The Pakistan
Accountant
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Jan-Mar 2026

The Institute of Chartered Accountants of Pakistan
ICAP

Chartered Accountants at the Forefront of Trust, Technology and Transformation

Topic Covered:

From Compliance to Confidence
How Chartered Accountants Support Pakistan's Development Agenda

Islamic Finance
and Its Expanding Global Relevance in 2026

Cybersecurity & Data Governance
Protecting Financial Information in a Connected World

Women in Chartered Accountancy
Building Sustainable Leadership through Mentorship & Sponsorship

AI-Driven Auditing & Safeguarding
Integrity in the Digital Era


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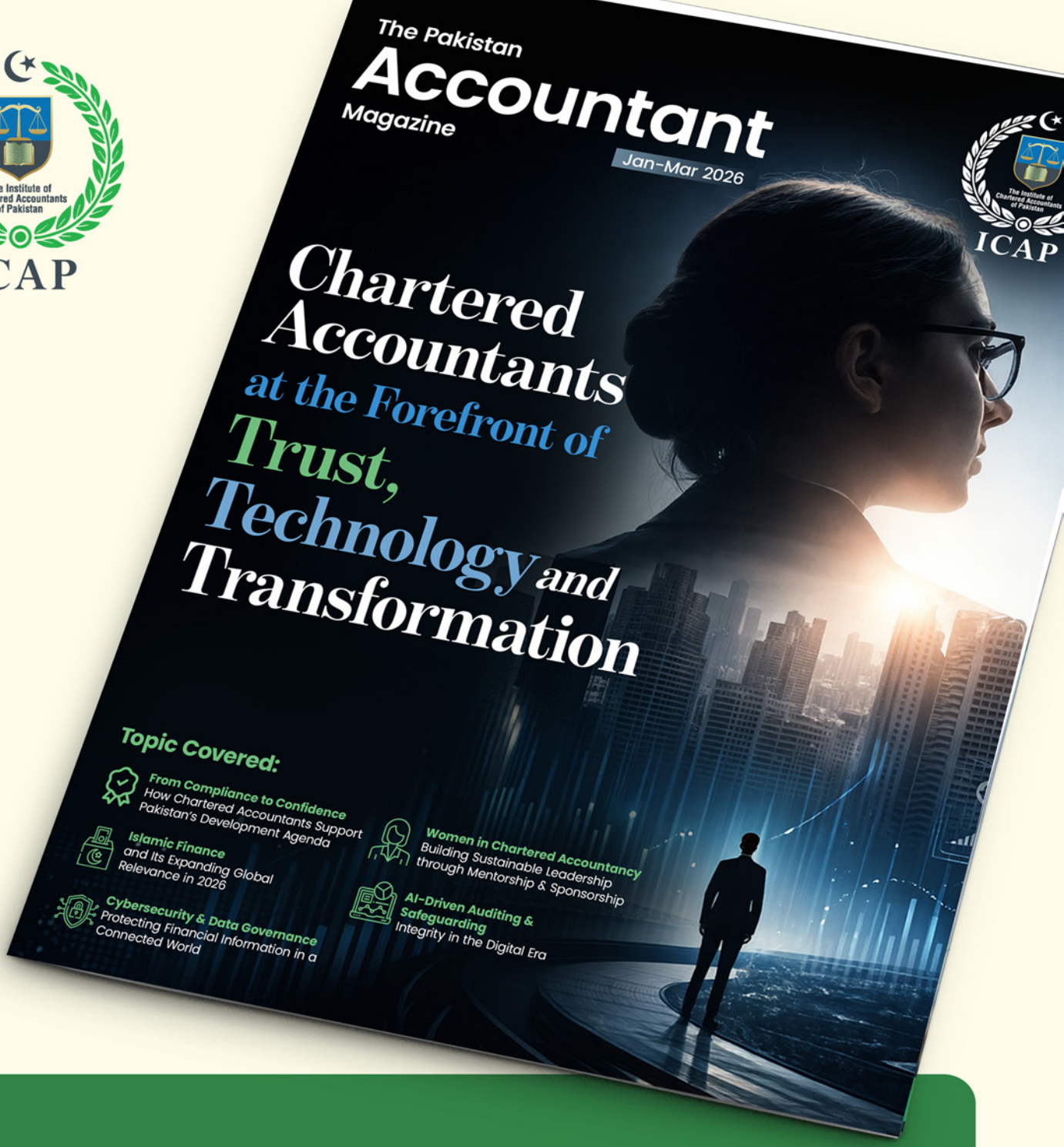

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INSIDE

ICAP





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Message from
President ICAP

It gives me great pleasure to present this issue of The Pakistan Accountant, centered on the compelling theme, “Chartered Accountants at the Forefront of Trust, Technology and Transformation.”

In an increasingly dynamic global and national landscape, the role of Chartered Accountants has evolved far beyond traditional financial stewardship. Today, we serve as trusted advisors, strategic enablers, and guardians of transparency—contributing meaningfully to Pakistan’s economic resilience and long-term development. This issue thoughtfully captures this multidimensional role through a collection of timely and thought-provoking contributions from our members.

The transition from compliance to confidence highlights the expanding responsibility of Chartered Accountants in strengthening institutional trust and supporting the national development agenda. At the same time, the profession continues to advance inclusivity and sustainability, as reflected in our focus on women in chartered accountancy, where mentorship and sponsorship serve as vital instruments for nurturing future leadership.

The continued growth of Islamic finance reaffirms Pakistan’s strategic position within a rapidly expanding global ecosystem that values ethical and Shariah-compliant financial solutions. Meanwhile, rapid technological advancements are reshaping the profession at an unprecedented pace. Articles on AI-driven auditing, cybersecurity, and data governance underscore the importance of embracing innovation while safeguarding integrity, confidentiality, and public trust.

As we navigate these transformative times, ICAP remains steadfast in its commitment to upholding the highest standards of professional excellence, ethics, and public accountability. I commend our contributors for their valuable insights and encourage our members to actively engage with these ideas to drive meaningful change within their respective spheres.

I am confident that this edition will inspire reflection, dialogue, and action as we collectively shape the future of our profession.

Muhammad Samiullah Siddiqui
President, ICAP

Message from
Chairman MARCOM

I am pleased to welcome you to the January–March 2026 issue of The Pakistan Accountant, centered on the theme, “Chartered Accountants at the Forefront of Trust, Technology and Transformation.”

