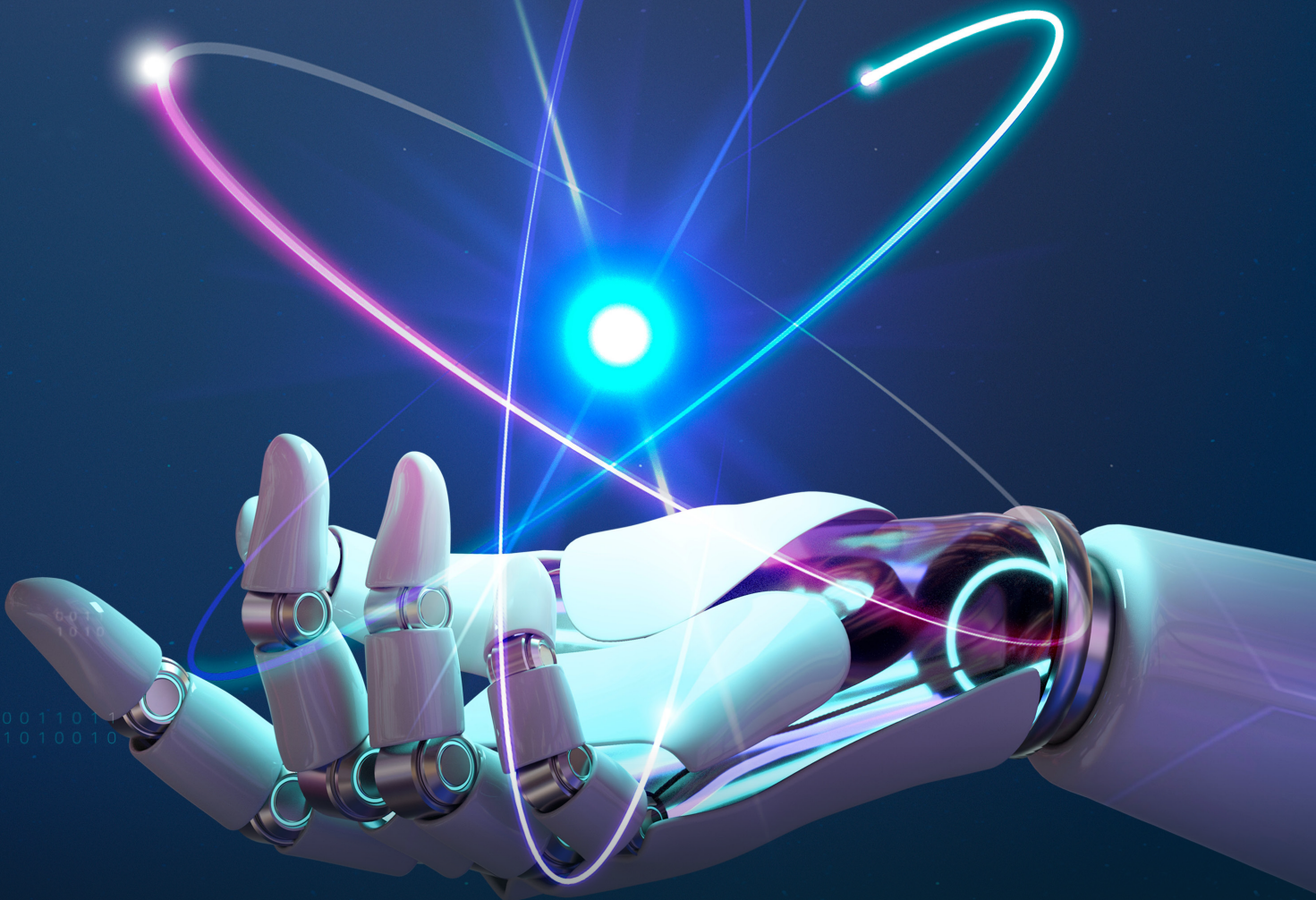


NEXT-GEN ISLAMIC CORE BANKING:

Built for Cloud, Ready
for Compliance



In collaboration with



IBS intelligence
Global FinTech Perspectives

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Section 1

Islamic Finance at an Inflection Point

Islamic finance is now a multi-trillion-dollar industry. On the IFDI measure, assets reached about US\$4.9 trillion in 2023. On IFSB's narrower* scope, 2024 assets rose 14.9% year on year to US\$3.88 trillion. Looking ahead, medium-term forecasts place the industry near US\$7.5 trillion by 2028. (Sources: IFDI; IFSB; LSEG; Standard Chartered.)

