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Responsible AI for Islamic Finance

Aligning innovation with values

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As Islamic Finance (IF) growth continues to outpace that of conventional finance, artificial intelligence (AI) presents a unique opportunity to accelerate that momentum while also staying aligned with the sector's ethical foundations. In this article, we explore how AI can enhance Shariah compliance, expand financial inclusion and modernize advisory services, while identifying the governance, transparency, and data challenges that must be addressed. By outlining practical steps for institutions, regulators and scholars, we offer a roadmap for building responsible, Shariah-aligned AI.

Islamic Finance has established itself as a growth segment within global financial services, driven by strong demand across Muslim-majority regions, increased interest from ethical finance consumers, and an ever-evolving regulatory landscape. Global IF assets are expected to exceed USD 6.7 trillion by 2027, a 10% growth rate year-on-year since 2022, with Islamic Banking as the primary driver.[1] This momentum reflects a growing appetite for financial systems grounded in transparency, inclusion, and religious values.

Sustaining this trajectory, however, depends on two critical factors: expanding the overall market through new products and channels, and ensuring competitiveness as firms contend with both conventional banks and other IF institutions. Adopting innovation and technology-enabled operating models is essential to address these drivers, helping IF providers unlock efficiencies and differentiate themselves in an increasingly competitive market.

AI offers a powerful lever for transformation. Across the broader financial sector, AI is already reshaping customer engagement, risk assessment and regulatory compliance. In the context of IF, AI could support additional market growth by enhancing operational efficiency, streamlining Shariah compliance processes, promoting financial inclusion and enabling new products and delivery models.

However, capturing this potential requires more than adopting generic solutions. It demands tools built around the ethical and operational requirements for IF.

This article outlines how AI can be responsibly applied within IF, highlighting high-impact use cases, key challenges and practical next steps for stakeholders to effectively operationalize the technology. It is intended for IF institutions, regulators, and technology providers seeking to align innovation with Shariah principles and ethical values.

Why Islamic Finance requires context-aware AI

Islamic Finance is built on principles that prohibit *Riba* (interest), *Maisir* (speculation), and *Gharar* (excessive uncertainty), requiring transactions to be asset-backed and ethically grounded.

These rules shape unique financial instruments such as *Murabahah* (cost-plus financing), *Musharakah* (joint venture partnership), *Sukuks* (Islamic bonds), and ensure that all products are reviewed by Shariah scholars and comply with regulatory bodies like the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI). Beyond legal adherence, IF promotes social justice and fairness, values that foster long-term trust among clients seeking alignment with their religious and moral beliefs.

AI holds significant potential for IF use cases, from automating compliance to expanding access. However, mainstream AI models can prioritize efficiency over ethics, by relying on data rooted in conventional finance, with opaque decision making. This creates risks of bias, misclassification, and non-compliance.

For AI to serve IF responsibly, it must be tailored to reflect Shariah principles, offer explainable outputs, avoid interest-based logic, and adapt to the cultural and demographic realities of markets served by IF institutions. With the right adaptation, AI will strengthen ethical foundations of IF while enabling innovation at unprecedented scale.

High impact applications of AI in Islamic Finance

Shariah compliance monitoring and product structuring

Shariah integrity sits at the heart of Islamic Finance. Clients, regulators, and investors rely on scholars to confirm that contracts avoid interest, excessive uncertainty, and unethical activity. As the customer population grows and product complexity rises, manual compliance reviews struggle to keep pace, increasing the risk of oversight. AI presents an opportunity to enhance Shariah governance by supporting scholars with faster, more consistent decision-making without replacing their authority.

AI powered Shariah compliance monitoring can use natural language processing (NLP), a form of AI that understands and interprets human language, and machine learning (ML) to screen equity pools, review contracts, and track transactions in real time. Suspicious clauses or ratio breaches are flagged instantly, giving boards clear audit trails and allowing swift corrective action. This consistent, round-the-clock vigilance reduces operational costs and builds market confidence.

AI-assisted sukuk structuring applies similar models to analyze term sheets, asset pools, and smart contract code. By testing compliance rules before issuance, institutions shorten approval cycles and lower legal expenses. Automated verification also opens the door to more innovative sukuk formats, supporting market growth while assuring investors that each certificate meets both regulatory and Shariah standards.