This edition reflects our ongoing commitment to showcasing the intellectual capital of our members and highlighting the evolving relevance of the profession in a rapidly changing world. The selected topics strongly resonate with both national priorities and global trends, illustrating how Chartered Accountants continue to adapt, lead, and innovate.

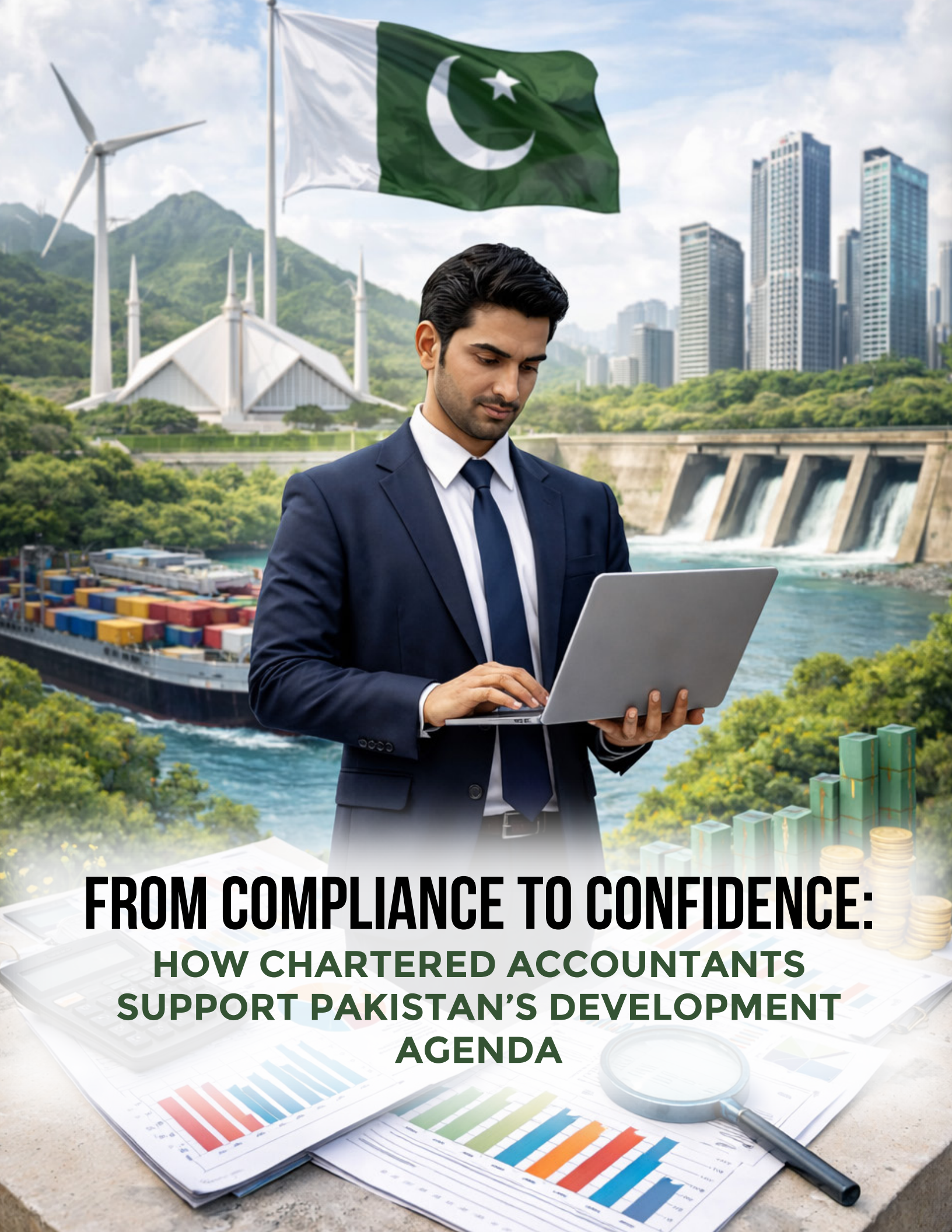
The profession’s progression from compliance to confidence is particularly significant in the context of Pakistan’s development trajectory, where credibility and transparency remain indispensable. Equally important is the discourse on women in chartered accountancy, as we collectively strive to foster an inclusive environment that nurtures leadership through structured mentorship and meaningful sponsorship.

The inclusion of Islamic finance as a key sub-theme reflects its sustained global expansion and the opportunity for Pakistan to play a leading role in this domain. Concurrently, the impact of digital transformation is evident in the exploration of AI-driven auditing—which has the potential to redefine assurance practices—and cybersecurity and data governance, which have become critical pillars in safeguarding financial ecosystems.

Through this publication, we aim not only to present diverse perspectives but also to foster dialogue, collaboration, and continuous learning within the profession. We hope this issue resonates with our readers and encourages greater participation in shaping future discourse across ICAP’s knowledge platforms.

ICAP remains committed to enhancing the visibility and thought leadership of its members, both nationally and internationally.