*Includes core IFSI sectors—Islamic banking, sukuk outstanding, Islamic funds' AuM, and Islamic insurance (takaful) assets. Excludes Other Islamic Financial Institutions" such as leasing or microfinance

Yet the industry finds itself at a strategic inflection point. As customer expectations shift toward seamless digital experiences and regulators demand tighter controls, Islamic financial institutions must rethink their operational models—without compromising on Shariah principles.

Islamic financial institutions must walk a tightrope: embracing innovation while preserving the foundational values of trust, transparency, and ethical conduct. Manual Shariah review processes, fragmented systems, and siloed data not only slow down operations but make compliance expensive and error prone. As a result, institutions struggle to scale offerings, launch new products, or compete with digital-native banks—all while managing complex fatwa-based interpretations and local regulatory overlays.

Without system agility and automation, the burden of Shariah compliance becomes unsustainable. Banks that rely on manual vetting and retroactive audits risk delays, errors, and reputational fallout. Modernization enables real-time Shariah screening, smart contracts for Sukuk, dynamic profit rate adjustments, and proactive regulatory reporting. Moreover, it creates opportunities to scale ethically aligned fintech partnerships, crowd-lending platforms, and takaful ecosystems.

Cloud and composable banking architectures are emerging as pivotal enablers of Islamic banking transformation. With modular APIs and centralized controls, banks can rapidly build, test, and scale Shariah-compliant products. In recent global surveys, 51% of banking leaders agree banks will ultimately move off private data centres to public cloud, with cost, AI adoption, and CX gains cited as top drivers. Moreover, cloud enhances cybersecurity, ensures operational continuity, and reduces infrastructure costs—all critical in high-trust Islamic financial environments. These technologies do not just enable transformation; they embed Shariah compliance into the very fabric of banking operations—making trust scalable.

“A strategic inflection point is a time in the life of a business when its fundamentals are about to change.” — **Andy Grove**

Section 2

From Legacy to Composable: Architecture, Integration & Trust

For years, Islamic banks have relied on legacy cores designed for conventional banking, with Shariah compliance layered on top. That worked when change was slow. Today, it's a constraint.

Legacy cores are rigid, costly, and hard to modify. A new product takes months. A new fatwa often needs workarounds. Compliance checks are manual and error prone. Meanwhile, expectations from customers, regulators, and Shariah boards keep rising. The gap is widening.

This is not just a technology problem; it's strategic. If the core cannot evolve, neither can the institution. Modern Islamic banking demands agility, speed, personalization—and above all, trust. Shariah alignment can't be an afterthought; it must be embedded from the start.

The case for a next-generation Islamic core is clear: modular, rules-configurable, and scalable across geographies and interpretations. Separate business logic from hard-coded processes. Configure profit-sharing ratios through parameters, not code. Stand up a Wakala product in days, not months. The payoff is faster time-to-market, built-in compliance, and resilience to evolving standards and Open Banking models.

2.1 What a Composable Islamic Core Looks Like

1. Modular and composable by design: Banking capabilities—financing, deposits, sukuk, takaful—are independent modules. Each can be upgraded or scaled without touching the rest, enabling faster innovation with lower change risk.
2. Cloud-native infrastructure: Elastic scaling supports regional expansion and seasonal demand (e.g., Hajj), with centralized security, high availability, and rapid disaster recovery—vital in high-trust environments.
3. API-first and Open Banking-ready: Standards-based APIs integrate fintech, payment rails, Islamic robo-advisors, and halal e-commerce. Open Banking becomes an enabler, not a burden—whether it's a Zakat calculator or real-time Takaful quotes.
4. Rules-configurable and Shariah-aware Product rules—profit-sharing, asset flows, purification—are parameters, not code. Product teams move quickly while preserving Shariah integrity.



Figure 1. Key characteristics of a composable, Shariah-aware Islamic core.

#	Dimension	Legacy Islamic Core	Composable Islamic Core
1	Architecture	Monolithic and tightly coupled	Modular, microservices-based, composable
2	Product Setup	Hard-coded; changes require development	Rules-configurable; changes done via parameters
3	Shariah Compliance	Layered on top; often manual and periodic	Embedded into business logic; real-time and automated
4	Time-to-Market	Months to launch new Islamic products	Weeks or days; rapid prototyping possible
5	Integration Capabilities	Limited or proprietary APIs	API-first; ready for fintech, Open Banking, and ecosystem integration
6	Regulatory Adaptability	Complex to modify for local AAOIFI/IFSB/ fatwa needs	Configurable rules per jurisdiction
7	Scalability	Hardware-dependent; expensive to scale	Cloud-native; elastic and cost-effective

2.2 Interoperability at Scale: API-First Design

Modern Islamic ecosystems no longer operate in silos. Whether connecting core banking systems (CBS), takaful platforms, treasury, or new digital wallets, integration is essential.