Capco developed a differentiated Compliance Checker tool for a client, ingesting regulatory texts, SME inputs, and labelled cases to generate real-time risk assessments and gap analyses. While built for conventional finance, the solution can be adapted for Shariah compliance by integrating Islamic screening criteria and sukuk structures, enabling faster and more auditable validation.

Credit scoring for underbanked markets

Despite robust asset growth, large segments of IF's target populations remain underbanked and small enterprises struggle to obtain Shariah compliant finance. AI based credit scoring can address this gap by analysing alternative data such as utility payments, mobile usage and community records. These signals allow institutions to estimate creditworthiness without relying on interest-based histories, expanding ethical lending while maintaining prudent risk controls. When models are trained with local data and validated by scholars, they can lift approval rates, reduce defaults and bring new customers into the IF ecosystem.

Capco supported a Tier 1 Bank in automating credit application reports by developing a retrieval-augmented generation (RAG) framework that sourced and structured financial data from internal documents and external vendors, resulting in significantly improved efficiency. While this was applied to corporate credit analysis, the architecture can be adapted to underbanked retail markets, enabling IF institutions to evaluate alternative data sources like utility payments or mobile behavior, and generate explainable, Shariah-aligned credit profiles.

Optimizing social finance

AI and advanced analytics can meaningfully enhance the impact and transparency of Islamic social finance. Machine learning models can forecast regional *Zakat* (obligatory charity) needs by analyzing demographic, economic, and crisis-response data, enabling targeted disbursement based on real-time need. Classification algorithms can segment eligible beneficiaries using historical data and eligibility criteria, ensuring funds are distributed fairly and according to Shariah rules.

For *Waqf* (endowment) projects, institutions can use data analytics and rule-based automation to track fund utilization and asset performance against intended outcomes. NLP can be applied to Waqf-related contracts and project reports, flagging any deviations from donor intent or operational risks. In donor outreach, advanced segmentation and personalization can improve engagement. For example, Muslim Charity, used AI-enhanced email marketing to deliver hyper-personalized messages during Ramadan, resulting in a fourfold increase in donations per email.[2]

Such AI capabilities illustrate how the digitization of Islamic social finance can enhance efficiency and fairness in disbursement, while also strengthening transparency, auditability, and stakeholder confidence across the Zakat and Waqf value chain.

Smarter financial advisory tools

Digital first investors expect guidance that is immediate, low cost, and aligned with their ethical beliefs. AI-driven robo-advisor platforms offer IF institutions the scale to meet this demand. Services such as Wahed Invest and Sarwa Halal already provide automated portfolio construction that screens out non permissible sectors and balances risk in line with Shariah guidance. Their rapid uptake shows clear appetite for personalized halal wealth solutions among younger, ethically conscious customers.

AI engines underpinning these platforms draw on client questionnaires, spending patterns, and market data to generate tailored asset allocations while applying real time Shariah filters. Natural language models can explain proposed portfolios in plain language, and embedded compliance rules flag any breach for scholar review before trade execution.

The result is a continuous advisory cycle that adjusts to live events and market moves without raising operational costs. As algorithms mature, robo-advisors can broaden product sets beyond equities into sukuk and alternative assets, giving investors a holistic, Shariah compliant path to long-term financial goals.

Challenges in AI adoption for Islamic Finance

Transparency and explainability

Transparency and explainability are critical in IF, where scholars must trace every decision back to Shariah principles. Black box AI models lack clear logic and risk undermining this process, making it difficult to verify compliance with prohibitions on interest and uncertainty. These models often work by detecting patterns in large datasets without understanding cause and effect, meaning they can reach conclusions without being able to explain why, or whether those conclusions align with Islamic ethical principles.

This opacity also weakens consumer and regulatory trust. Recent guidance, such as Malaysia's AI Governance and Ethics Framework, emphasizes the need for documented data sources, decision rules, and human oversight to ensure accountability and ethical alignment. Capco's experience shows that weak explainability and related GenAI risks already carry significant cost implications for financial institutions[3].

Capco supported a leading retail bank in deploying its LLM Monitor & Framework solution to evaluate AI output quality across key metrics like faithfulness, context precision, and response relevance. This enabled the client to identify underperforming responses, improve prompt design, and meet regulatory expectations for model oversight. For IF, the same capability offers structured and auditable visibility into AI decisions allowing Shariah boards and compliance teams to assess whether outputs align with ethical and religious standards.

