pwc

Autonomous digital enterprise: The future of financial institutions

February 2026

Table of contents

Foreword

The financial services sector is undergoing a transformation in which innovation, technology and human ingenuity are converging to create a resilient and more inclusive financial services ecosystem.

It gives us immense pleasure to present this paper 'Autonomous digital enterprise: The future of financial institutions' to our readers. The paper is more than a collection of insights, it is a journey into the future of financial services. This paper explores the evolution of banking from adopting technology-enabled operations to developing a roadmap for becoming autonomous digital enterprises. The paper also highlights strategic frameworks, execution governance principles and guidelines, and practical use cases which can be beneficial while developing the roadmap for the adoption of these digital enterprises.

The key insights of the paper include:

- The vision and roadmap for autonomous digital enterprises (ADE) in banking
- The transition to more impact-led technology innovation, e.g. Agentic AI from to agentic process automation (APA) powered by AI
- Focus areas for banks to build a vision for human-centric ADE adoption roadmap
- Governance frameworks aligned with organisational maturity, governing guidelines and recommendations.

The insights in this paper are intended to help banks chart their journey towards becoming **autonomous digital enterprises** by adopting an AI-first approach, capable of not just coherently adopting and responding to change but anticipating and shaping it.

I hope you find this report thought-provoking, and that it provides **actionable guidance** to support your organisation in embracing the future of financial services.

Gayathri Parthasarathy
Partner, India FS Sector Leader,
Global FS Technology Leader
PwC India

Vivek Belgavi
Partner, Financial Services Advisory Leader
PwC India

Rajdeep Saha
Partner, Financial Services
PwC India

01

Banking sector's evolution: From technology-enabled to technology-driven to autonomous banking

Financial organisations and banks have always been driven by data and vitality of reliable information exchange. However, the emergence of autonomous enterprises powered with decision AI, data democratisation and pace of go-to-market product strategies are now redefining the operating models and the enterprise landscape and customer experience journey for banks.

Today, traditional banks are facing various challenges across financial services with the emergence of neo-banks, FinTech, and digital e-commerce which are altering the core fabric of customer relationship expectations. The new equation of customer service now hinges on speedy resolutions and hyper-personalised services.

Financial services are moving from traditional models to value creation models driven by smart, adaptive, self-learning cutting-edge technologies which are enabling financial institutions to create innovative, customer-centric financial instruments with high value proposition aligned to the socio-economic and geo-political trends.

According to a World Economic Forum report, 58% of global bank leaders predict that GenAI and agentic AI will have transformative impact on the banking industry.[1] According to an RBI report, the global banking sector can potentially garner an estimated revenue of $12 billion by 2033 with a CAGR of 28–34%.[2]

Figure 1: Key features of the modern banking ecosystem

Modern banking system

Agility
Technological adaption towards hollowing of the core, from automation to ZeroOps, adoption of standardised architectural frameworks like BIAN, TOGAF for design of component model service landscape will enable organisations to rapidly reinvent and re-organise.

Customer-centricity
Transforming assisted journey to DIY empowerment via smart 'digital alter ego' to enable decision AI capabilities.

Actionable insights
Data democratisation to construct machines which can 'comprehend', 'learn' and 'act' with the advent of adaptive business constructs.

Source: PwC analysis

This paper focuses on understanding the key drivers for an autonomous enterprise, how traditional roles of banks are shifting as they adopt an AI-first approach, and building autonomous enterprises in the banking section guided by stringent regulations and guardrails.

1 https://reports.weforum.org/docs/WEF_Artificial_Intelligence_in_Financial_Services_2025.pdf

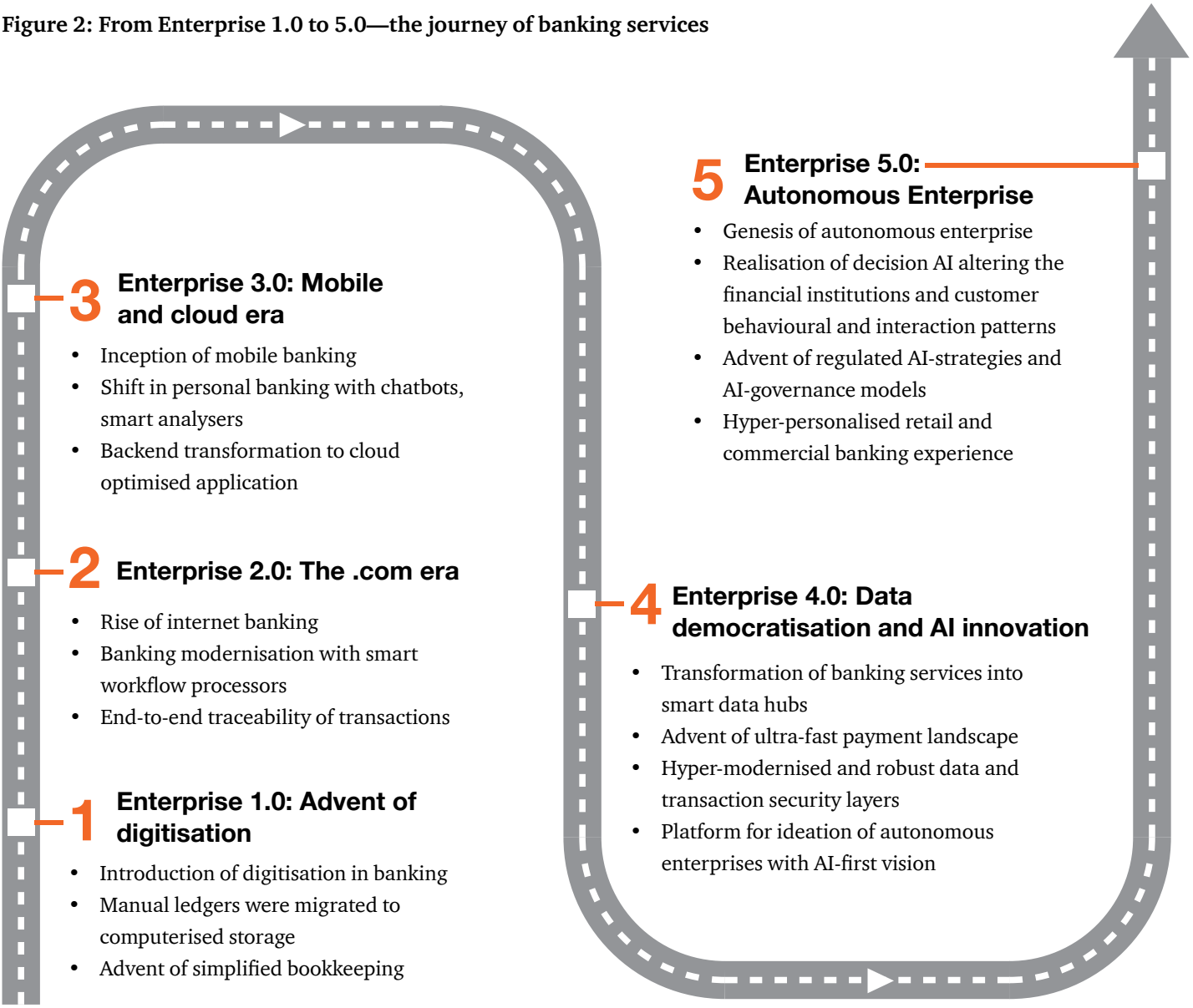
2 https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?ID=1306

1.1. Emergence of autonomous digital enterprise (ADE)

ADE builds on the foundation of Enterprise 4.0 for democratisation of AI/ML and envisions intelligent and interconnected value creation systems that operates with strategic human intervention and decision AI's capabilities.

Enterprise 5.0[3] describes the next evolutionary step for organisations with an AI-native, self-operating cross platform system where intelligence is embedded across front, middle and back offices and systems and can progressively evolve from assisted to autonomous operating models. Organisations are focusing on combining human ingenuity with machine learning to reimagine the fundamentals of operating models, innovate the product offerings and transform customer experience.

Figure 2: From Enterprise 1.0 to 5.0—the journey of banking services



Source: PwC analysis

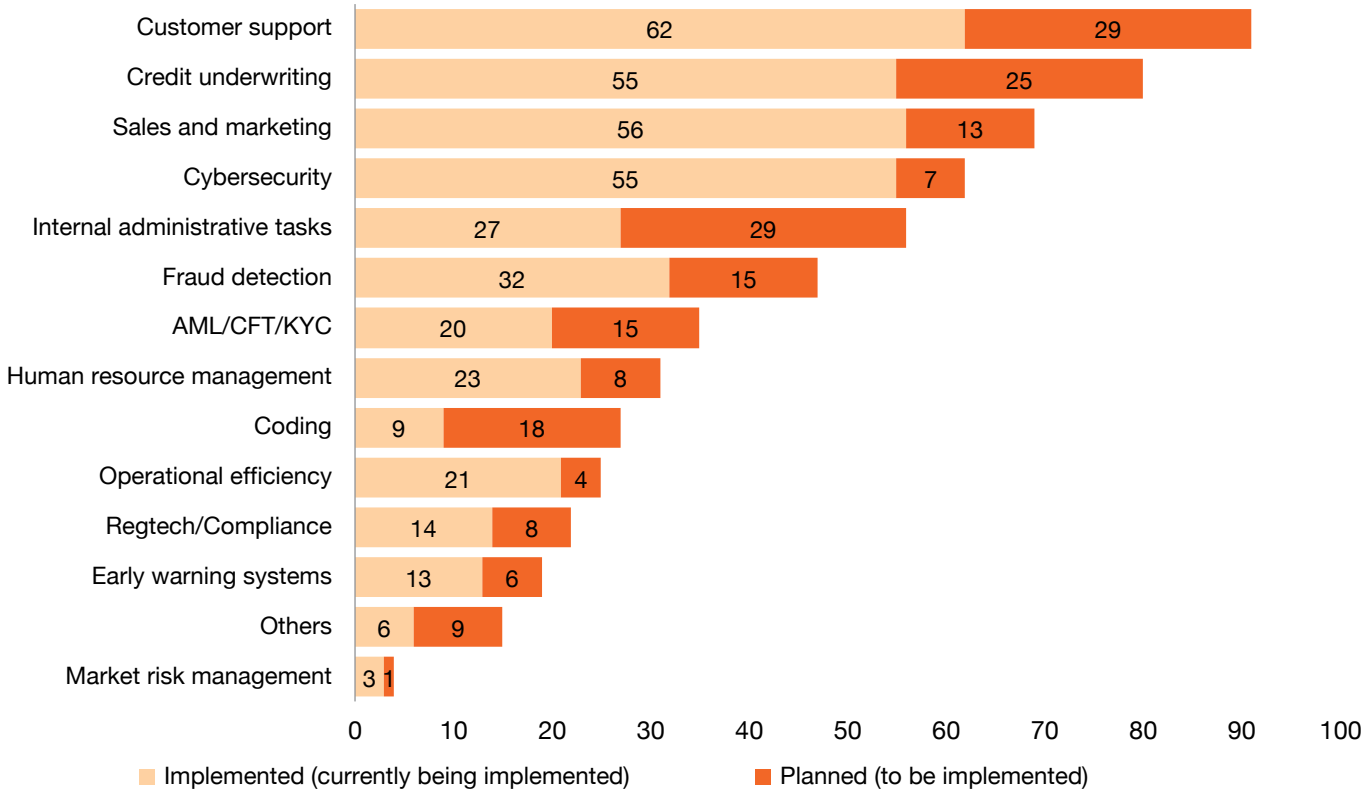
3 https://www.pwc.ch/en/insights/industry-5.html

Across the globe, banks should plan an ADE adoption roadmap to reshape customer experience, improving agility in customer services, real-time threat detection, developing new age cybersecurity strategies and augmenting the organisational capabilities through building multi-agentic process, infusion of decision AI into automation workflow and building robust data platform with standardised data governance frameworks.