- API-first infrastructure enables banks to integrate legacy risk and core platforms with modern digital fronts. Link to third-party fintech's offering Zakat platforms, halal BNPL, SME tools.
- Support cross-platform journeys (e.g., applying for Islamic financing from a marketplace).
- Decouple and centralize compliance logic, exposing only Shariah-validated endpoints and policies.

Fintech collaboration without compromise.

With microservices and APIs, banks can (a) onboard partners via developer portals, (b) provide sandboxes to test Shariah-compliant products, (c) enforce real-time usage and throttling policies, and (d) monitor adherence through rule engines, validation layers, and usage audits—combining openness with control.

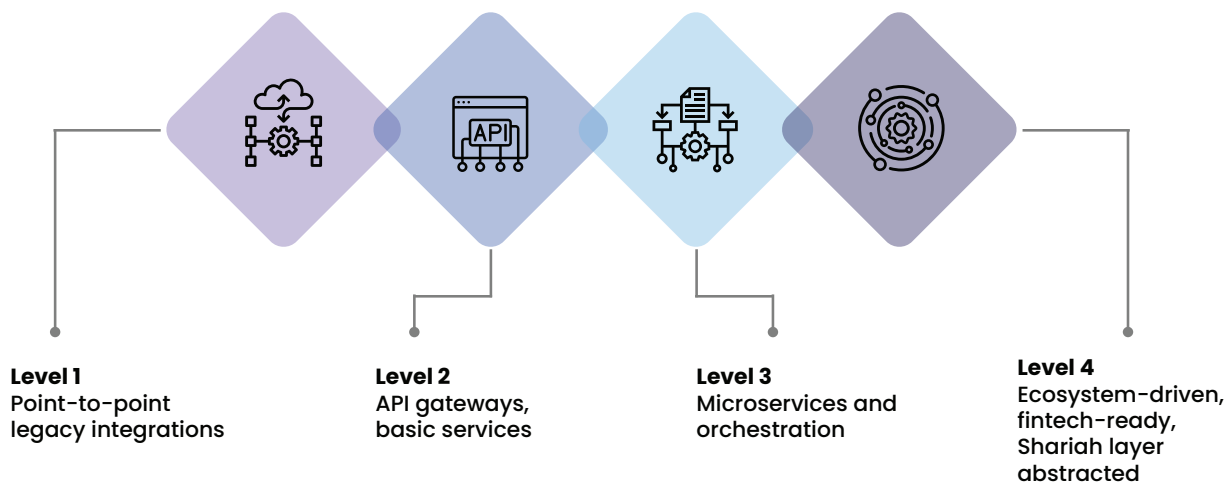


Figure 2. Integration Readiness Maturity Model (from point-to-point → API gateway → event-driven mesh with policy enforcement)

2.3 Embedded Finance—Ethically, at Scale

Embedded finance lets Islamic banks deliver Shariah-compliant services inside partner ecosystems—seamlessly and at scale. With API-first architecture and real-time Shariah filters, compliance travels with the service.

Examples of Shariah-Compliant Embedded Finance

1. **Halal BNPL** integrated into halal e-commerce platforms (e.g., Islamic fashion, food)
2. **Micro-Murabaha** financing embedded in agri-tech apps for equipment and input purchases
3. **Takaful products** offered within travel booking or ride-hailing apps
4. **Islamic digital wallets** embedded into edtech platforms for student fund management
5. **Zakat calculators and payment options** within charity or crowdfunding platforms
6. **Shariah-compliant investment options** integrated into lifestyle or savings apps
7. **Auto Takaful and Murabaha** car loans embedded into vehicle sales portals

2.4 Operational Trust & Resilience: Building on Ethical Foundations

Trust (Amanah) and accountability (Mas'uliyah) must be engineered into every layer. Downtime, breaches, or cyber incidents threaten operations and erode confidence—contradicting Islamic values.

1. Zero-Trust Architecture (ZTA)

Assume no implicit trust. Enforce least-privilege access, continuous authentication, and micro-segmentation across API, app, data, and network layers. Align access with Shariah validation rules and jurisdictional constraints.

