	Automated interview screening	Emirates NBD: 13,000 hours and around USD 400,000 saved

Institution-wide economics. McKinsey's most likely agentic AI scenario points to a 15–20% reduction in banking costs, and its core banking analysis finds that value from better decisions can exceed technology savings by a factor of two or more. Accenture projects a 22–30% productivity improvement over three years for banks that integrate AI. Infrastructure cost reductions of 20–40% and fraud loss reductions of 10–20% sit alongside these estimates.

6. Regional perspectives

North America

North American banks lead global AI maturity, holding nine of the top ten positions in the Evident AI Index. JPMorgan Chase reports around 450 generative AI use cases in production, and Bank of America's digital assistant has handled more than 2 billion requests. US banks are also leading on tokenised deposits through The Clearing House.

Europe

European banks face the most structured regulatory environment through the EU AI Act, and have had more limited access to some advanced AI models than their North American peers. The Act is likely to shape governance expectations well beyond Europe, particularly for credit decisioning.

Middle East and Africa

Emirates NBD leads the Evident index for the region, followed closely by Standard Bank, First Abu Dhabi Bank and Nedbank. Emirates NBD stands out for speed of deployment, First Abu Dhabi Bank for agentic AI in payments and relationship management, and Standard Bank for alignment with business units. South African banks account for nearly half of tracked use cases in the region. Gulf banks including Al Rajhi Bank, Qatar National Bank and National Bank of Kuwait are applying AI to fraud detection, back-office operations, customer service and compliance.

Asia-Pacific

DBS has deployed agentic AI to 1,500 staff for corporate credit assessment, and Commonwealth Bank of Australia has used generative AI to migrate its entire data estate to the cloud in nine months. Both are frequently cited as reference cases for AI at scale.

7. A practical roadmap

Leading banks sequence AI adoption so that early, measurable wins fund and de-risk the more ambitious steps that follow.

Horizon	Focus	Rationale
Now (0–12 months)	Financial crime alert triage; knowledge assistants for staff; reconciliations; credit memo drafting	Human-supervised, with fast and measurable payback; fraud detection sits outside the EU high-risk category
Next (6–18 months)	AI applied to modernisation: documenting and rationalising local customisations, data mapping, automated testing	Reduces the cost and risk of the next core upgrade or domain migration
Later (as data foundations mature)	Real-time credit decisioning, next-best-action, agents that execute transactions, readiness for agentic commerce on card platforms	Depends on high-quality product and customer data and mature model governance

> **Foundations that determine success**
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> A clean product catalogue and customer data model; a model governance framework with explainability and human oversight aligned to emerging international standards such as the EU AI Act; strong local-language capability; and a clear position on data residency and model hosting. Organisations with strong governance are 15 times more likely to report strong returns from AI.

8. Questions for the leadership team

The following questions can help a bank assess its readiness and set priorities.

- **Value.** Which three AI use cases would create measurable value within twelve months, and how will that value be tracked and reported?
- **Vendor roadmap.** Which AI capabilities is our core banking vendor already shipping, and are we positioned to adopt them as standard releases?
- **Data.** Is our product catalogue and customer data model clean and consistent enough to support real-time AI decisioning?
- **Governance.** Do we have a model governance framework that provides explainability, human oversight and auditability for credit and customer decisions?
- **Modernisation.** Could AI reduce the cost and risk of our next core upgrade or migration, particularly in rationalising local customisations?
- **Payments and cards.** Are our card and payment platforms ready for transactions initiated by AI agents on customers' behalf?
- **People.** How will roles, skills and accountability change as co-pilots and agents take on routine work?

9. About the evidence

The figures in this paper are drawn from public disclosures by banks, technology vendors and research firms. The most robust evidence comes from banks reporting operational outcomes, notably HSBC on anti-money laundering and Commonwealth Bank of Australia on data migration. Consultant and vendor ranges are best read as an indication of what well-executed programmes have achieved, rather than as forecasts for any individual institution.

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About Mahmood Insight

Mahmood Insight is an independent advisory practice supporting banks and financial institutions on strategy, product management, retail banking performance and transformation. Its founder brings close to two decades of senior experience in retail banking, product, cards and payments, including leadership of product portfolios and business ownership of core banking, card, digital and workflow platform programmes.

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