According to a PwC survey, banks with accelerated adoption of ADE powered Decision AI systems can boost up to 2x increase in customer retention[4] which accounts for 55% of banking executives[5] identifying GenAI/agentic AI innovation initiatives to be the top priority digital investments for the banking sector.

RBI report for AI implementation[6] in banking sector also highlighted most use cases identified in domains for customer support, credit underwriting, marketing and cybersecurity. These domains cite a very high potential for adoption of ADE to enrich end customer engagement models, augment operation teams with real time response systems and facilitate intelligent and secure orchestration models to third party enterprise solutions

Figure 3: AI adoption trend in financial sector



Source: RBI FREE-AI framework[6]

4 https://www.pwc.com/us/en/industries/financial-services/library/how-ai-is-reshaping-banking.html

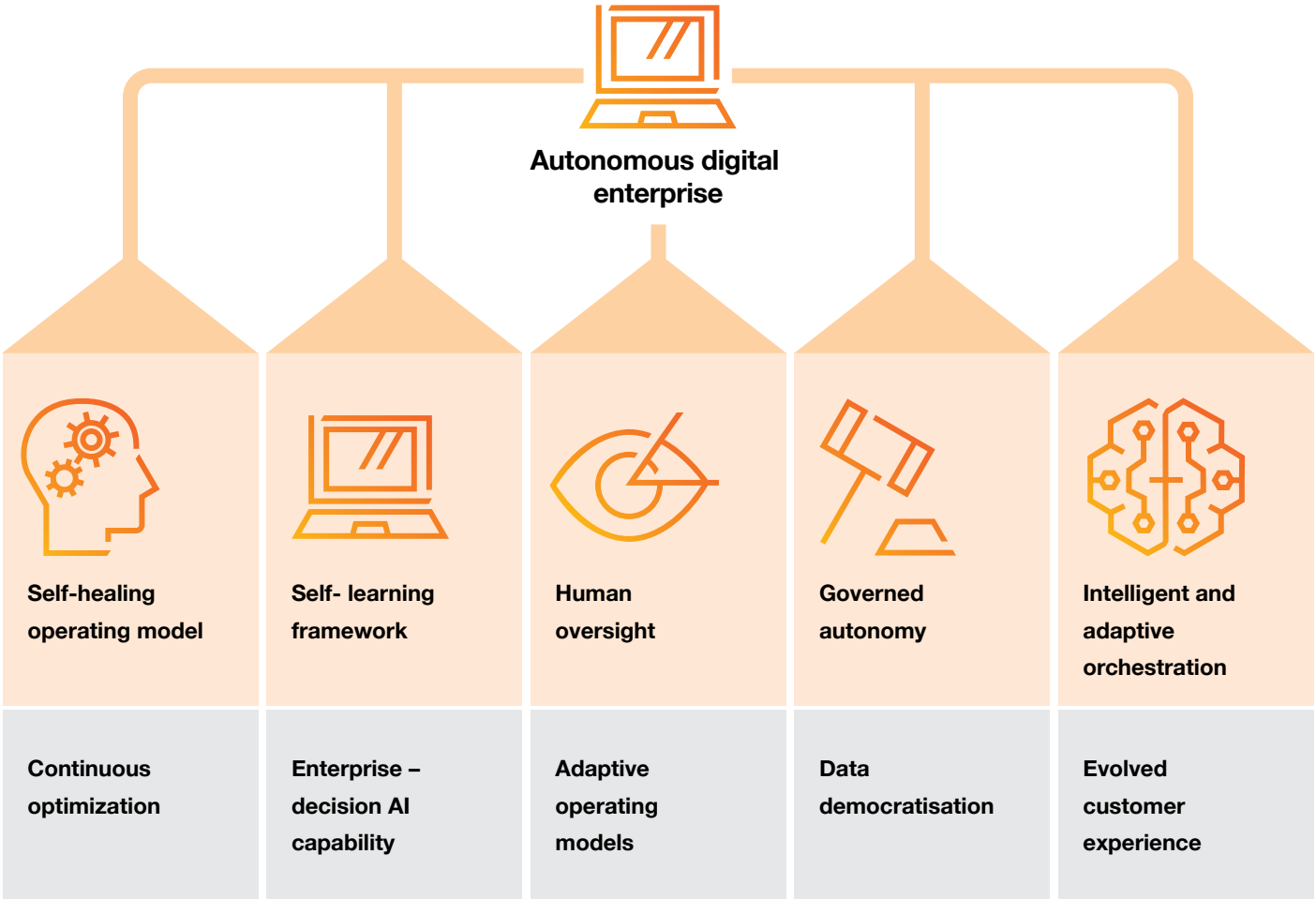
5 https://www.pwc.com/us/en/industries/financial-services/library/genai-in-banking-scale-speed-and-growth.html

6 https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?ID=1306

1.2. ADE's operating model

ADE works with an operating model where processes, decisions and remediations are executed or suggested by intelligent agents and humans act as supervisors, exception-handlers and provide ethical oversight. An autonomous bank integrates five key pillars: intelligent and adaptive orchestration, self-healing operating models, governed autonomy, self-learning framework and human oversight.

Figure 4: Five pillars of autonomous banks



Pillar 1: Intelligent and adaptive orchestration

Intelligent and adaptive orchestration is central to autonomous banking architecture model for coordinating customer journeys, real-time risk assessments, and AIOps through event-driven, composable services. Multi-agent framework and decision AI systems leverage real-time data and machine learning to perform tasks like credit scoring and liquidity optimisation, while ensuring consistency and auditability. By breaking services into modular, atomic and reusable components, banks can respond faster and adapt to changing customer preferences and market trends. This loosely coupled, coordinated system with integrated data platforms enables smart decisioning systems and prepares banks for adoption of autonomous enterprise.

Banks can explore leveraging training models for GenAI agents using standardised design frameworks to assist the business/IT teams over the enterprise design and development lifecycle within the phase of building robust orchestration model guided by the principles of domain-driven design, service-driven design that necessitates producing high quality repeatable design patterns based on component service landscape.

The standardised design patterns can be used to train assets and GenAI agents to work towards developing ADE frameworks where digital asset libraries can perform the following activities:

- Smart analysis of legacy codes, code flow structures and building of business context, business rules of any programme in natural language for review by a functional analyst.
- Built-in capability of agentic process automation (APA) to classify business requirements, decompose business use cases to component building blocks using domain driven design models for review by business architects.
- Code assistant framework to assist developers with generation of repeatable technical designs patterns and application code templates to achieve high level of standardisation and create secured, transparent and adaptive orchestration layer for third party integration.

Adoption of this APA based on functional patterns and domain-driven design patterns which will allow financial organisations to accelerate the roadmap for adoption of ADE while ensuring adherence to robust design frameworks.

Key features:

- Event-driven architecture
- Composable microservices
- AI agents for development assistance, decision matrix, intelligent requirement gathering and business use case classification