2. Shariah-aligned cyber ethics

Design data usage to: (1) avoid profiling that violates privacy norms, (2) obtain explicit, purpose-bound consent (especially for biometrics), and (3) prevent data processing linked to non-permissible industries. Ethical safeguards complement regulatory compliance and build durable trust.

3. Real-time monitoring & resilience

Geo-redundant cloud hosting to satisfy data residency and uptime mandates.

Live health and risk dashboards for transactions, SLAs, and compliance alerts.

Built-in DRaaS targeting near-zero RTO/RPO for critical services (cards, trade finance).

2.5 eKYC, Biometrics & Privacy: Balancing Innovation and Faith

To scale digital onboarding, banks are adopting eKYC and biometric identity verification. While these tools accelerate access and reduce fraud, they must be implemented with Islamic privacy norms in mind.

Best Practices for Shariah-Compliant eKYC & Biometrics

1. Ensure explicit consent with clear purpose declaration (no pre-checked boxes)
2. Allow opt-outs and manual alternatives for conservative customer groups
3. Avoid storing facial recognition or fingerprint data without encryption and masking
4. Work with national ID systems (like Emirates ID or NADRA) that already meet compliance standards
5. Include Shariah board review in approval of onboarding flows involving personal identifiers

Section 3

The Strategic Role of Cloud in Islamic Finance

As Islamic financial institutions face growing pressure to scale, digitize, and comply with both regulatory and religious requirements, cloud technology has emerged as a foundational enabler. Beyond cost efficiency and speed, cloud offers powerful tools for ethical automation, Shariah governance, and sustainable growth. This section explores how cloud adoption addresses the unique needs of Islamic finance—and why it's a strategic imperative for the future.

3.1 Why Cloud Matters for Islamic Institutions

Islamic banks operate in a high-trust, high-compliance environment where agility and transparency are critical. Cloud adoption brings:

#	Benefit	Relevance to Islamic Finance
1	Speed & Agility	Rapid rollout of Shariah-compliant products and digital journeys
2	Scalability	Serves peak demands (e.g., Hajj, Ramadan financing) without overprovisioning
3	Cost Efficiency	Reduces infrastructure costs and improves operational flexibility
4	Data Sovereignty	Supports local hosting mandates critical in GCC, Malaysia, and Indonesia
5	Ethical Computing	Aligns with Islamic values of moderation, sustainability, and trust

3.2 Compliance-Driven Cloud: Aligning with Laws and Faith

Cloud infrastructure must be designed for both regulatory compliance and Shariah governance.

1. **Local data hosting** ensures compliance with residency laws.
2. **Multi-cloud/sovereign cloud models** give banks control over where and how data is stored.
3. **Real-time audit trails** support transparency for regulators and Shariah boards.
4. **Ethical segmentation** ensures no co-mingling of funds with non-permissible institutions.
5. **Digital fatwa** repositories can be hosted securely on cloud for traceability.

3.3 Financial and Ethical ROI of Cloud

Cloud adoption offers a dual ROI for Islamic institutions—measurable financial gains and intangible ethical value.

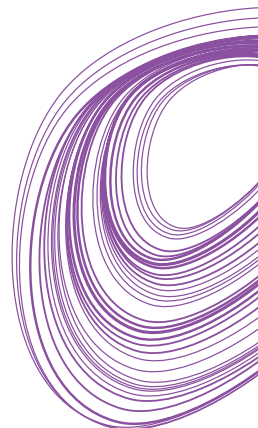
#	ROI Dimension	Example
1	Cost Optimization	Rapid rollout of Shariah-compliant products and digital journeys
2	Time-to-Market	Launch Murabaha or Wakala products in weeks, not months
3	Shariah Screening	Automated Riba/purification checks via AI models hosted on cloud
4	Compliance Efficiency	Embedded rules for AAOIFI, IFSB, and local fatwas
5	Ethical Governance	Full traceability of Zakat calculations, investment screening, and audits

3.4 Green & Sustainable Finance: An Islamic Perspective

Sustainability is deeply rooted in Islamic finance through concepts like wasatiyyah (moderation) and khalifah (stewardship). Cloud computing strengthens this alignment by:

1. Reducing energy usage vs. on-prem infrastructure
2. Enabling digital reporting on carbon footprint, ESG KPIs, and impact investing results
3. Supporting traceability for green Sukuk and sustainable lending

#	Islamic Principle	ESG Equivalent	Cloud-Supported Use Case
1	Avoiding harm (Darar)	Negative screening	Block investments in tobacco, weapons, etc.
2	Social justice (Adl)	Inclusive finance	Cloud-based microfinance and ethical credit tools
3	Preservation (Amanah)	Environmental stewardship	Hosting platforms for green Sukuk issuance



3.5 Islamic Finance: Leading the Way in Ethical Cloud Innovation

Cloud enables Islamic banks to go beyond compliance and become global leaders in ethical finance innovation.