MUHAMMAD SAJID HAMID KAPADIA
Chairman - MARCOM

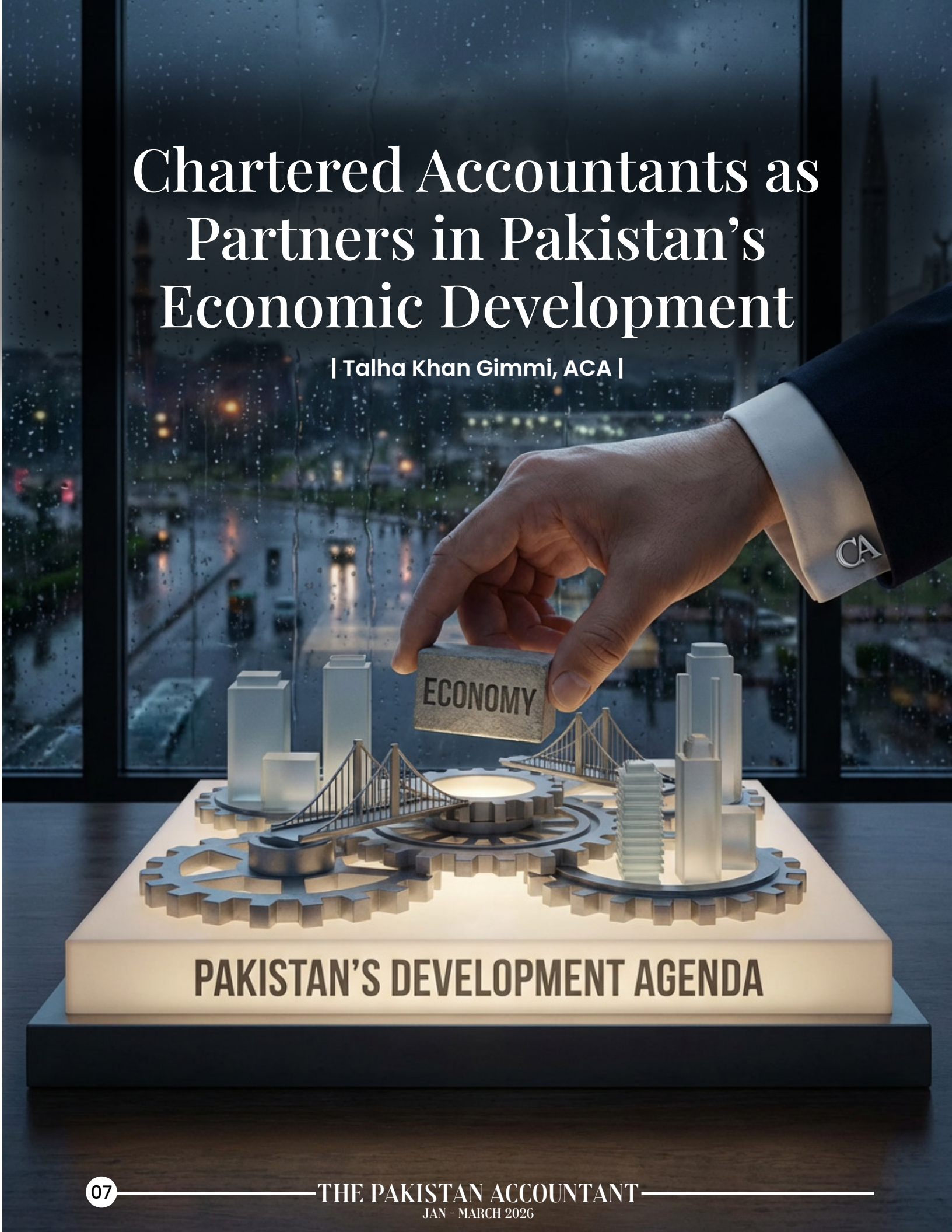


FROM COMPLIANCE TO CONFIDENCE:

HOW CHARTERED ACCOUNTANTS SUPPORT PAKISTAN'S DEVELOPMENT AGENDA

Chartered Accountants as Partners in Pakistan's Economic Development

| Talha Khan Gimmi, ACA |



Pakistan stands at a defining economic turning point. From IMF-anchored stabilisation programmes and SIFC-led investment drives to the digitisation of the Federal Board of Revenue and the expansion of Special Economic Zones, the country is pursuing a development agenda that demands more than technical compliance. It demands professionals who can inspire confidence in institutions, in investors, and in the integrity of financial information itself.

Chartered Accountants are uniquely positioned to answer that demand. No longer confined to the audit room or the tax return, today's CA is a strategic advisor, a governance guardian, a technology leader, and a sustainability architect. The CA profession is evolving and in doing so, it is helping Pakistan evolve too.

CAs and Pakistan's Development Agenda

Chartered Accountants embedded in the planning apparatus of Pakistan across SECP, SBP, FBR, and Public Sector Enterprises are quietly doing some of the most consequential work in the country's economic history. They bring financial discipline to policy, structure to reform, and credibility to institutions that must earn the trust of markets and multilaterals alike.

The Middle East and Gulf region, long a crucible of geopolitical tension, has once again emerged as a fault line whose tremors are felt far beyond its borders, especially in Pakistan. CAs advising corporates and financial institutions must now factor sanctions risk into their frameworks particularly in trade finance, energy sector contracts, price volatility and banking relationships. This is precisely where the profession's role in risk-informed advisory becomes strategically valuable.

In the realm of CPEC-related project accounting and cross-border investment structuring, CAs are providing the financial architecture through which billions of dollars flow with accountability. Their mastery of IFRS-based reporting is bridging the trust deficit between Pakistani corporations and international investors who require transparent, globally comparable financial statements before committing capital. Perhaps most critically, CAs are enabling SME formalisation, one of the government's central economic priorities. By guiding informal businesses into the tax net through advisory rather than enforcement, they are transforming compliance from a burden into a pathway to growth. This is the confidence that Pakistan's development agenda so urgently requires.

ESG: The New Frontier for Chartered Accountants

Environmental, Social, and Governance (ESG) reporting is no longer a voluntary aspiration for forward-looking corporations, it is rapidly becoming a condition of market access. Global supply chains, development finance institutions such as International Finance Corporation and Asian Development Bank, and key export markets in Europe are demanding credible, assured ESG disclosures before awarding contracts, extending credit, or opening their borders.

For Pakistan, this is both a challenge and an opportunity. The textile sector, Pakistan's largest export industry, faces mounting scrutiny under the EU's Carbon Border Adjustment Mechanism (CBAM) and supply chain due diligence legislation. Agriculture and energy, two sectors central to the national economy, are directly exposed to climate risk that is increasingly demanded to be quantified and disclosed. SECP's own ESG disclosure guidelines for listed companies signal that this is now a regulatory reality, not merely a global trend.

Chartered Accountants are uniquely equipped to lead Pakistan's ESG transition. Their skills in financial measurement, data assurance, materiality assessment, and stakeholder reporting translate directly into the disciplines that credible ESG frameworks demand. CAs are already designing ESG reporting architectures for listed companies, assuring non-financial disclosures for international investors,

and building the internal controls that make sustainability data as reliable as financial data.

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Sustainability assurance is an emerging market where CA firms can differentiate themselves significantly. ICAP has an important role to play in developing ESG competency frameworks, dedicated CPD pathways, and ultimately a recognised certification that positions Pakistani CAs as credible sustainability assurance practitioners in international markets.