AI hallucinations

Hallucinations – false, misleading or fabricated content generated by the AI model – pose a very particular risk in IF. A hallucinated fatwa, a misclassified sukuk or an incorrect compliance flag could lead to Shariah breaches, regulatory violations and critically reputational damage.

These risks are amplified by the non-deterministic nature of Generative AI, where identical queries may yield different results, undermining consistency and auditability. As IF relies on trust, certainty, and traceability, such errors can erode scholar confidence and undermine institutional credibility. Regulators are beginning to scrutinize the reliability of AI outputs more closely, especially where those outputs influence product eligibility or public-facing communications.

Capco helps clients mitigate hallucination risks by embedding orchestrator agents into the AI solutions we build. These controllers run multiple instances of a prompt, compare the outputs, and filter or reconcile differences to present only the information that appears consistently. In doing so, they act as a probabilistic safeguard against fabricated or misleading content, enabling institutions to trust their AI outputs and maintain confidence in both regulatory and Shariah compliance.

Data scarcity and bias

Data scarcity and bias present fundamental challenges for AI in Islamic Finance. Many of the target markets for IF suffer from underdeveloped financial record-keeping, limited credit histories and fragmented datasets, making it difficult to train reliable AI models. When models are built on conventional finance data, they risk embedding assumptions that conflict with Shariah norms such as interest-based scoring or sectoral exclusions. This not only leads to inaccurate output for the target clients but can also limit financial access for already underserved populations.

Ethical AI adoption in IF depends on addressing both the volume and the cultural relevance of training data. While this is a systemic issue, individual institutions still have a role to play. Many IF providers sit on valuable internal data trapped in legacy systems. If unlocked and structured responsibly, this data could lay the groundwork for the next generation of Shariah-compliant AI models.

Capco supports clients at varying stages of data and technology maturity through our Legacy Platform Modernization toolkit. For institutions still reliant on legacy systems, the solution uses GenAI to extract embedded system knowledge, generate modern architecture blueprints, and automate code refactoring. This accelerates the shift from unflexible monolithic systems to modular microservices, unlocking structured, accessible data and laying the technical foundation for AI adoption. These capabilities are particularly valuable in IF markets, where under-digitized infrastructure can otherwise limit the scalability of AI applications.

The scarcity of real-world IF data creates a strong case for synthetic data, which is artificially generated to mimic the structures and statistical properties of real datasets while adhering to defined rules. Examples include creating synthetic Murabhah contracts with varied profit margins and tenors to train compliance screening models or generating synthetic transaction records with different asset classes and counterparties to test anti-money laundering (AML) and regulatory audit systems. Synthetic data can be produced through AI-powered generation, rule-based simulations, or expert-crafted manual design.

Capco's expertise can assist IF institutions harness AI to generate such synthetic data that is tailored to their specific Shariah and regulatory context, while minimizing manual effort.

Four actionable steps for Islamic Finance stakeholders

1. Build governance frameworks

The rapid evolution of AI models in recent years has meant the technical foundations are in place for financial institutions to move beyond experimentation and begin building robust, fit-for-purpose products. The first priority is to develop AI governance frameworks that embed Shariah compliance at their core. These frameworks should define standards for data sourcing, model transparency, human oversight, and decision accountability, with clear roles for Shariah boards throughout the process.

This includes clear structures for ownership, typically shared between model risk, compliance, and Shariah governance teams, as well as documented procedures for model development, validation, and ethical sign-off. AI governance should also feed into the firm's broader data and risk strategies, ensuring functions and products impacted by AI are held to the same accountability standards as other regulated functions, thereby increasing trust from both regulators and customers.

2. Invest in Islamic Finance-specific AI infrastructure

Investment in domain-specific infrastructure is equally important. Most existing AI tooling is built around the assumptions and structures of conventional finance. Stakeholders should prioritize the development of IF-specific datasets, including compliance ontologies, corpora of Shariah rulings, permissible screening ratios, and other data that reflect the linguistic, legal, and cultural contexts of IF markets.

These resources will improve the accuracy, fairness, and legitimacy of AI models deployed in the sector, ensuring they align with both ethical expectations and regulatory requirements.