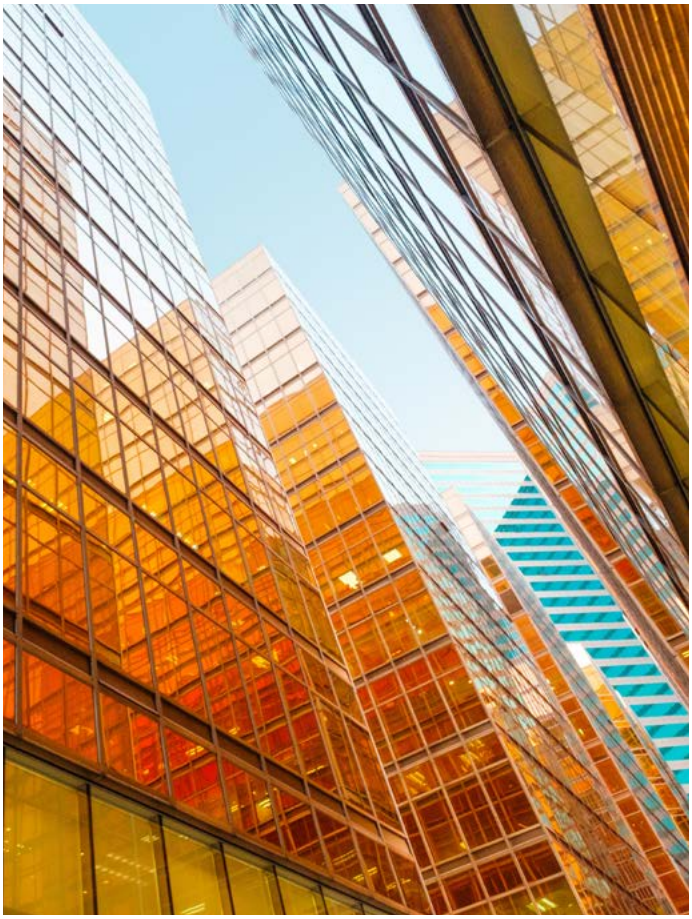
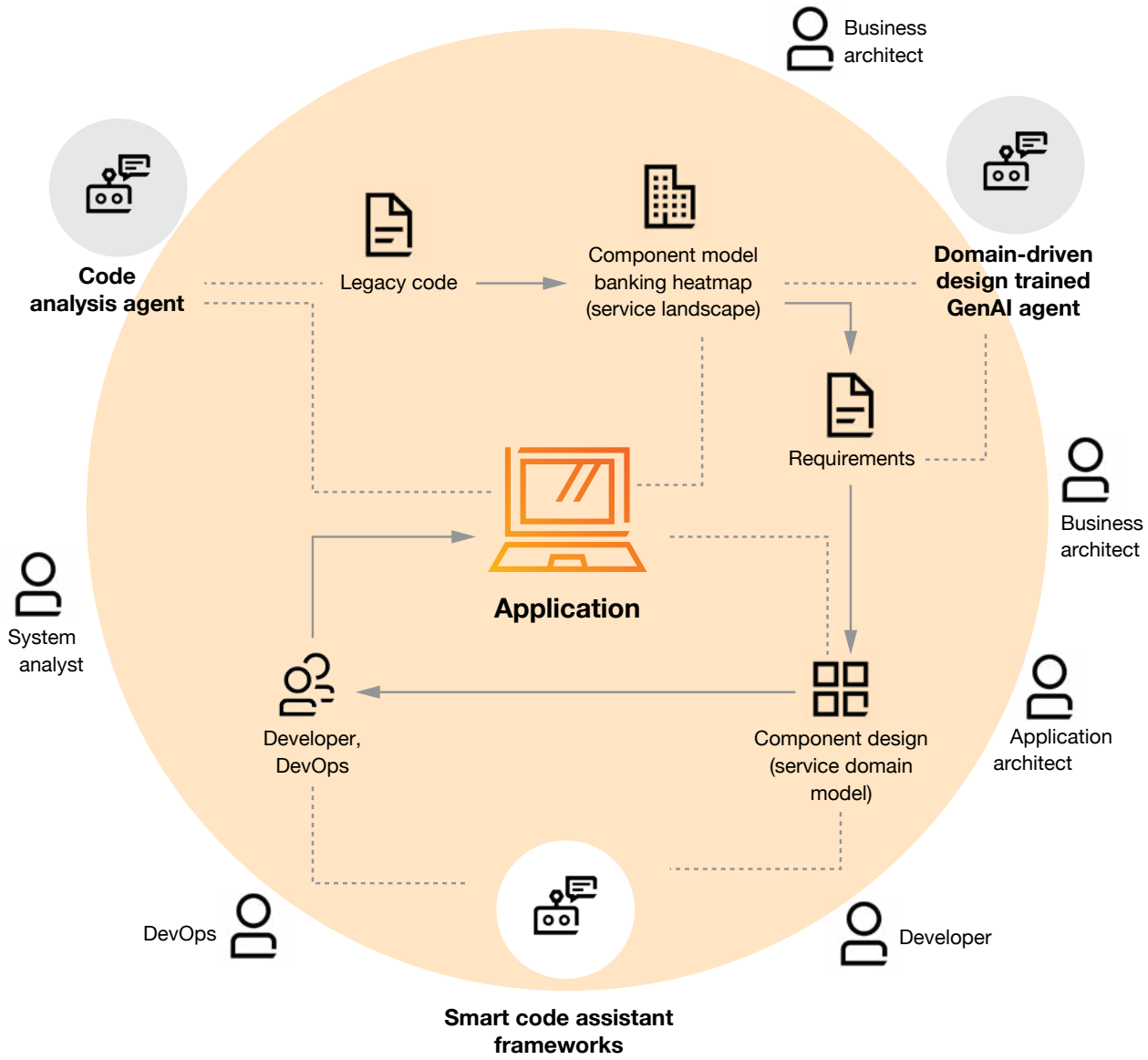


Figure 5: APA-driven ADE development landscape



Source: PwC analysis

Pillar 2: Self-healing operating models

Self-healing operating models use AIOps, behavioural pattern analysis and auto-remediation to detect, predict, and refine decision systems autonomously, ensuring uninterrupted banking services. They enhance system capabilities by automatically handling failures, scaling infrastructure based on demand, and performing seamless failover for uninterrupted services. Smart automation technologies like RPA and autonomous multi-agent clusters play a key role in building self-resilient, self-adaptive models centered on stakeholder requirements and customer preferences.

Key features:

- Autonomous incident detection and resolution
- Predictive analytics for infrastructure scaling
- Integration of AIOps into RPA workflows
- Continuous monitoring and diagnostics
- Resilient architecture design

Pillar 3: Governed autonomy

Governed autonomy ensures strong regulatory and ethical frameworks by embedding governance into architectural framework, agentic system operating model, and data platform design, supported by continuous compliance monitoring. Guidelines from regulatory authorities such as RBI and the Bank for International Settlements (BIS) emphasise responsible AI practices with standardised framework and guidelines for risk classification, human oversight for risk assessment, and process/design transparency.

Collectively, these measures support a trustworthy and auditable roadmap for ADE transformation that aligns with broader human values rather than limiting itself to basic compliance requirements.

Key features:

- Governance model and standardised frameworks
- Audit and adaptive policy framework
- Data infrastructure and data democratisation
- Design authority set-up for compliance monitoring
- Human override for critical decisions

Pillar 4: Self-learning framework

The self-learning framework enables autonomous enterprises to adapt to changing customer preferences and new data patterns with minimal human intervention by using feedback loops that update the models, policies, and decision AI processes based on real-world data. This helps banks to enhance the pace of go-to market products and develop real-time adaptive regulatory models based on shifting customer experience, fraud patterns, and market trends. High-performing autonomous or near-autonomous organisations excel through rapid learning, supported by telemetry, outcome analytics, and model retraining pipelines.

Key features:

- Telemetry and outcome measurement
- Feedback loops for model updates
- Policy and rule tuning
- AI literacy and workforce reskilling
- Adaptive orchestration

Pillar 5: Human oversight

Human oversight ensures humans retain responsibility and decision overrides for ethics, policy, complex judgments, and relationship management despite automation or autonomous decision systems. It includes controls for escalation, manual overrides, and reskilling, enabling employees to shift from execution to governance roles. Ethical AI implementation prioritises transparency, inclusiveness, and alignment with long term organisational values and point-in-tine customer requirements and expectations.

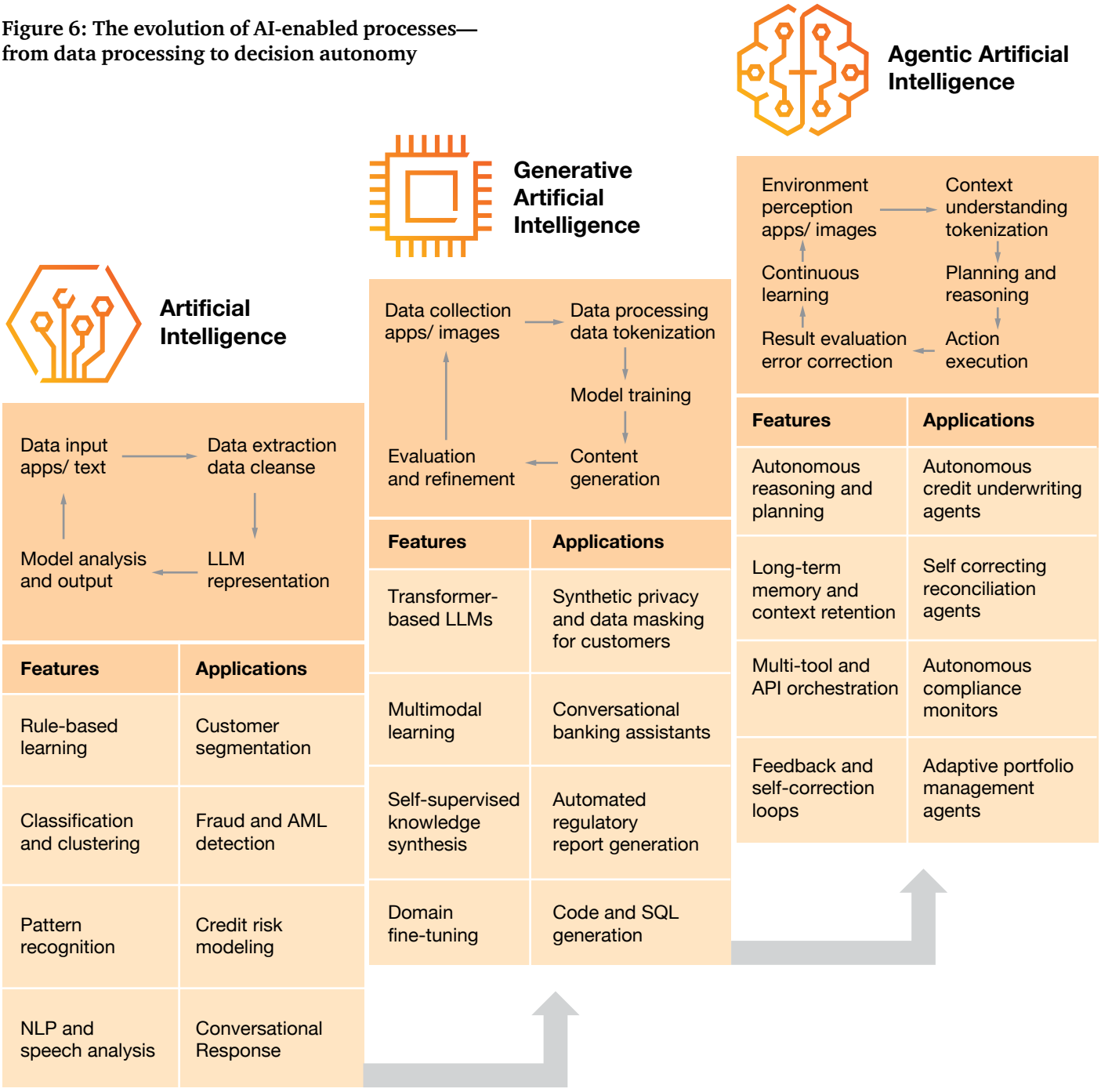
Key features:

- Escalation and override controls
- Ethical governance frameworks
- Workforce reskilling and role transformation
- Human-in-loop for sensitive decisions
- Empathy-driven customer engagement

1.3. Evolution from supervised automation architecture to autonomous enterprise architecture

The journey of developing an ADE is built on the foundations of transforming traditional process automation to agentic process automation (APA) as the next evolutionary step which will enable ADE's processes to learn, adapt, optimise and create an intelligent decision matrix.

Figure 6: The evolution of AI-enabled processes—from data processing to decision autonomy



Source: PwC analysis

Evolution of AI in banking: Initially, banks used data-driven models for fraud detection, credit risk prediction, and operational accuracy, reducing human error and improving operational efficiency.