Risk and Governance: CAs as the Conscience of the Boardroom

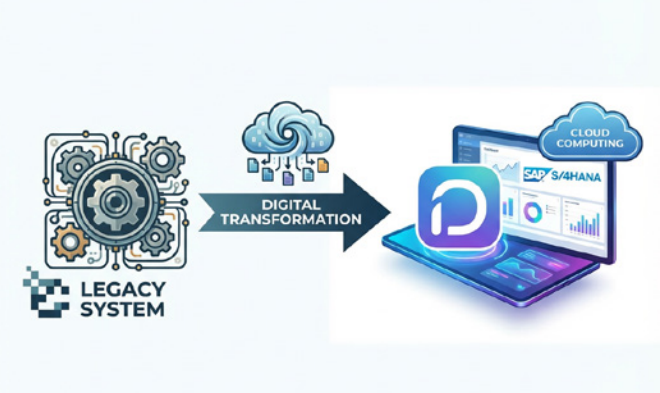
Corporate governance failures carry a steep price in shareholder value, in public trust, and in Pakistan's standing with international creditors and investors. Many of the most damaging failures in the corporate and financial sector trace not to a lack of rules, but to weak oversight, inadequate risk culture, and the absence of empowered finance professionals in the boardroom.

CAs serving as Chief Financial Officers, Audit Committee members, and independent directors are the first and last line of governance defence. Their contributions span several critical dimensions: designing and embedding Enterprise Risk Management (ERM) frameworks across financial institutions and corporates; strengthening internal audit functions beyond tick-box compliance toward genuine risk intelligence; and supporting Board Audit Committees with risk-informed financial narratives that enable better decision-making at the highest levels.

Pakistan's successful exit from the FATF grey list stands as a landmark achievement in which the profession played a central role. CAs in banking, financial services, and regulatory institutions drove the Anti-Money Laundering (AML) compliance programmes, the transaction monitoring frameworks, and the beneficial ownership disclosures that satisfied international assessors. Governance, in this light, is not a constraint on business, it is a competitive advantage in attracting the foreign investment Pakistan needs.

Leading Business Transformation: CAs at the Helm

Perhaps the most underwritten story in the profession's recent evolution is the central role Chartered Accountants are playing in large-scale business transformation. As Pakistani organisations modernise their operations, adopting cloud-based ERP systems, rethinking processes, and navigating the human dimensions of change, CAs have emerged as the linchpin between strategy and execution.



SAP S/4HANA and Rise with SAP Implementations

Large-scale ERP transformations, including SAP S/4HANA and the Rise with SAP cloud migration model, represent some of the most complex and high-stakes change programmes an organisation can undertake. CAs lead the financial workstream in these implementations, redesigning chart of accounts structures, configuring financial reporting hierarchies, governing data migration, and ensuring that the new system reflects not just technical requirements but sound accounting principles.

Critically, CAs serve as translators between IT and Finance, a bridge that is often missing and whose absence accounts for many implementation failures. They also serve as a governance check: flagging when "go-live pressure" threatens to override data integrity, when system configuration creates segregation-of-duties risks, or when reporting outputs

diverge from regulatory requirements. In transformation programmes measured in hundreds of millions of rupees, this governance function has enormous financial and reputational value.

Business Process Consulting and Optimisation

CAs bring a controls-first mindset to process mapping and optimisation that distinguishes them from generalist consultants. When a CA leads a procurement-to-pay process review, they are simultaneously identifying operational inefficiencies, revenue leakage points, segregation-of-duties vulnerabilities, and ERP configuration gaps, delivering dual value that pure process consultants cannot match.

Using process mapping methodologies, swimlane diagrams, BPMN documentation, and process narrative analysis, CAs create a structured foundation for transformation that combines financial rigour with operational insight. This combination is increasingly recognised by clients as a premium offering and is creating new advisory revenue streams for CA firms and practitioners operating in the consulting space.

Change Management: The Human Dimension of Transformation

Transformation programmes fail not because the technology is wrong, but because the people are not brought along. CAs leading transformation have learned, sometimes through hard experience, that communicating the 'why' behind process changes to operational teams is as important as the technical design itself. Their ability to model the financial impact of transformation options gives them a credible voice at the leadership table when competing visions are debated.

As Programme Management Office (PMO) leads, CAs ensure that transformation stays on budget, on scope, and within risk appetite, the three disciplines that are the natural domain of the profession. In an era where Pakistan's corporate sector is investing heavily in modernisation, the CA who can combine financial acumen with transformation leadership is among the most valuable professionals in the market.

The Confidence Imperative

The next decade will draw a clear line between Chartered Accountants who record history and those who shape it. Pakistan's development agenda, its ambitions around investment, formalisation, sustainability, and governance reform needs professionals who can speak to boards, regulators, investors, and international institutions with equal fluency and equal credibility.

ICAP's responsibility is to build the curriculum, the credentials, and the community that produces these trusted transformation leaders. The CA qualification must continue to evolve incorporating ESG assurance, digital transformation competencies, enterprise risk management, and strategic advisory skills alongside its foundational technical strengths.

Pakistan's moment of transformation is here and the Chartered Accountant who rises to meet it, armed with the competence to navigate complexity, the integrity to inspire trust, and the courage to lead when it matters most, will not merely serve the profession but help write the next chapter of this nation's story.

The writer is an Associate Chartered Accountant working as Senior Manager, Business Finance at Saudi Aramco JV GO

Economic Sector and The Role of Chartered Accountants

| Adnan Mehmood Khan, ACA |

The corporate sector of Pakistan has Chartered Accountants who serve as members of every boardroom they enter. The role of accountants has evolved beyond their traditional work as number-crunchers and audit report signers. The profession has undergone major changes since its first creation. The nation faces an essential period which will establish the path for its upcoming development. The nation requires workers who will perform tasks beyond basic regulatory compliance. The organization requires leaders who will build strategic thinking abilities and function as advisory experts. The economic sector now depends on Chartered Accountants (CAs) who have evolved from their traditional role of number maintenance into confidence development for businesses and investors and the entire economic system.

People generally picture accountants working with financial reports through spreadsheet analysis during their work. The traditional compliance duties of Pakistani CAs have required them to perform substantial work for economic development. All companies require their financial statements to undergo auditing procedures. The process serves to establish market trust because trust remains difficult to find in this particular market. The CA confirms that all numbers show actual financial position and financial performance through their audit report.

An investor would not invest their funds into a business which lacks dependable financial data. The process of trust establishment through CAs makes it possible to start investments. A nation which actively seeks international and national funding opportunities needs this audit mechanism for the public sector and public accounts to fulfill its essential requirements.