- Green Sukuk Platforms: Cloud allows real-time tracking of impact KPIs for investors.
- Ethical Credit Scoring: AI models hosted on cloud assess not just creditworthiness but also social and ethical behaviour.
- Halal BNPL & Embedded Takaful: Cloud-powered APIs allow products to be embedded into halal digital ecosystems.
- Smart Zakat Engines: Automate Zakat calculation and distribution, improving reach and transparency.

Cloud is the trust engine that lets Islamic banks turn ethics into real-time capability. By encoding Shariah rules, proving impact, and scaling privacy-respectful services, a Shariah-by-design cloud moves green sukuk, ethical scoring, embedded takaful, and smart Zakat from pilots to measurable outcomes.



Section 4

Shariah Governance by Design & Regulatory Alignment: Automating Ethical Compliance

Islamic finance is scaling fast and across more markets than ever. 2024 growth ~10.6%, with sukuk outstanding surpassing US\$1T for the first time (S&P). This brings competing fatwas, diverse supervisory expectations, and stricter data laws. Paper checklists and end-of-quarter reviews can't keep pace. To preserve trust and speed, Shariah governance must shift from after-the-fact oversight to design-time architecture—encoded in systems, automated at runtime, and aligned with international and local rules.

“We expect the Islamic finance industry to grow in 2025... Financing needs driven by economic transformation programs will remain high, and the inherent preference for Islamic finance will persist.” — Mohamed Damak, Head of Islamic Finance, S&P Global Ratings. Arab News

4.1 Policy-as-Code: Turn Shariah & Regulation into Machine Logic

Digitize governing rules so they execute consistently across channels and markets—and are testable, reviewable, and auditable.

Shariah logic—typical automations

- Negative screening at onboarding + periodic re-screens (alcohol, gambling, interest-based finance, etc.).
- Contract rules encoded for Murabaha (markup, asset ownership/transfer sequence, evidence capture).
- Time-bound conditions (e.g., Wakala deposit renewals gated by margin review and re-approval).
- Purification: auto-tag non-permissible income and route to charity with evidentiary trace.

Regulatory logic—typical automations

- Prudential ratios/concentrations (e.g., LCR/NSFR) from a single source of truth.
- Privacy & consent workflows (purpose limitation, retention, subject rights).
- Cloud/residency routing + storage constraints applied at deploy and run time.

“ICAP... enables regulators to identify gaps or inconsistencies with IFSB standards and measure the impact of implementation—recognising the challenge of achieving consistency across diverse jurisdictions.” — **Dr. Bello Lawal Danbatta, former Secretary-General, IFSB.**

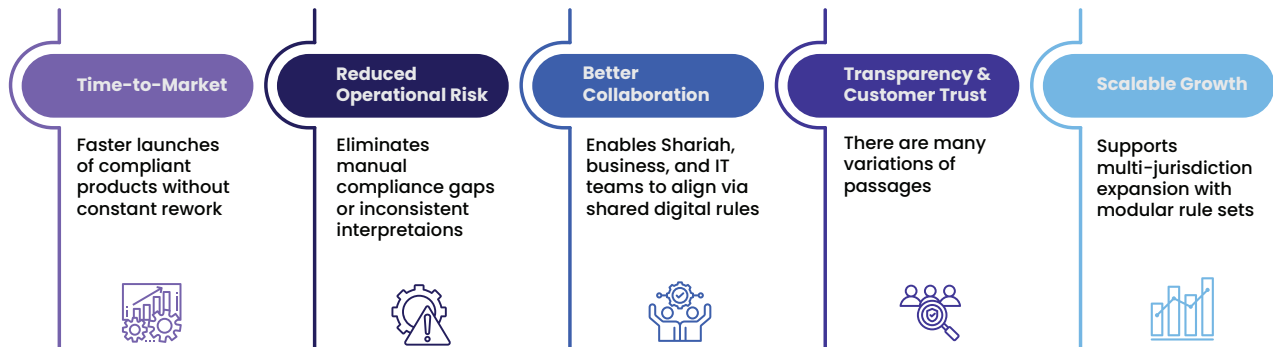


Figure 3. Policy-as-Code control plane: sources (AAOIFI/IFSB, central bank circulars, privacy laws) → policy registry & versioning → rule engine → run-time enforcement (APIs, workflows, analytics).