Transformation into digital ecosystems: Banks are evolving into intelligent, self-managing digital frameworks that continuously learn, adapt, and improve.

Rise of GenAI: Generative models enabled banks to create content like reports and compliance documents, and enhanced customer interactions through chatbots and personalised recommendations.

Shift in role of intelligence to autonomous digital enterprise: The journey from analytical to generative to agentic AI marks a shift from predictive tools to autonomous systems that define the future of financial services.

Emergence of AI: Advanced systems now operate autonomously making decisions, learning from feedback, and managing tasks like credit approvals, compliance, and investment portfolios.

02

The impact of ADE on bank-led financial services

AI-first autonomous enterprises will require organisations to strategically develop long-term, sustainable transformation frameworks across three domains—workforce, processes and data. Figure 7 illustrates the three domains which financial institutions should focus on during their transformation journey.

Figure 7: Strategic domains for implementing ADE

Leadership and workforce

- **ADE-leaders/enterprise architects:** Create strategic roadmap
- **Business leaders/domain architects:** Identify viable use cases
- **Technology workforce:** Upskill existing workforce to augment AI offerings
- **Operations:** Human lead, AI-empowered decision-making for maturing cognitive capabilities of APA

Business process and operations

- Reimagined business processes and operational workflows.
- Modernisation of core enterprises with hollowing of core, platform resilient infrastructure adopting AIOps
- Organisational alignment for establishing strong feedback loops for continuous engagement and learning agentic AI-based APAs
- Leveraging "Zero-trust frameworks" to build adaptive cybersecurity.

Data

- **Data readiness:** Build foundations of centralised data assimilation models regulated via governance and security frameworks to ensure optimised overlap of data democratisation and data abstraction
- Implement robust AI governance based on least access privilege security principles, integrating the self-learning ML capabilities for enhanced decision AI agents
- Building resilient, secured and shared data services over cloud and hybrid cloud platforms.

Source: PwC analysis

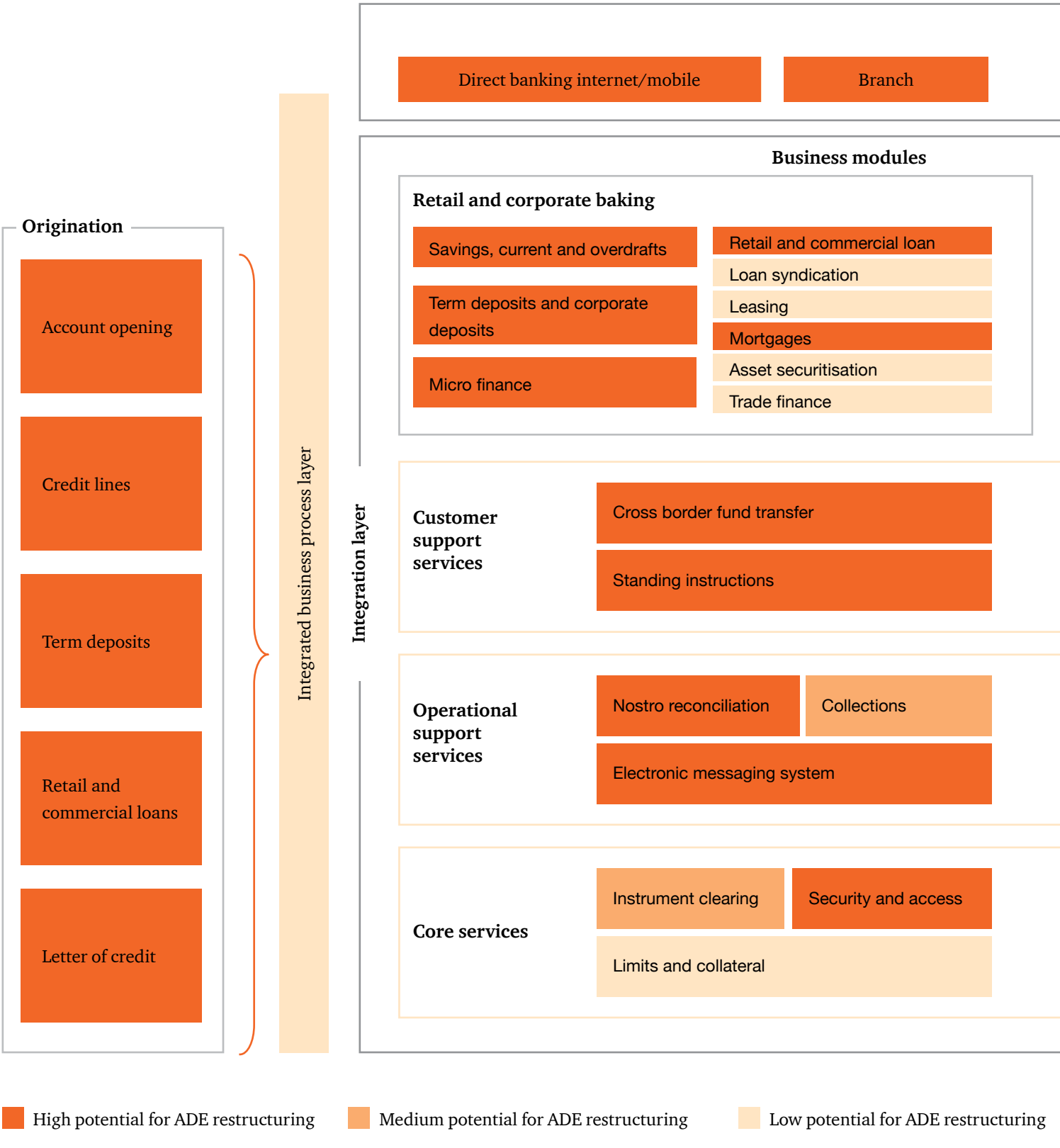
Future of technical innovations will encompass holistic process data analytics-led transformation, where agentic AI-led automation can amplify business transformation. This is an intelligent enterprise ecosystem which has self-learning, self-healing capabilities with human oversight at the centre of its operations.

2.1. Strategic heatmap for ADE's adoption in banking

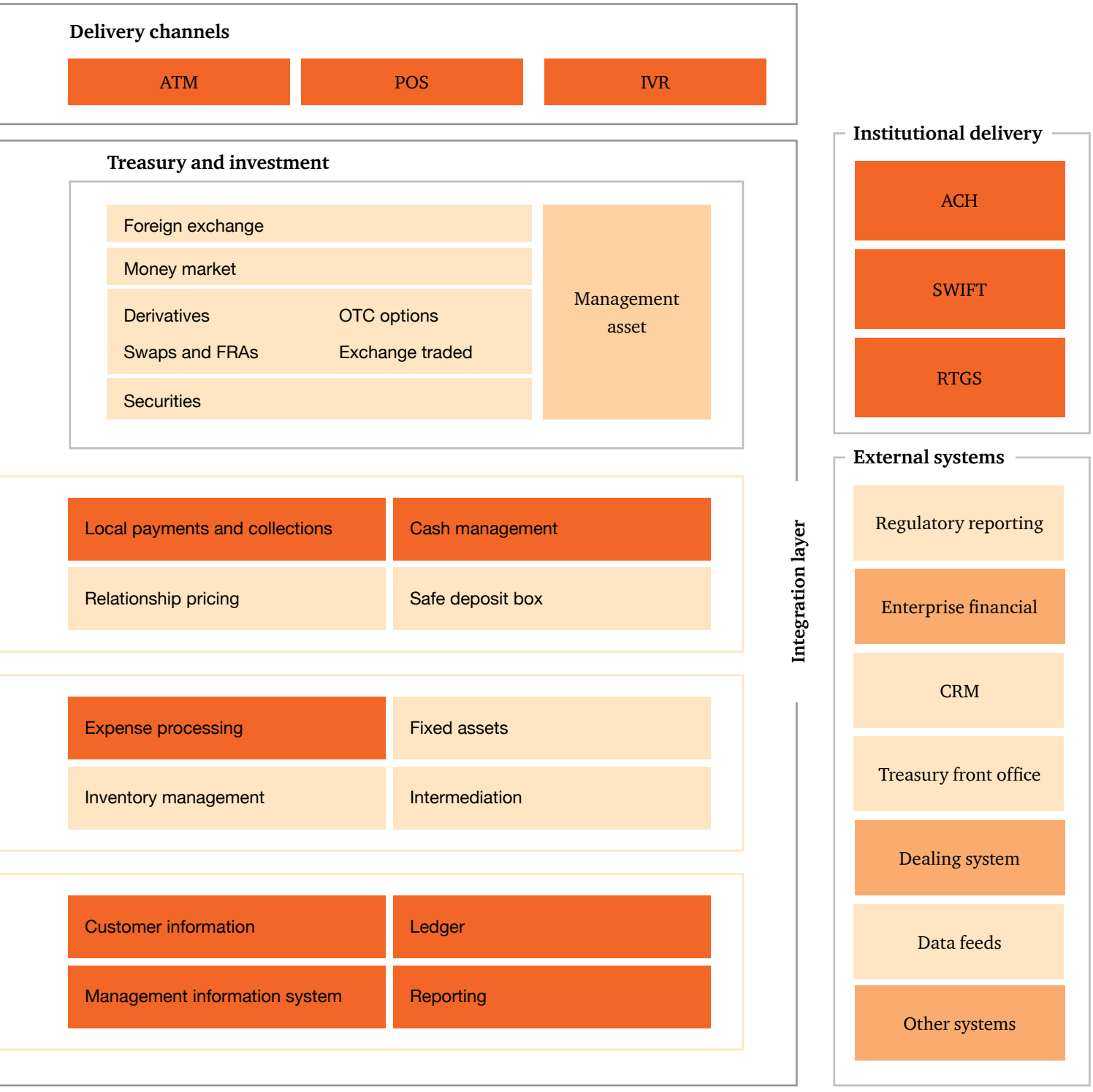
The autonomous digital enterprise will be interwoven with the existing enterprise architecture across the application architecture. A strategic heatmap offers a comprehensive view of core banking modules and the integration landscape, highlighting the potential of transformation into autonomous enterprise powered by microservices architecture, and decision AI integration based on the technical feasibility assessment of current architecture and potential use case identification for early adoption of ADE architecture.[7]

7 https://www.pwc.in/assets/pdfs/core-modernisation-enhancing-the-digital-transformation-of-financial-institutions-v3.pdf