The Pakistani business environment presents organizations with three major difficulties because their energy expenses become unpredictable and their currency values experience extreme fluctuations and their operational requirements undergo regular modifications. A CA who possesses knowledge of numbers and business understand and take decisions accordingly.

The Bigger Picture

The development agenda of Pakistan serves as a national mission which needs all sectors to join hands in its implementation. The agenda receives support from CAs through their work which most people fail to recognize.

First, there's tax collection. The tax-to-GDP ratio in Pakistan stands as one of the lowest in the world among all nations. CAs help businesses understand their tax obligations through the creation of accurate

tax documents and they teach them about the structure of the formal economy.

Second CAs function to draw foreign capital into their economies. International investors require financial information which they can depend on. The Pakistani accounting profession now operates under international standards which makes the country more appealing to international investors.

Third, there's financial inclusion. Pakistan has a massive informal economy—millions of businesses operating outside the formal financial system. CAs now assist small businesses to learn about the advantages which formalization provides to their operations. This is economic development at the grassroots level.

The country of Pakistan faces ongoing problems with corporate scandals together with poor governance practices. Every scandal erodes trust, and without trust, investment dries up. CAs are at the forefront of improving

> Chartered Accountants play a pivotal role in strengthening investor confidence, enhancing financial transparency, and creating the trust necessary for sustainable economic growth in Pakistan

corporate governance. The auditors receive training which enables them to detect any unusual financial activities. The advisors assist businesses to establish correct control systems. The board members use their independent status to provide financial knowledge which they apply to governance systems.The economy benefits from enhanced oversight systems which ICAP together with other professional bodies have established to provide protection.

Supporting SMEs and Entrepreneurship

Small and medium enterprises (SMEs) function as the fundamental economic sector which supports Pakistan's economic growth yet they have consistently faced challenges when trying to obtain official funding. Banks hesitate because SMEs frequently do not have adequate financial documentation and proper organizational management systems.

The CAs throughout Pakistan assist small and medium enterprises (SMEs) to establish professional business operations through their work which includes financial record maintenance and internal control system implementation and bankable financial statement preparation. The startup ecosystem receives major advantages from the knowledge base which CA provides. Startups which want to obtain funding need to establish proper financial reporting systems that deliver exact financial data. The organization needs powerful financial management systems to achieve its goal of expansion. Startups currently need CAs who perform financial management duties as fractional CFOs or financial advisors.

Digital Transformation

The accounting profession faces operational changes because of technological advancements which have occurred in the field. Financial work operations now experience transformation because of three technological advancements which include cloud accounting, artificial intelligence and blockchain systems. The Pakistani CA sector has experienced quick adoption of modern accounting systems. Financial technology solutions have become the main focus for CAs because these solutions help businesses automate their operations through enterprise resource planning system deployment and data analytics implementation for better decision-making. The development of Pakistan depends on digital financial systems because they helps fight corruption while making operations more efficient and enabling governments to create better policies.

Real Challenges

The profession faces real challenges. The nation faces brain drain because its most talented CAs choose to leave the country to work abroad because they find better career prospects elsewhere. The compensation differential exists at such a high level that organizations need to take it into account. The domestic profession suffers from this loss but Pakistani CA training programs have proven their excellence through this achievement.

Small businesses operating with their smaller counterpart's view CAs as financial expenses which

they do not recognize as strategic business investments. The fees become visible to them but they fail to recognize the worth that these fees generate. The process of changing this mindset needs continuous learning and multiple achievements to succeed. The ongoing digitization creates demand for tech-savvy financial professionals.

The Ultimate Goal

A company needs to know its financial stability before it can begin developing major expansion plans. The company requires absolute assurance that financial reports show accurate profit numbers and all liabilities are disclosed and cash flow projections align with reality. The lack of this guarantee makes all promising business prospects seem dangerous to pursue.

The same pattern exists between different countries. International capital moves quickly toward safe harbors and away from uncertain waters. A reputable CA firm which audits Pakistani companies provides them with a certification which enables their access to worldwide capital markets. Economic confidence emerges through the process of earned trust which professionals develop through their consistent display of professional behavior. The CA profession serves as an institutional trust mechanism. Their work created handshaking traditions in Pakistani business meetings which now follow international corporate business practices.

The Way Forward

The profession needs to continue its advancement process for professional development. The days of purely compliance-focused work are ending. CAs need to acquire abilities in technology and strategy and communication because they should view themselves as business allies instead of basic service deliverers.