4.2 Dynamic Compliance & Jurisdictional Versioning

Compliance is not one-size-fits-all. A decision valid in Bahrain may differ in Malaysia or Pakistan; even within a bank, lines of business may follow different madhāhib.

Key capabilities

- **Jurisdiction bundles:** e.g., AAOIFI + local circulars vs. BNM-aligned configurations. (AAOIFI standards fully/partially adopted in 19+ jurisdictions; more use them as guidance.) AAOIFI
- **Version control & approvals:** propose → Shariah/Compliance review → sandbox test → promote with immutable timestamps + scholar notes.
- **Feature flags:** toggle options (early-settlement treatment, purification thresholds) without redeploying code.
- **Conflict checks:** catch clashes across Shariah, prudential, and privacy policies before publishing.

“This set of exposure drafts will provide greater harmonisation of Shari’ah governance structures and practices across jurisdictions.” — **Omar Mustafa Ansari, Secretary General, AAOIFI.**

4.3 Continuous Assurance: Real-Time Auditability

Quarterly, retrospective audits can't match digital scale. Move to continuous assurance.

What good looks like

- Immutable logs: every decision stamped with jurisdiction, policy version, approver, evidence URI (e.g., asset ownership proof).
- Role-based views: tailored access for Shariah Board, Internal Audit, Risk, Regulators.
- Live dashboards: exceptions, purification amounts, contract-step adherence, residual risks—surfaced as they occur.
- Click-through traceability from any KPI to the originating transaction and rule.

4.4 One Data Pipeline, Many Reports

Use one high-quality data pipeline to satisfy both prudential regulators and Shariah Boards.

- Dual outputs, one lineage: Basel III LCR/NSFR on one side; Shariah dashboards (purification, asset-backing, ownership transitions) on the other.
- Jurisdiction templates branch by market while preserving common definitions.
- Drill-down evidence links every figure to rules, transactions, and approvals.

4.5 Data Governance, Privacy & AI Ethics (Amanah by Design)

Data is an Amanah—a trust. The legal floor is rising in core markets:

- UAE PDPL (Federal Decree-Law No. 45 of 2021; in force since 2022)
- Saudi PDPL (enacted 2021, amendments 2023; fully enforced Sept 14, 2024).
- Bahrain PDPL (Law No. 30 of 2018; in force since 2019)

Design guardrails

- Consent & purpose binding: explicit, unbundled consent for sensitive uses (esp. biometrics).
- Minimization & segregation: tokenize personal identifiers; segregate Islamic vs. conventional unit data where dual windows exist.
- Localization-aware: enforce data-at-rest/in-motion residency rules per market.
- Responsible AI: document features, test for bias, explain decisions, enable human-in-the-loop overrides

4.6 Implementation Playbook: Cross-Market Digital Murabaha

Scenario: Launch a digital Murabaha across the UAE and Malaysia.

- **Rule mapping:** UAE—align to AAOIFI + local circulars; Malaysia—incorporate BNM policies, disclosures, documentation.
- **Logic setup:** parameterize profit-rate calc, ownership transfer sequence, early-settlement treatment; encode disallowed uses and supplier checks.
- **Shariah Board inputs:** e.g., UAE approves fully digital; Malaysia requires manual review at disbursement (mandatory workflow step).
- **System execution:** deploy both bundles; route by booking entity/region; enforce evidence capture (invoice, title) before disbursement.
- **Audit trail:** tag each transaction with jurisdiction, policy version, scholar notes, documents; expose via dashboards and exportable evidence packs.

Market context (sukuk & growth):

- Global sukuk issuance hit **US\$228.5B in 2023** (new high).
- 2024 sukuk issuance **~US\$193.4B** industry still grew **10.6%YoY**

4.7 Strategic Benefits of “Shariah by Design”

- **Agility:** policy changes move from quarters to days (parameter update → sandbox → approval → production).
- **Assurance:** continuous, evidence-backed compliance reduces findings and speeds product approval.
- **Scalability:** jurisdiction bundles support multi-market growth without code forks.
- **Transparency:** shared lineage builds confidence with regulators, Shariah Boards, and customers.
- **Efficiency:** automated reporting and embedded controls cut manual effort and error.