Figure 8: Core banking: ADE adoption's heatmap



Source: PwC analysis, PwC Core Modernisation Report7


Delivery channels
ATM
POS
IVR
Treasury and investment
Foreign exchange
Money market
Derivatives
OTC options
Swaps and FRAs
Exchange traded
Securities
Management asset
Local payments and collections
Cash management
Relationship pricing
Safe deposit box
Expense processing
Fixed assets
Inventory management
Intermediation
Customer information
Ledger
Management information system
Reporting
Integration layer
Institutional delivery
ACH
SWIFT
RTGS
External systems
Regulatory reporting
Enterprise financial
CRM
Treasury front office
Dealing system
Data feeds
Other systems

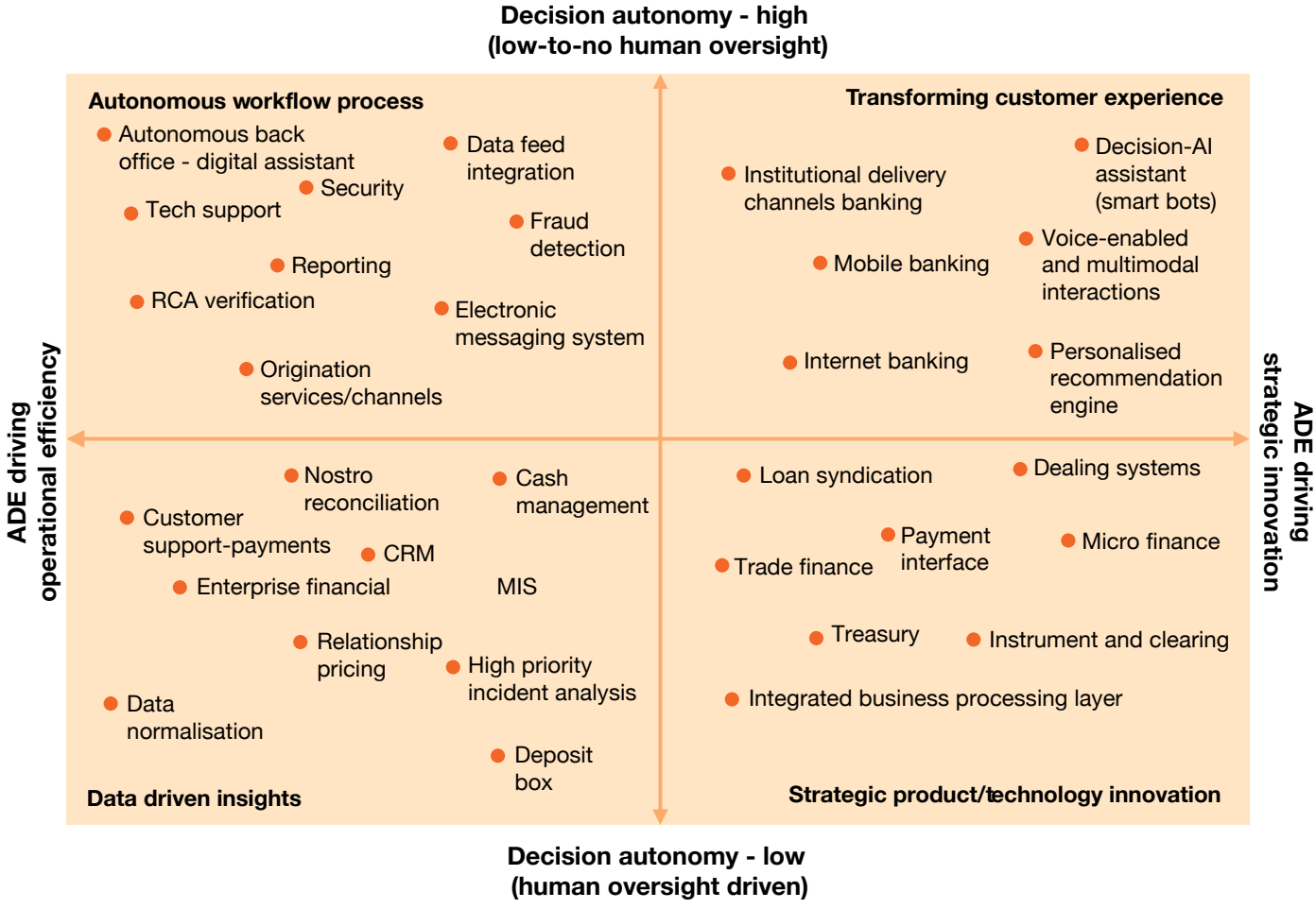
2.2. ADE implementation quadrant

To translate the vision of the ADE strategic heatmap into action, banks will need to prioritise the transformation journey based on two critical dimensions:

- The degree of decision autonomy: Derived from parameters based on risk assessment, technical maturity, cultural and organisational readiness
- The ADE value proposition driver which will be aligned with the organisational vision for achieving operational efficiency of existing Ops and workflows or driving strategic innovation initiatives.

By evaluating the viability, relevance, and ROI of enterprise-wide use cases from all quadrants, the ADE implementation quadrant enables leaders to shape the transformation journey while balancing innovation with operational efficiency and regulated autonomy.

Figure 9: ADE Implementation Quadrant



Source: PwC analysis

Quadrant 1: Autonomous workflow process

ADE diver: Operational efficiency;
Decision autonomy: High

Here ADE focuses on augmenting IT and business operations with autonomous process assistants, and intelligent and adaptive workflows. The Decision AI assistants handle contextual decision making, while evolving and maturing with self-learning capabilities.

Quadrant 2: Data-driven insights

ADE diver: Operational efficiency;
Decision autonomy: Low

This quadrant focuses on transforming recommendation engines driven on shared data platforms to create actionable insights, real-time trend assessments while the decision-making is driven by human oversight.

Quadrant 3: Transforming customer experience

ADE diver: Strategic innovation;
Decision autonomy: High

Here ADE transformation focusses on modernisation of direct customer interaction platforms by augmenting existing chatbot services with abilities of natural language processing, real-time sentiment analysis and personalised recommendation engine based on the adaptive learning of customer preference, market trends, etc.

Quadrant 4: Product/technology innovation

ADE diver: Strategic innovation;
Decision autonomy: Low

This quadrant focusses on strategic vision and go-to-market product strategies through evaluation of decision matrix for adoption of technological advancement and assessing architectural flexibility to incorporate evolving regulatory guidelines. While the ADE framework will be responsible to perform autonomous market trend analysis, impact assessment of technology trends and computation of value propositions; the final decision will be taken by the human reviewers.

2.3. The rise of autonomous digital enterprises in Indian banking landscape

To stay competitive and meet the expectations of today's digitally empowered customers, traditional banks are rethinking their strategies and adopting frameworks that enable smarter, self-optimising operations. This evolution is not just about technology—it's about creating adaptive systems that can anticipate needs and respond with agility.

Indian banks are increasingly using AI for customer service and internal operations. Chatbots, which can understand the context of queries, are able to resolve complex customer requests while machine learning models analyse thousands of transactions per second to detect potential fraud. Many Indian banks are also collaborating with international payment networks to spot unusual cross-border transactions while protecting customer privacy. Indian public-sector banks are also building shared intelligence capabilities. An Indian public sector bank works with a multilingual assistant which handles queries in several Indian languages to make digital banking accessible to a wider population. Meanwhile, the Reserve Bank of India's Innovation Hub[8] has developed MuleHunter. AI, a model that detects fraudulent mule accounts by analysing transaction networks. This could help banks uncover hidden relationships between suspicious accounts which human audits could miss.

2.4. Implementation use cases

2.4.1. Using AI to develop next-gen customer support agents

Banking chatbots have evolved from simple rule-based tools to intelligent, GenAI-driven agents that imbibe natural language understanding capabilities with seamless backend integration. Indian banks are adopting advanced chatbots, which handle complex tasks with human-like fluency and provide personalised, multilingual responses. Equipped with sentiment analysis, they can autonomously perform actions like card blocking and escalate issues to human agents, when necessary, and operate 24x7 across multiple channels to enhance customer service and reduce the dependency on call centres.

8 https://economictimes.indiatimes.com/industry/banking/finance/banking/mule-hunter-tool-to-check-digital-fraud-is-showing-good-success-rate-rbi-governor-sanjay-malhotra/articleshow/125465527.cms?from=mdr

Figure 10: The evolution of chatbots in the Indian banking sector from traditional bots to GenAI-powered chatbots

Source: PwC analysis

2.4.2 Real-time credit evaluation and autonomous assessment

While the existing automations and modernisation of credit evaluation techniques within financial organisations enable them to seamlessly fetch and understand data from limited financial data sources such as existing debt balances, and credit history for customer part of formal financial lineage; Indian banks often struggle to ascertain the credit score for a bulk of potential borrowers belonging to rural consumer market, gig workers, small/micro entrepreneurs among others with limited exposure to traditional credit scoring mechanisms. The adoption of ADE framework with strong data foundations and real-time data analysis from a varied spectrum of data sources like utility payment history, expense patterns, data streaming from payment interfaces with intelligent and flexible orchestration framework will allow a more comprehensive credit scoring mechanism. The self-learning and governance guardrails will ensure building a transparent, fair and regulated framework empowering the bank to have more inclusive customer base for lending and allied product offerings with hyper-personalised risk assessment and real-time risk evaluation tools available for the credit administrators.

Figure 11: Autonomous credit decisioning: Shift from conventional scoring to dynamic autonomous scoring

Source: PwC analysis

How ADE can leverage AI and decision AI models for smart banking

The ADE framework leverages AI and advanced decision AI capabilities to revolutionise credit decisioning framework by enabling credible, swift, curated and comprehensive assessments of potential borrower profiles. ADE's intelligent orchestration and decision automation aims to integrate diverse data sources beyond traditional KPI integrations, empowering financial institutions to make smarter, data-driven decisions. This approach reduces default risks through real-time risk evaluation, enhances customer value proposition by delivering hyper-personalised and timely credit offerings while adhering to the regulatory and organisational guidelines for optimal data usage, ensuring that no cross-platform data leaks through stringent architecture guidelines for data handling and data retention policies.

The autonomous credit decisioning framework can incorporate the following real-time data sources with multi-agent systems to generate dynamic scoring:

1. **Customer income and spend patterns**

   Real-time analysis of transactional data to uncover individual spending behaviour. This insight enables banks to personalise product offerings, detect anomalies for fraud prevention, and deliver tailored financial advice that aligns with customer lifestyles.

2. **Employment records**

   Assessment of employment history and job stability. This enhances the precision and speed of credit risk evaluations, leading to more efficient and reliable loan approvals.

3. **Digital footprint in banking**

   By examining customer interactions across digital platforms, recommendation engines can offer hyper-personalised recommendations and provide best-in-class market product offerings.