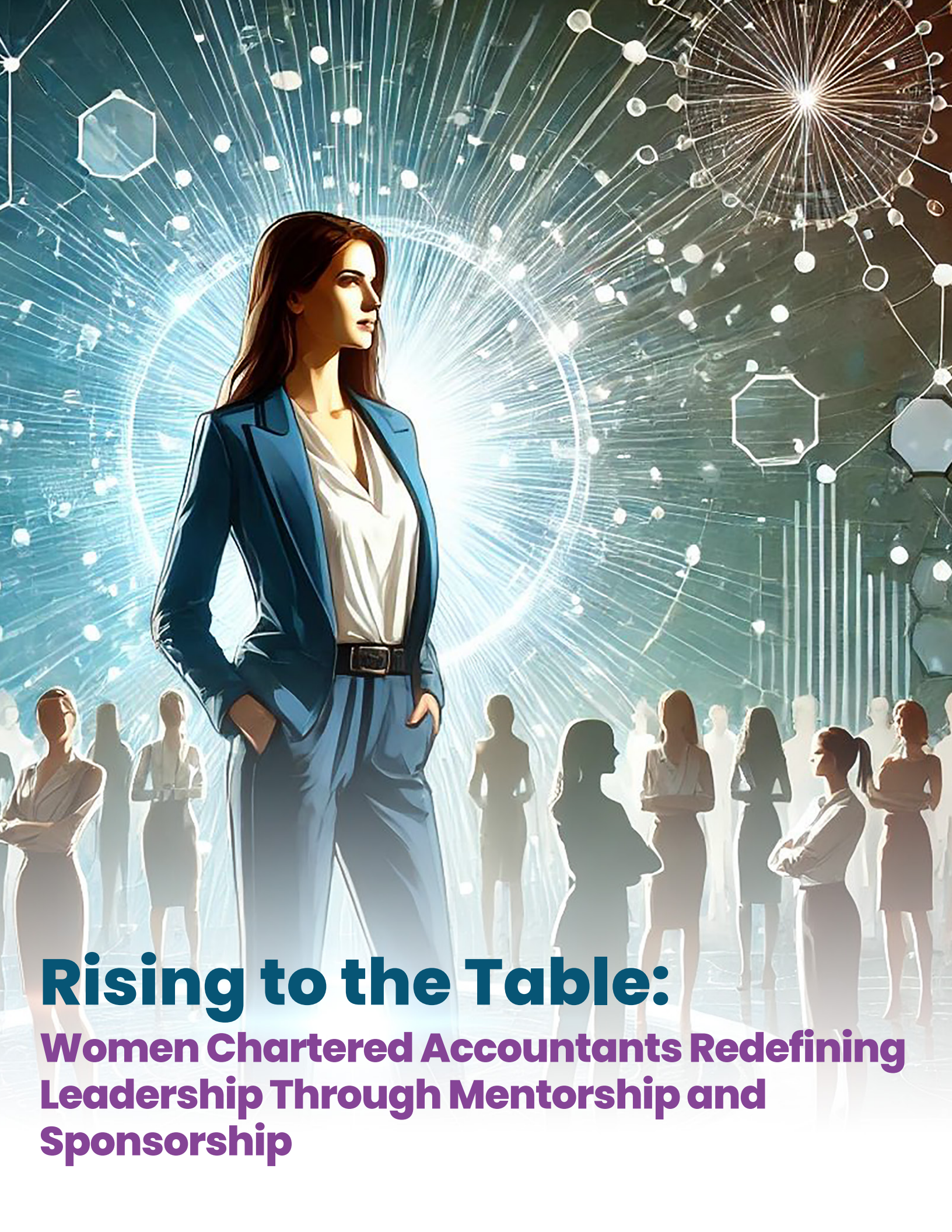
Professional bodies need to keep their existing level of oversight. Businesses need to understand the value creation process of CAs which supports their operational activities. The need for elevated fees requires CAs to engage with vital business decisions instead of their current work which consists of yearly compliance duties. The government needs to create an enabling environment. The process needs CAs to collaborate with lawyers and technologists and industry experts for successful teamwork.

Conclusion

The development goals which Pakistan has established are highly challenging to achieve. The system requires major financial support together with better governance structures and technological integration. The traditional compliance work of Chartered Accountants in Pakistan has evolved into a wide range of professional responsibilities. The leaders function as advisors who create plans and teach others while directing their organizations.

The process of moving from rule compliance to full trust between people remains unfinished. The path ahead requires additional efforts to establish more businesses while enhancing governance systems and generating greater value. The path of events has become evident. The CA profession now serves as a vital economic development instrument which helps Pakistan achieve its economic growth targets.

The writer is an Associate Chartered Accountant working as Senior Manager in the Quality Assurance Department at The Institute of Chartered Accountants of Pakistan



Rising to the Table:

Women Chartered Accountants Redefining Leadership Through Mentorship and Sponsorship

Shaping the Future: Women Leaders Driving Change in Chartered Accountancy

| Rabia M. Ismail, ACA |

In today's evolving financial landscape, Chartered Accountants (CAs) sit at the nexus of public trust, digital transformation, and ethical leadership. In Pakistan, the growing visibility of women leaders marks a decisive shift—powered by mentorship, sponsorship, and resilient, purpose-driven careers. Two trailblazers, Ms Moneeza Butt, FCA, and Ms Hina Usmani, FCA, exemplify this transition from professional excellence to institutional leadership, opening pathways for the next generation.

Trust as the Foundation of Leadership

Trust remains the profession's lodestar. Beyond technical mastery, stakeholders look to CAs to uphold ethical standards, ensure transparent financial governance, and advise with integrity—expectations heightened by Pakistan's dynamic regulatory environment. Ms Moneeza Butt, recently elected to the ICAP Council, embodies trust as a strategic priority. Her leadership pairs technical depth with principled judgement to strengthen confidence across the profession. Hina Usmani, the first woman Vice President of ICAP, has similarly advanced trust through an unwavering commitment to ethics, professional quality, and inclusive governance.

Breaking Barriers: Journeys Defined by Purpose

Both leaders have navigated a profession historically dominated by men—and changed it. Moneeza Butt's career spans decades of distinction, culminating in her historic role as the first female Partner in a Big Four audit firm in Pakistan and her election to the ICAP Council. Hina Usmani founded Usmani & Co., an all women Chartered Accountancy firm that champions both excellence and flexible, women centred work models. Together, they represent a reimagining of leadership in finance-resilient, ethical, and transformative.

Mentorship and Sponsorship: Creating Inclusive Pathways

Mentorship fuels growth, but sponsorship—active advocacy that positions high-potential professionals for influence—catalyses breakthroughs. Both leaders champion these levers. Moneeza Butt mentors emerging professionals and advocates developmental opportunities for women seeking

senior leadership roles. Hina Usmani has built platforms that advance women in finance and governance while promoting inclusive, flexible environments that support their success.

Technology, Transformation, and the Future of Finance

Automation, analytics, enterprise systems, and AI are reshaping finance. Chartered Accountants—fluent in financial logic and digital strategy—are uniquely positioned to lead. Moneeza Butt and Hina Usmani emphasize digital competencies as essential to modern practice and encourage the profession to embrace innovation while upholding ethical accountability. Technology is not only evolving work—it

is opening pathways for women to step into advisory, strategic and governance roles.

Governance and Ethical Stewardship

As expectations around transparency, risk management and accountability rise, the Chartered Accountant's role in public confidence is more critical than ever. Women leaders bring inclusive and collaborative leadership styles that strengthen governance outcomes. Through their ICAP Council roles, both leaders' shape policy, elevate standards and reinforce ethical cultures across the profession.

Women leaders bring inclusive and collaborative leadership styles that strengthen governance outcomes.

Vision for the Future: Empowering the Next Generation

Sustaining the profession's future requires talent that is technologically adept, ethically grounded, and inclusively supported. The leadership journeys of Moneeza Butt and Hina Usmani affirm that when competence meets conscience—and mentorship is matched with sponsorship—the profession thrives. Their message to aspiring women CAs is clear: leadership is within reach when grounded in integrity, confidence, and continuous growth.