3. Enable collaboration through regulatory initiatives

Cross-sector collaboration will be essential. Regulators, Shariah scholars, and financial firms must co-create principles that balance innovation with Shariah integrity. Establishing working groups or regulatory sandboxes focused on Islamic AI use cases can accelerate safe experimentation while guiding policy development. The UK FCA's AI Sandbox offers a model in this regard, providing a controlled space for model-level testing using synthetic data and explainability tools.[4]

IF regulators like the Islamic Financial Services Board (IFSB), which develops prudential standards, risk management guidelines, and policy frameworks, in markets such as Saudi Arabia, Malaysia, and the UAE should look to this approach as a blueprint, adapting it to include Shariah-specific reviews and validation. Such initiatives will accelerate safe experimentation and reduce time-to-market for Shariah-aligned AI products.

4. Integrate scholars early in the AI lifecycle

Shariah review boards must be embedded into the AI model development life cycle. Rather than reviewing outputs reactively, scholars should engage from the design stage through to validation and deployment. This integrated approach ensures models uphold both technical standards and religious obligations, fostering trust and long-term acceptance of AI within the Islamic Finance ecosystem.

Operationalizing AI in Islamic Finance

To operationalize AI, institutions need a structured approach that aligns development with IF principles at every stage. The following lifecycle illustrates how Shariah governance can be embedded from problem definition through to deployment, ensuring AI solutions are not only innovative, but compliant, ethical, and trusted.

Stage	Lifecycle Activity	Shariah Principles	Capco Enablers
Use Case Definition	Define the business value and intended purpose of the AI solution, ensuring clear alignment with strategic objectives and ethical considerations.	**Purposefulness:** Only ethically sound, permissible use cases are pursued (excluding riba, speculation, or unfair applications of AI).	**AI Lifecycle Methodology:** A structured, tollgate-based approach to identify, validate, and scale GenAI use cases with iterative confidence-building checkpoints.
Data Collection & Curation	Establish data pipelines to gather, cleanse, and structure training and test datasets that support scalable and reliable AI development.	**Integrity:** Ensure accurate, representative, and Shariah-aligned data; exclude impermissible transaction structures and profiles.	**Legacy Platform Modernization:** Streamlines legacy code refactoring and data migration. **Synthetica:** Generates high-quality synthetic data via customizable templates or natural language inputs.
Model Design & Training	Select and train algorithms to optimize model performance, scalability, and transparency, ensuring traceability and explainability throughout.	**Transparency:** Provide interpretable outputs with explainability tools and clear documentation for Shariah review.	**Responsible AI Frameworks:** Embeds ethical, transparent, and regulatory-aligned development practices. **LLM Comparison & Frameworks:** Evaluates large language models for cost, performance, and purpose fit.
Validation & Governance	Conduct rigorous validation processes covering technical accuracy, regulatory standards, and ethical oversight across the full AI lifecycle.	**Accountability:** Embed oversight by Shariah scholars and governance bodies to ensure full compliance.	**AI Governance:** A structured approach for embedding AI policies, controls, and risk indicators across the enterprise.
Deployment & Monitoring	Deploy models into production with robust infrastructure, supported by real-time monitoring to detect drift, bias, and emerging risks.	**Continuous Assurance:** Enable real-time oversight, scholar input, override mechanisms, and ongoing compliance monitoring.	**Scaling GenAI Infrastructure:** Guidance to design and implement enterprise-grade GenAI cloud infrastructure. **LLM Monitor:** Ensures quality and compliance of LLM-generated content through continuous monitoring.

Delivering responsible AI together

As AI continues to reshape the financial sector, Islamic Finance has a unique opportunity to lead with a model of innovation grounded in ethics, inclusion, and trust.

Institutions that act early, with the right strategy, tooling, and Shariah governance, can set the standard for responsible AI in the industry.

Capco combines deep expertise in AI strategy, governance, and deployment with an established Islamic Finance capability that understands the regulatory, operational, and cultural context of Shariah-aligned institutions.

We have helped global banks implement AI frameworks that meet technical and regulatory standards and are actively working with IF clients across the GCC, Europe, and Americas to modernize infrastructure, navigate complex regulatory landscapes, and co-create AI solutions that reflect true Islamic values.

Get in touch to see how we can support your firm in the next chapter of responsible, values-driven AI.

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About Capco

Capco, a Wipro company, is a global management and technology consultancy specializing in driving transformation in the financial services and energy industries. Capco operates at the intersection of business and technology by combining innovative thinking with unrivalled industry knowledge to fast-track digital initiatives for banking and payments, capital markets, wealth and asset management, insurance, and the energy sector. Capco's cutting-edge ingenuity is brought to life through its award-winning Be Yourself At Work culture and diverse talent.

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