4. **Investment portfolio**

   Multi-agentic and decision AI system assists smart portfolio management by accurate market forecasting, analysing and deciphering market trends with guarded autonomy to optimise asset allocation and risk limitation by smart user override features.

5. **Payment history**

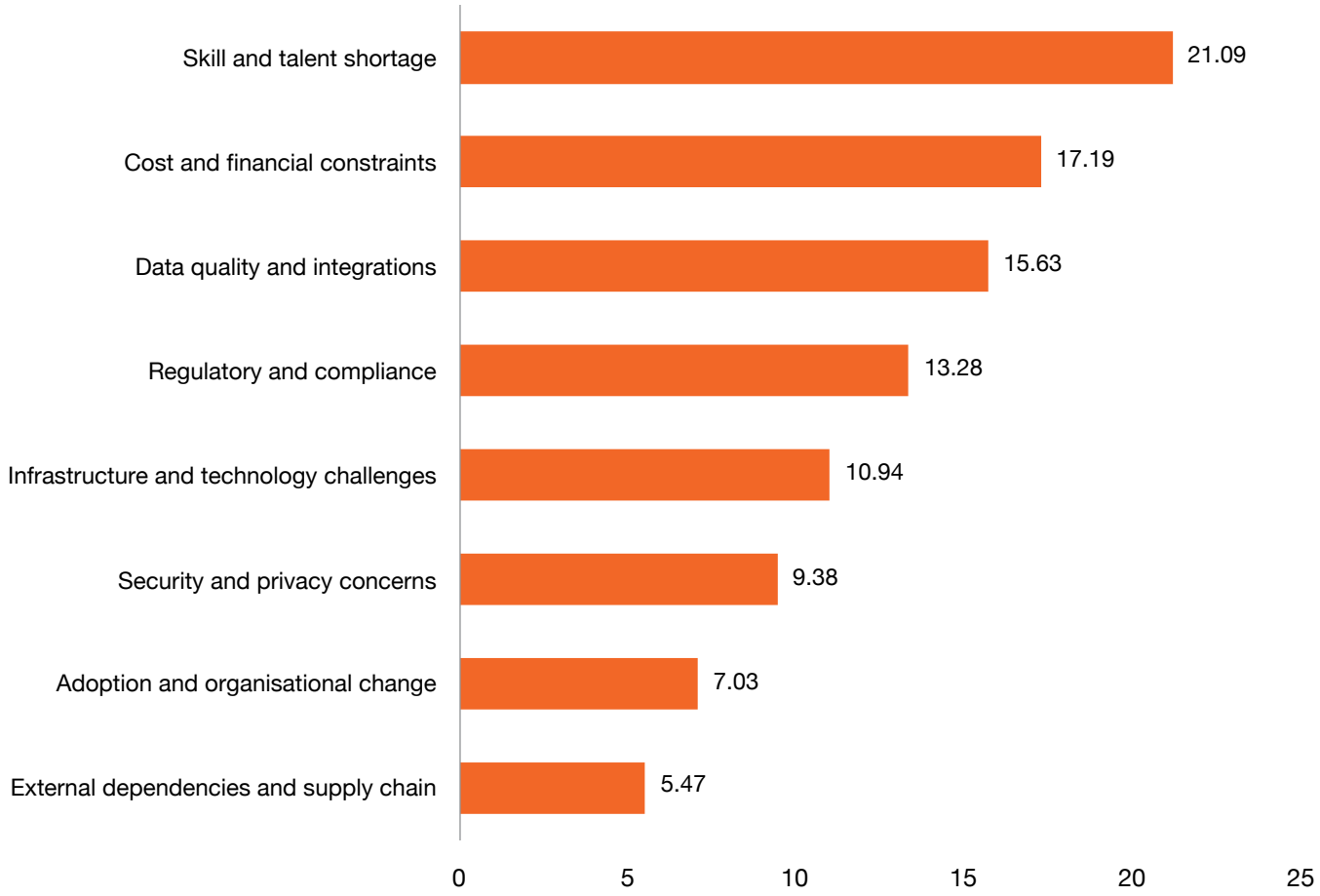
   Smart recommendation engines within lending modules will evaluate historical payment behaviour to assess creditworthiness, identify early warning signs of potential defaults, and design customised repayment plans that benefit both the lender and the borrower.

2.5. Challenges

The adoption of autonomous architecture in financial services today faces significant challenges, including AI-generated deepfakes, information bias stemming from limited or fragmented data platforms, concerns around data privacy, lack of niche skillset for AI adoption and reliance on external vendors for strategy and implementation roadmaps. Additionally, modernising core banking components to align with ADE principles must be balanced with maintaining organisational values and complying with national and international regulatory frameworks.

Across the globe, there are few binding regulations which aim to govern AI, with most guidelines taking the form of soft recommendations or adoption frameworks. However, AI regulations vary significantly across regions, restricting the ability to develop integrated data platforms and cross-functional services, which hinders financial institutions from establishing a clear and cohesive AI adoption strategy.

Figure 12: Challenges in AI adoption in the banking sector (in %)

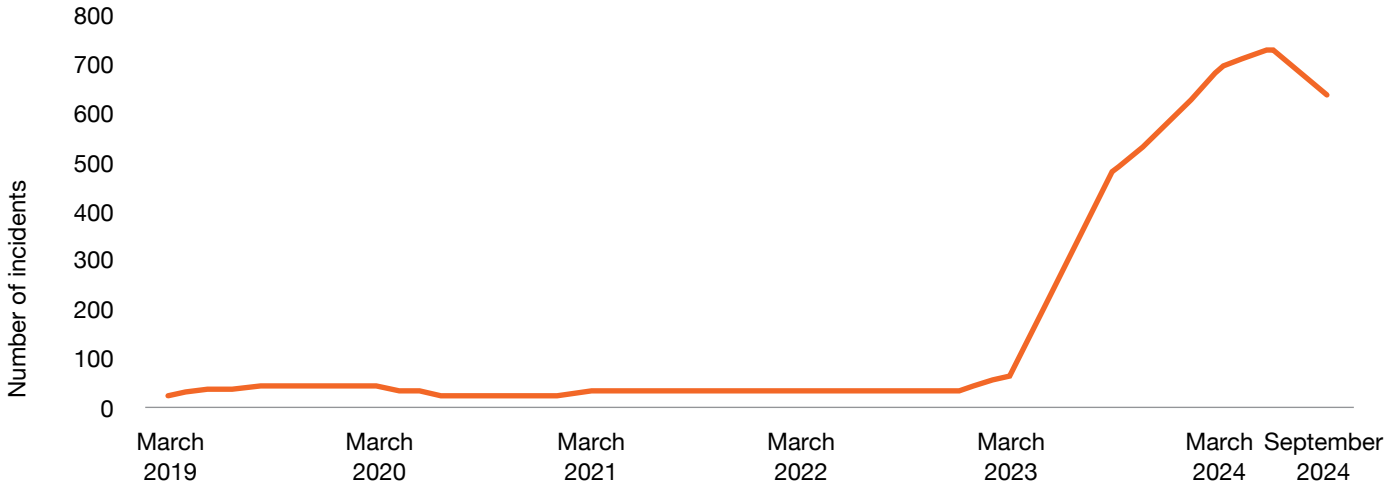


Source: https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?ID=1306

- **Fragmented data sources:** At present, data is stored in silos within respective operational business models and there are very few integrated data platforms which can assimilate and coordinate the data across functions. Organisational data regulatory frameworks are still in early design phases and financial institutions are needed to continuously adapt and evolve as per the rapid technological advancements.
- **Over reliance on third-party vendors:** Banks rely on external vendors for modelling agentic AI, decision AI could lead to threats related to sensitive data access and unregulated data usage. Currently banks rely heavily on external vendors for ADE roadmaps with more than 45% of workforce[9] deployed from external sources.
- **Outdated operating models:** Traditional operating models hamper collaboration between business and technology teams due to inflexibility of change adoption. Financial institutions will have to develop a long-term ADE transformation roadmap and internal design authority boards to keep the organisation's operations aligned to the latest developments in technology, regulatory and compliance.
- **Developing a roadmap:** Creating an organisational roadmap which focuses on speed and agility while adhering to compliance/security standards and regulatory.
- **Vulnerability of decision AI systems:** Decision AI systems that rely on interconnected application and real-time data assimilation, inherently escalate the threat perception of new entry points, challenges of having resilient native inter connectivity of the application stack and data concentration risks.

Figure 13: AI-related incident surge

According to OECD (2023), cyber threats from use of Gen-AI specialised incidents grew exponentially between December 2022 and September 2024, with 730 registered incidents in June 2024.



**With rapidly evolving AI governance frameworks, during 2024, financial institutes across the globe collectively faced fines amounting to $2.6 billion.

Source: https://www.oecd.org/en/topics/sub-issues/ai-risks-and-incidents.html

9 https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?ID=1306

2.6. AI governance

This section explores how some of the national and international regulatory and advisory guidelines could help mitigate the issues and provide a recommended framework for the adoption of standardised practices.

RBI's Framework for Responsible and Ethical Enablement of Artificial Intelligence (FREE AI) guidelines, as well as frameworks proposed by the Bank for International Settlements (BIS), the International Organization of Securities Commissions (IOSCO) and the EU-AI Act, can collectively offer strategic direction, promote responsible AI adoption, and encourage cross-functional collaboration within financial institutions.

2.6.1. RBI's FREE-AI framework

The Reserve Bank of India (RBI) has introduced FREE AI[10] as core guiding principles of AI adoption by regulatory entities. FREE-AI framework lays down seven core principles for AI adoption or Seven Sturas are speard across six strategic pillars which are fundamental to ADE transformation roadmap: infrastructure, policy, capacity, governance, protection and assurance. RBI provides a 26-point recommendation framework model across six pillars for financial institutions and REs to inherit and produce sustainable, smart and secure AI foundations for ADE architecture.

Key highlights of the framework include:

- AI could enhance efficiency in financial services through automation, fraud detection, and compliance.
- Advanced analytics could support better risk assessment and customer experience.
- AI adoption is limited among smaller institutions due to cost and capacity constraints.
- Challenges include data privacy, bias, high implementation costs, and regulatory uncertainty.

Adopting the seven principles of responsible AI can profoundly reinforce the banking ecosystem by fostering secure, transparent, and customer-focused innovation. AI systems that are reliable and interpretable support enhanced regulatory compliance and effective risk management, while embedding fairness and accountability mitigates bias in credit evaluation and customer engagement. Prioritising human-centric design elevates customer experience through intuitive and dependable digital interactions. Concurrently, emphasising safety, resilience, and sustainability ensures that AI-driven functions—from fraud detection to loan processing—remain robust, scalable, and environmentally responsible. Together, these guiding principles enable banks, NBFCs, and SFBs to advance innovation responsibly, maintaining consumer trust and ensuring overall systemic stability.