Quick Facts on Prestigious Women CA Profiles

Moneeza Usman Butt, FCA

- Partner, KPMG Taseer Hadi & Co.
- Elected Member, ICAP Council
- First female Partner in a Big Four audit firm in Pakistan
- 28+ years in audit, assurance, and advisory
- Advocate for ethical leadership and digital transformation

Hina Usmani, FCA

- Founder & Managing Partner, Usmani & Co.
- First woman elected Council Member and first woman Vice President of ICAP
- 30+ years of professional and practice experience
- Chairs the CA Women Committee and SAFA Women Leadership Committee
- Pioneer of flexible, women centric work models in accounting practice

The writer is an Associate Chartered Accountant working as Manager Finance at the Aga Khan University

Women as Sustainable Leaders:

Pathways and Possibilities

| Muzahir H. Kazmi, ACA |

In Pakistan's corporate and professional services landscape, the transition of women chartered accountants from technical practitioners to sustainable leaders represents a significant and still-developing opportunity, both within the CA profession and across the broader corporate landscape. Whether operating within industrial conglomerates or within CA firms themselves, women CAs navigate the same professional trajectory available to all practitioners: from Technical Mastery (the 'How') to Strategic Positioning (the 'Where') to Sustainable Impact (the 'Result'); though often under conditions where structural barriers are more pronounced, requiring deliberate support mechanisms that benefit all professionals while addressing gender-specific constraints.

This progression is powered by a dual-engine of "Mentorship and Sponsorship", and operationalized through three interdependent drivers: "Trust, Technology and Transformation" (the 3 Ts). Together, these elements form a replicable framework for professional advancement examined here through the lens of women CAs pursuing positions of strategic influence, whether in corporate leadership or professional practice governance. This analysis examines the leadership trajectories of women CAs across both corporate industry and professional CA practice, recognizing the shared and distinct dynamics within each setting.

The Dual-Engine of Support: Mentorship and Sponsorship

Mentorship functions as the developmental engine: a behind-the-scenes relationship in which a seasoned professional provides technical guidance, ethical coaching, and emotional resilience. In industry, a mentor helps navigate the unwritten dynamics of professional advancement: a challenge common to all rising professionals but often compounded for women CAs by the dual pressures of professional rigor and societal expectations specific to our cultural landscape. In a CA firm, this often takes the form of a senior manager or partner guiding trainees through extremely tiring and demanding. audit seasons, and complex IFRS and ISA applications. A similar relational dynamic senior actively guiding junior colleagues through domain-specific pressures such as cross-functional leadership transitions, regulatory compliance cycles, or high-stakes reporting periods; is equally valuable in corporate settings.

Sponsorship operates as the external catalyst for upward mobility. A sponsor, typically a CEO, board member, or senior partner, deploys personal influence to create front-of-house opportunities. In industry, the sponsor provides "political air cover," ensuring a female CA gains access to high-stakes decision rooms, where strategic proposals including sustainability shifts, can be advanced on merit. In a CA firm, sponsorship determines access to "Prestige Clients" that serve as the proving ground for readiness towards continuous professional development. Across both industry and professional practice, informal networks, often built around long-standing social affinities, tend to influence assignments and advancement. The sponsor bridges the gap between merit and opportunity in either setting.

The Operational Engine: Trust, Technology and Transformation

Once the support architecture is in place, the female CA can drive organizational and professional advancement through the 3 Ts.

Mentorship functions as the developmental engine: a relationship in which a seasoned professional provides technical guidance, ethical coaching, and emotional resilience.

Trust

Trust is the social capital earned through transparency and ethical consistency. In the industrial sector, where greenwashing risk may erode stakeholder confidence, professional integrity, a quality essential to all practitioners, enables women CAs in these roles to assure investors, employees, and regulators that sustainability commitments are substantive. In a CA firm, trust carries particular weight: the firm's signature on an audit report carries statutory and reputational consequences that make ethical consistency non-negotiable. By maintaining uncompromising ethical standards, a professional obligation shared by all practitioners, women who hold leadership positions in these roles contribute, alongside all practitioners, to safeguarding the firm's reputation and the broader reliability of Pakistan's financial ecosystem.

Technology

In industry, technology converts complex sustainability data into the language of the boardroom: quantified ROI, risk mitigation, and competitive positioning. In practice, it automates routine procedures, enabling female leaders to focus on high-level strategic advisory and predictive risk analysis. Mastery of these tools enables women CAs to take on significant roles in shaping modern, data-driven governances in demonstrating that technical leadership in this domain is fully within their professional reach.

Transformation

In industry, transformation entails the structural shift from traditional financial reporting to integrated thinking, redesigning business models for long-term viability in a country where water and energy scarcity demand a fundamental rethink of manufacturing processes. In professional practice, it means moving beyond box-ticking compliance audits toward value-added assurance that evaluates clients through the lenses of climate risk, governance, and long-term survival. Though the form of transformation varies between strategic redesign in industry and assurance evolution in practice, both paths allow women CAs to reframe organizational purpose: shifting the focus from short-term extraction toward sustainable value creation. This repositioning is open to any strategic leader, and women CAs, as they advance in both contexts, can contribute meaningfully to this evolution.

Sustainable Leadership Across Industry and Practice

Sustainable leadership manifests differently across contexts but converges on a common imperative: balancing economic performance with social responsibility and ethical governance.

Economic Resilience

In both cases, economic resilience requires forward-looking financial strategy: whether expressed through balance-sheet innovation or service-line diversification. Balance-sheet innovation involves re-engineering capital structures and optimizing asset liquidity to protect value, while service-line diversification involves expanding organizational offerings into new, high-growth markets like ESG assurance or digital advisory.

Crucially, these strategies are not siloed; a CA in industry may diversify revenue streams to mitigate risk, just as a CA in professional practice may advise clients on complex asset restructuring. In either context, women CAs can apply the analytical capability to identify and execute these strategies within leadership roles, ensuring that financial engineering and market expansion work in tandem to build organizational stability.

People Sustainability

Women CAs in leadership roles can advocate for corporate governance imperatives that benefit from diverse leadership perspectives specifically through financial strategies that reduce recruitment costs and preserve institutional knowledge. Sustainable leaders address critical workforce threats, including brain drain, by advocating for flexible schedules and structured mentorship programs. Women who have navigated these pressures first-hand bring a valuable perspective to advocating for such measures, complementing a broader organizational commitment to workforce sustainability. In all cases, human capital is treated as an asset to be nurtured rather than a resource to be depleted.