“High-quality standards and rigorous due process are meant to raise confidence and harmonise practices across jurisdictions.” — **Omar Mustafa Ansari, Secretary General, AAOIFI.**

4.8 KPIs & Control Checklist (Drop-in for Operationalization)

Execution KPIs: Policy changes lead time; exception rate per 10k transactions; time-to-purify flagged income; audit cycle time; percent of journeys with complete evidence.

Control checklist

- Central policy registry with versioning and approvals
- Rule engine with jurisdiction bundles and feature flags
- Runtime enforcement at API/workflow layers
- Immutable logs + data lineage
- Role-based access & SoD (segregation of duties)
- Consent, retention, and localization controls
- Responsible-AI guardrails & explainability
- DR/BCP for the compliance stack itself

Section 5

Roadmap to a Sharia-Compliant Digital Core

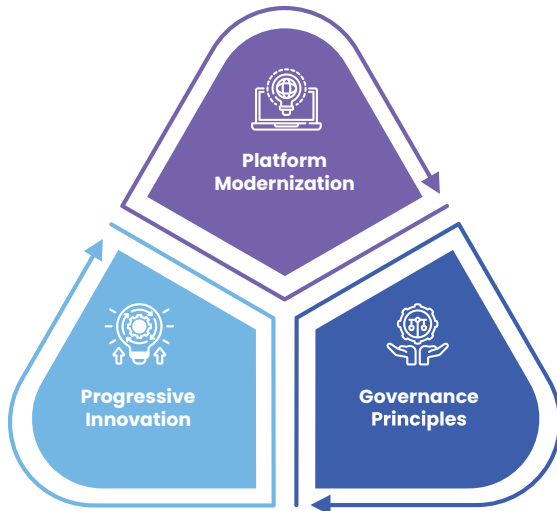


Figure 4: The 3P Framework

To build a truly Shariah-compliant digital banking foundation, Islamic financial institutions must move beyond ad-hoc modernization and adopt a structured transformation strategy. The 3P Framework—Governance Principles, Platform Modernization, and Progressive Innovation—offers a step-by-step guide to align digital capabilities with ethical imperatives.

Step 1: Governance Principles

Before systems are modernized, principles must be codified. Shariah compliance in the digital world requires proactive oversight from both scholars and technologists.

Key Actions:

1. Form a Shariah-Digital Advisory Board comprising scholars, IT leaders, and risk officers.
2. Define digital compliance criteria, such as how data must be handled, how Riba is to be filtered, and how fatwa decisions should be translated into system logic.

Step 2: Platform Modernization

With principles defined, institutions can proceed to updating their core systems. This is best achieved through modular, cloud-native migration, not big-bang transitions.

Key Actions:

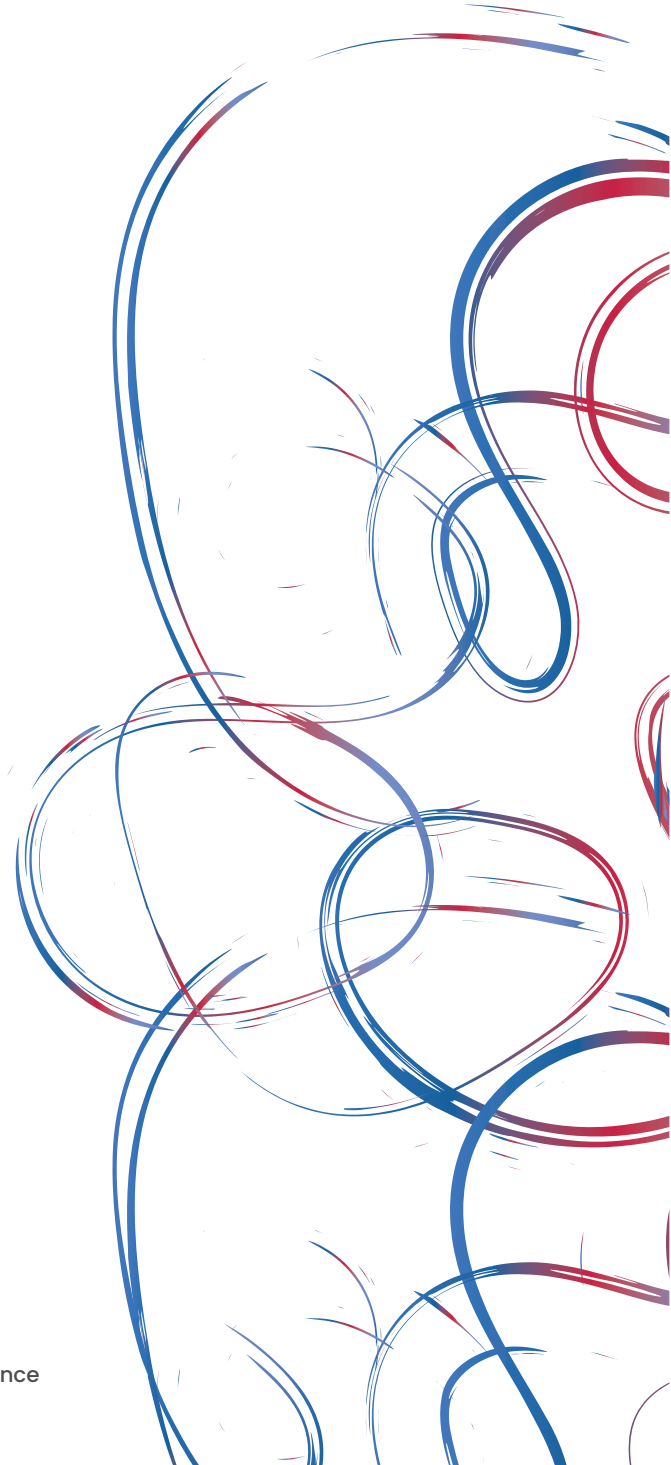
1. Identify legacy components that can be replaced by API-driven, cloud-native modules (e.g., Islamic product engines, Zakat screening tools).
2. Use secure APIs to bridge modern systems with older RMBS, Takaful platforms, and compliance tools.
3. Adopt zero-trust architecture and geo-redundant hosting to ensure privacy, uptime, and Shariah-based data ethics.
4. Develop a fatwa-to-code traceability matrix—ensuring every compliance rule is tied to a documented scholarly interpretation.

Step 3: Progressive Innovation

With a secure and compliant digital foundation in place, banks can begin unlocking innovation—by supporting the halal fintech ecosystem and enabling AI-led personalization within Shariah boundaries.

Key Actions:

1. Launch developer sandboxes for vetted halal FinTech's to integrate through curated APIs.
2. Implement ethical AI engines for product recommendations, credit scoring, and financial wellness—all governed by Islamic values.
3. Offer personalized Shariah dashboards for customers to track Zakat, purification, or impact investing metrics.



Section 5

Conclusion: Innovating Without Compromise

Islamic finance is at a decisive moment. The industry reached US\$3.88 trillion in 2024 on the IFSB's core measure (+14.9% YoY), while broader IFDI tracking put 2023 at ~US\$4.9 trillion—and multiple outlooks project ~US\$7.5 trillion by 2028. Digital-native expectations, evolving regulation, and fintech are reshaping banking delivery. For Islamic banks, change is essential—but innovation must never erode Shariah trust. As Bank Negara Malaysia's governor puts it, technology must be “underpinned by strong governance frameworks, stringent data privacy protections and the highest ethical standards.” Bank for International Settlements

Transformation is more than efficiency. It is a chance to reimagine faith-based finance—using technology to uphold justice and ethical conduct. Moving from legacy cores to modern platforms becomes an architecture of trust: Shariah-by-design, automated compliance, and flexibility across regions.

“Despite growing uncertainty, we expect the Islamic finance industry to grow in 2025,” notes S&P's Mohamed Damak, citing strong financing needs in core markets.

A composable core sits at the center. Modular, API-driven, and cloud-native, it scales quickly, launches products in weeks, and integrates with halal fintechs, takaful, and impact platforms. It enables granular Shariah configuration—jurisdictional rule sets, tracked fatwas, and real-time auditability—so principles are woven into the platform's DNA. Event-driven integration and standardized APIs extend compliant services into partner ecosystems without diluting governance. Real-time telemetry creates continuous assurance across channels and markets.

With modernization, institutions gain agility and resilience while personalizing services within ethical guardrails. AI-led credit decisions, real-time zakat tracking, and ESG-linked sukuk become feasible at scale—when built on privacy, consent, and accountability. And the growth runway remains robust

The road ahead is demanding yet promising. With clear vision and architecture, Islamic banks can lead responsible innovation globally. Now is the time to build systems that scale ethically, evolve intelligently, and serve faithfully—where Shariah principles guide progress.