2.6.2. Bank for International Settlements (BIS)

Bank of International Settlements' Consultative Group on Risk Management (CGRM)[11] published a guidance report for the central banks for responsible adoption and governance of AI models in Central banks via comprehensive risk management strategies.

- **Emphasis on adaptive governance:** In January 2025 the BIS report promoted a flexible, adaptive approach to AI governance, recognising that models, especially generative AI, evolve quickly.
- **Risk management and accountability:** BIS guidance, developed with member central banks from the Americas, emphasises proportionate governance to manage risks. It recommends assigning senior management accountability for a financial institution's AI use cases across the entire lifecycle.
- **Specific recommendations:** BIS offers ten practical steps, including establishing interdisciplinary AI committees, defining responsible AI principles, maintaining an inventory of AI tools, and conducting continuous monitoring.

10 FREE-AI framework, https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?ID=1306

11 https://www.bis.org/publ/othp90.pdf

2.6.3. International Organization of Securities Commissions (IOSCO)

IOSCO's Fintech Task Force (FTF) published Consultation report on AI[12] which focuses on the impact of AI in capital markets and the implications for investor protection, market integrity, and financial stability and shares considerations and recommendations to address the risks and challenges posed by AI advancements.

- **Addressing AI risks:** Reports from IOSCO's Fintech Task Force identify potential risks related to AI model integrity, malicious use, third-party dependency, and human-AI interactions.
- **Establishing accountability:** IOSCO's guidance suggests that regulators consider requiring firms to designate senior management responsible for the oversight, testing, and deployment of AI.
- **Emphasising proportionality:** The organisation encourages its members to apply its guidance in a way that is proportionate to the risks posed by specific AI use cases.

12 https://www.iosco.org/library/pubdocs/pdf/IOSCOPD788.pdf

2.6.4. EU Artificial Intelligence Act (European Union)

The EU's AI governance rules are set by the AI Act,[13] which categorises AI systems by risk level to apply different regulations. It prohibits unacceptable-risk AI (e.g. social scoring, manipulative systems) and imposes strict requirements on high-risk AI (e.g. those in critical infrastructure or hiring processes).

- **Risk-based approach:** Categorising risk based on threat perception of 'Unacceptable', 'High', 'Limited' and 'Minimal' risk category.
- **Obligation for providers and deployers:** While providers ensure implementation of risk management system for governance and threat detection, Deployers will ensure human oversight, real time monitoring and reporting frameworks.
- **Enforcement model:** The European Commission will ensure phased enforcement of EU AI Act working with member states to form governing bodies.

13 https://artificialintelligenceact.eu/

03

Transformation roadmap for adopting autonomous enterprise framework

Financial institutions which can successfully adopt AI-first ADE models will be able to leverage the advantages and navigate the changes of a rapidly changing banking industry. However, a strong commitment to modernising data infrastructure, cultivating governance maturity and integrating human-centered automation is necessary to enable institutions to redefine efficiency and unlock sustainable growth.

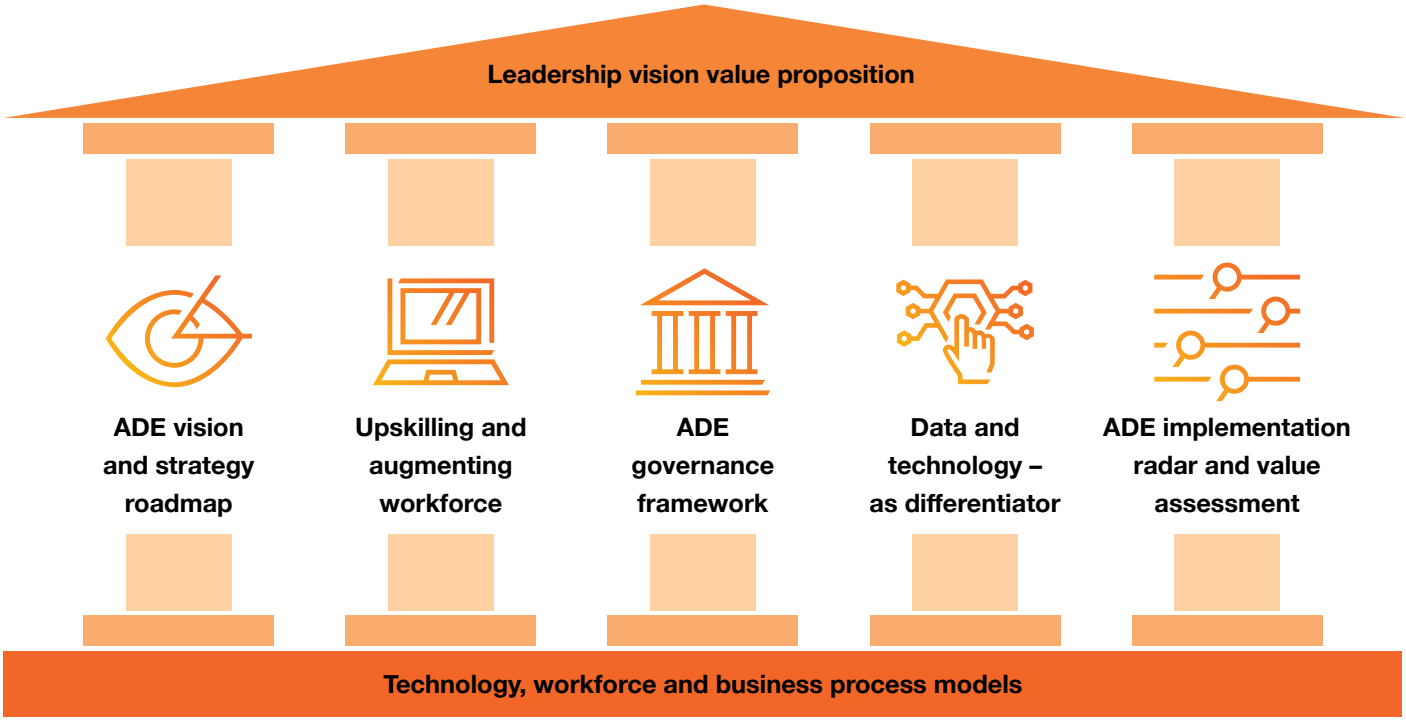
3.1. Transformation roadmap

Riding the technological wave by leveraging AI-first principles, and augmenting and empowering the workforce with intelligent, smart, adaptive and empathetic autonomous digital solutions will be crucial for financial institutions to stay ahead of the curve. Leaders need to deeply embed AI-first strategy into their decision-making process, and organisational culture.

The ADE framework should be progressively developed and expanded through a comprehensive evaluation of the current business architecture, risk appetite, modernisation requirements, operational process autonomy, end-customer preferences, and ROI on ADE investments. It must ensure transparency in decision models and clearly define institutional liabilities. The framework should be designed with flexibility to adapt to technological advancements and evolving governance landscapes, such as the RBI's FREE AI guidelines.

To address these challenges, a comprehensive five-dimensional transformation roadmap is recommended to guide the strategists and leaders of financial institutions in building ADE by identifying key objectives, high level action items and evaluation of success criteria against standardised frameworks.

Figure 14: Five-dimensional ADE transformation roadmap



Source: PwC analysis

All the five dimensions of the transformation roadmap should be aligned to the 26 recommendations of RBI's FREE AI framework15 to ensure that the ADE adoption journey is accountable, trustworthy, sustainable, resilient and understandable by design.

ADE vision and strategy and roadmap

Objective

Establish a unified vision across the organisation to become AI-first, aligning ADE principles with strategic business goals.

Execution steps

Establish a leadership team across business and technology units to identify high-value opportunities to adopt ADE. Align the initiatives with goals like cost efficiency and personalisation, while embedding compliance from the start.

Success criteria valuation

Success is marked by a clear vision linked to business strategy, prioritised use cases with measurable impact, strong executive support, and early involvement of compliance teams to create ADE implementation roadmap.

AI strategy	Organisational vision
AI liability framework Graded liability framework for responsible innovation early assessment of risks	**Board approved strategy** Key areas for governance, risk assessment to guide and model the vision for ADE roadmap.
AI institutional framework Align with the standing committee risk assessments for driving the ADE maturity model	**Sector-wide repository** Comprehensive and sector wide repositories for maintaining models, use-cases, adoption trends and risks.
System governance framework Robust governance models and mechanisms to regulate entire ADE transformation lifecycle	

RBI's FREE-AI framework recommendations[21]

Upskilling and augmenting workforce

Objective

Develop an AI-empowered workforce and foster a data-driven decision culture to accelerate ADE roadmap.

Execution steps

Set up a centre of excellence (COE) to guide governance and collaboration. Train teams on imbibing the organisational vision to transform as ADE, promote innovation within the guardrails, and partner with academia or vendors to bridge any skill gaps.

Success criteria evaluation

Success should be evaluated with parameters related to a functioning COE, organic engagement of multidisciplinary teams, ongoing training programmes, and incentives that encourage data-informed decision-making.

AI skill development

Capacity building
Organisation capability building via structured training, periodic events and CoE initiatives to embrace the organisational vision for ADE transformation journey.

Red teaming
Proactive red teaming to ensure early detection and risk assessment.

Augment over replace approach

Recognise and reward
Recognition for successful rollouts, innovative frameworks, proactive risk identification and value proposition creation as per the design and implementation of ADE.

Intelligent incident reporting
Dedicated reporting framework to enable workforce for in-time detection and monitor autonomous decisions.

ADE's governance framework

Objective:

Institutionalise organisation-wide AI governance and regulatory frameworks applicable for business and technology practices as binding guidelines for implementation roadmap for ADE.

Execution:

Implement robust yet evolving governance framework that addresses risk, ethics, and compliance. Maintain detailed documentation of architectural models. Define a design authority team to vet the proposed model, architecture design and solutions, conduct impact assessments with business and technology SMEs, and engage proactively with regulators and industry bodies.

Success criteria evaluation:

Success is measured by the governance frameworks which chart the journey of ADE transformation with mandatory audit processes which are governed by a formal board comprising enterprise architects, domain artchitects, data and security, and business leads.

AI governance

Establishing robust AI policies
Establishing robust, board-approved policies to ensure the ADE transformation journey is guided by hard binding governance, risk, data security and liability frameworks.

AI audit frameworks
Establish audit frameworks to ensure adherence to board approved policies and conduct periodic Internal audits, third-party audits under the supervision of a designated supervisor.

Adaptive and enabling policies
Periodic assessment of existing policies to ensure adherence to RBI and other regulatory authority guidelines.

Zero-trust framework

Cybersecurity measures
With advent of cross platform architecture and unified data platforms to empower ADE roadmap, stringent cybersecurity frameworks investments must be planned for real-time threat detection and dynamic response mechanisms.

Consumer protection
ADE's implementation should be driven by a consumer protection approach to ensure transparency and fairness within the autonomous decision model to safeguard the interests of the end customer and create real-time grievance redressal mechanisms.

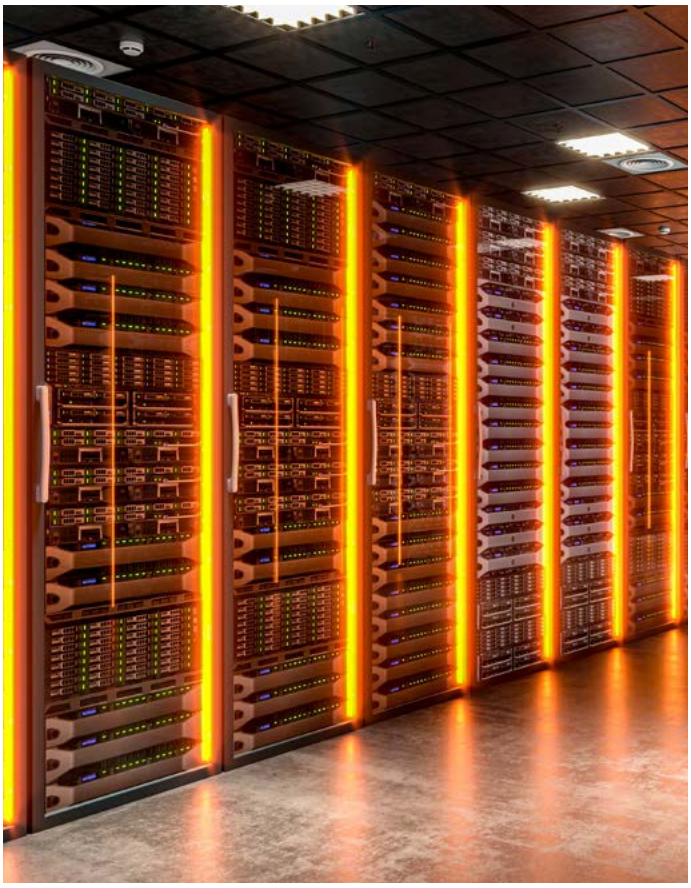
AI toolkit
Develop compliance toolkits which enable architects and leaders to validate and benchmark architectural solutions against the policy KPIs.

Data and technology as a differentiator

Objective
Develop a secure and scalable data infrastructure that supports cross platform flexible data model for ADE initiative while ensuring compliance and data security.

Execution
Implement strong data governance and quality standards, modernise legacy systems through cloud and API adoption and deploy scalable Ops pipelines. Ensure that systems are resilient, auditable, and fully traceable.

Success criteria evaluation
Success is reflected in a unified data platform, secured and adaptive data pipelines with monitoring, adherence to data privacy regulations, and infrastructure that supports auditability and explainability.



Data democratisation

Data lifecycle governance
Establish data governance framework, policies for data access and data usage for ADE implementation.

Financial sector data infrastructure
Develop financial data infrastructure to build trustworthy and cross platform decision AI and multi-agentic AI systems.

ADE technology framework

AI innovation sandbox
Facilitate a controlled environment to design, test and innovate ADE models.

Disclosure and transparency
Disclosure framework with details of the ADE adoption LOBs, data security and consumer cyber-security protocols adhered.

Product approval process
Rollout of all ADE solutions and product features must be aligned to the product approval framework with comprehensive and tactical risk evaluation performed.

ADE implementation quadrant and value assessment

Objective

Deliver measurable business value through realisation of MVP adopting ADE philosophies powered by decision AI, agentic AI-enabled products and matured autonomous processes.

Key actions

Focus on high-ROI and viability of use cases, using an agile lifecycle from pilot to scale. Embed autonomous workflows with human oversight and continuously monitor the value streams to ensure fairness and accuracy.

Checklist/success indicators

Success is measured via the value proposition created through implementation of Autonomous solutions in terms of customer satisfaction indices, reduction in turnaround times and tracking performance metrics like ROI and fairness of the autonomous decision metrices.

AI value proposition

Framework for best practices

Establish a framework for teams to share use-cases, governance frameworks, lessons learned via workshops and cross team experience centres.

Seamless integration with DPI

Establish ADE framework capabilities for integration with DPI for customer value proposition.

Business-driven adoption

Business continuity plan

Evolution of existing BCP drills and fallback workflow must be native to journey of ADE transformation supporting the co-existence of both traditional banks and the ADE architecture.

Product approval process

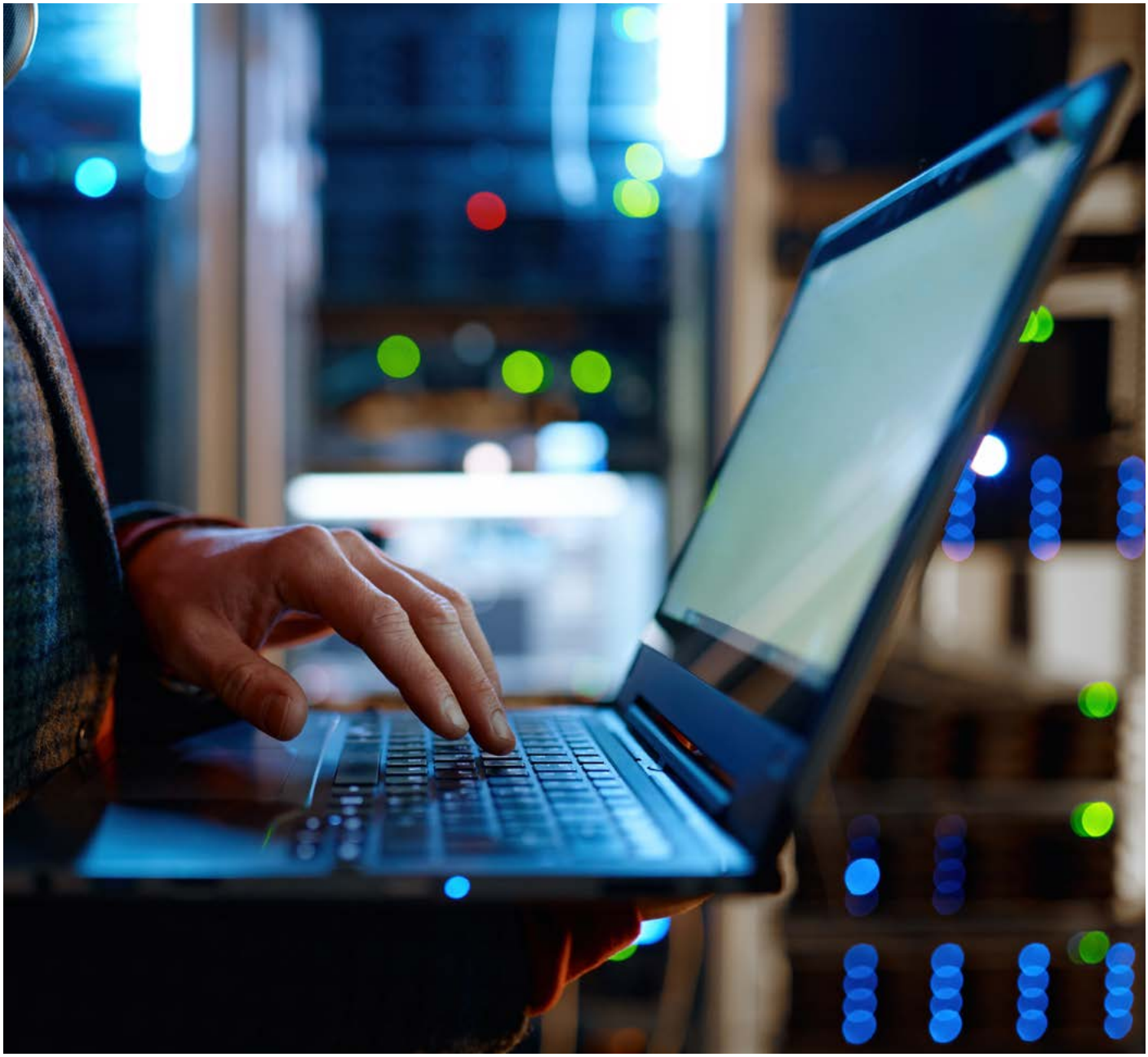
Rollout of all ADE solutions and product features must be aligned to the scope of the product approval framework. They should also conduct a comprehensive and tactical risk evaluation before the rollout.

RBI's FREE-AI framework recommendations[21]

04

Conclusion

Banks are increasingly adopting autonomous digital enterprises to provide enhanced customer service and experience. To ensure that this transformation is successful and sustainable, banks must keep customer viability, robust data security, and unwavering customer trust at the centre of their strategy. By seamlessly integrating advanced technology with human oversight, and by implementing strong AI governance frameworks with a clearly defined, phase-wise transformation roadmap, banks can create a truly autonomous enterprise that is not only efficient and scalable but also ethical, accountable, and committed to maximising value for both employees and customers.



Notes

About PwC

We help you build trust so you can boldly reinvent

At PwC, we help clients build trust and reinvent so they can turn complexity into competitive advantage. We're a tech-forward, people-empowered network with more than 364,000 people in 136 countries and 137 territories. Across audit and assurance, tax and legal, deals and consulting, we help clients build, accelerate, and sustain momentum. Find out more at www.pwc.com.

PwC refers to the PwC network and/or one or more of its member firms, each of which is a separate legal entity.
Please see www.pwc.com/structure for further details.

Contact us

Gayathri Parthasarathy
Partner, India FS Sector Leader,
Global FS Technology Leader
PwC India
gai.partha@pwc.com

Vivek Belgavi
Partner, Financial Services Advisory Leader
PwC India
vivek.belgavi@pwc.com

Rajdeep Saha
Partner, Financial Services Advisory
PwC India
rajdeep.p.saha@pwc.com

Authors

Bhojappagoud Biradar
Vinutha Manjunatha
Amar Mohanty

Contributors

Akshay Ranjan Jha
Ankita Kumari

Editor

Rubina Malhotra

Design

Harshpal Singh

pwc.in

HS/November 2025 - M&C 50034