Environmental and Ethical Stewardship

Industrial leaders often drive transitions to renewable energy, proving the ROI of green initiatives to reframe sustainability as competitive advantage. CA firms, while typically carrying smaller direct carbon footprints, exert significant 'influence footprints' through transparent ESG reporting. Ultimately, both contexts increasingly involve cross-cutting environmental and governance responsibilities.

Building a Self-Sustaining Cycle of Leadership

When mentorship builds competence and sponsorship creates opportunity, women CAs can emerge as value architects, whether designing corporate strategies for long-term resilience or shaping professional practices built for sustainable impact, a role opens to all strategic leaders and illustrated here through women's professional trajectories. Regulations on carbon footprints, labour ethics and governance increase competitive pressure, making gender-inclusive, sustainability-oriented leadership an increasingly relevant strategic consideration.

By building Trust, deploying Technology, and mastering Transformation, women CAs, whether leading in corporate boardrooms or professional practice, are positioned to contribute meaningfully to Pakistan's economic development. In that way, they bring perspectives of integrity, innovation, and inclusivity to the leadership landscape, shaping both the future of the profession and the capacity in which they serve. This contribution is part of a broader leadership ecosystem that includes all stakeholders committed to integrity, sustainability, and inclusive governance.

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Women in Chartered Accountancy: Building Sustainable Leadership through Mentorship and Sponsorship

| Shazia Ghafoor, ACA |

Over the past few decades, the presence of women in Chartered Accountancy has grown significantly, with women excelling as auditors, tax experts, consultants, CFOs, entrepreneurs, regulators and teachers. Despite these advancements, women remain significantly underrepresented in senior leadership positions within firms, boardrooms, and professional decision-making bodies. Addressing this gap requires more than individual efforts—it calls for a structured culture of mentorship and sponsorship to build sustainable leadership for women in Chartered Accountancy.

The demanding nature of Chartered Accountancy such as long study hours, articleship requirements, tight deadlines, and peak-season workloads place significant pressure on women, particularly during early career stages. Sustainable leadership for women CAs therefore requires not only professional mentorship and sponsorship, but also strong personal and family backing.

However, many challenges such as limited access to professional networks, lack of female role models in senior positions, workplace bias, and career interruptions often slow leadership progression. Talent alone doesn't work unless there are continuous guidance, advocacy, and open opportunities.

Mentorship: Building Foundation and Confidence in Women in Chartered Accountancy

Mentors—both men and women—serve as role models who demonstrate that leadership is achievable. Mentors build the foundation. Sponsorship creates momentum. Together, they form a powerful system that transforms individual careers and strengthens the profession as a whole.

Mentorship also benefits the profession in a way that it strengthens ethical leadership, promotes knowledge transfer, and fosters a culture of inclusion and collaboration.

Many high-performing women underestimate their readiness for leadership roles. Mentors can challenge limiting beliefs, encourage calculated risk-taking, and reinforce self-belief which are critical ingredients for long-term sustainability and life-time success. Effective mentors help women in Chartered Accountancy to:

- Build confidence
- Make career decisions within the firms or industry
- Develop communication and negotiation skills
- Navigate cultural and organizational challenges
- Balance professional growth with family responsibilities

Sponsorship: Creating Opportunities and future leadership

Sponsorship creates opportunity, it involves senior leaders actively using their influence to advocate for high-potential women and ensure they are considered for leadership roles, critical assignments, and promotions. Sponsorship ensures that talent is recognized and trusted at the highest levels.

Organizations with strong sponsorship cultures have higher gender diversity in leadership and better overall performance.

Many women Chartered Accountants are capable but remain unseen. Sponsors help by:

- Recommending women for leadership and client-facing roles
- Providing exposure to decision-making forums
- Challenging unconscious bias in promotion and evaluation processes
- Publicly recognizing women's achievements
- Providing platforms to women to represent themselves

The Role of the Institute, Audit Firms, Private Organizations and Individuals Chartered Accountants

Building sustainable leadership for women CAs requires collective responsibility of the Institute, Audit firms, Private companies and Individual Chartered Accountants. Institute of Chartered Accountant of Pakistan can:

- Create structured mentorship and sponsorship programs

- Arrange public events & programs where women leaders are invited to share their career and personal life experiences to motivate CA Students and trainees who are in their early stage of studies and career development
- Create e-Learning programs and trainings models
- Promote women role models in leadership and governance
- Collect and publish gender-diversity data to drive accountability

Audit Firms can:

- Train Firms partners and managers to be effective mentors and sponsors
- Embed diversity goals and inclusion of women representation and leadership at all professional forums and training programs at local firms level and their overseas offices
- Ensure flexible, bias-free career progression system
- Goals setting and review system for young professional for personal and professional growth and advancement
- Help in creating peer networks, women's professional forums, and informal support circles that can allow women to share experiences, learn coping strategies, and realize they are not alone in their challenges.

Private Organizations can:

- Provide structured onboarding and learning pathways
- Build confidence and career direction for their staff and management team
- Clear role expectations and career development plans
- Exposure of young working professionals to board and management meetings
- Encourage young working professionals to to participate in cross-functional projects and International conferences, learning and training programs
- Open conversations about career goals, work demands and future leadership

Individual Senior Chartered Accountants themselves can:

- Act as mentors and sponsors and contribute in shaping future-ready leaders who uphold the profession's values.
- Help younger professionals in building professional networks,
- Mentoring younger professionals by inviting them in national and international corporate training programs
- Offer internship programs and invite the young professional to work with experienced seniors CA members

Shaping the Future of Women in Chartered Accountancy

By investing in the growth of women Chartered Accountants, we can invest in a stronger, more balanced, and future-ready profession. Empowering young professional women today ensures that the leaders of tomorrow reflect the diversity, talent, and potential of the nation. Guidance from those who have successfully managed similar transitions provides reassurance and practical strategies for career continuity.

As the CA profession looks to the future, investing in women's leadership through mentorship and sponsorship is not just a matter of equity—it is a strategic imperative. By intentionally supporting women Chartered Accountants, we ensure that leadership is not only inclusive but also sustainable for generations to come.

Inspiring the Next Generation

For young girls considering Chartered Accountancy, visibility matters. Seeing women in leadership roles inspires confidence and ambition. Sharing stories of perseverance, balance, and success helps break stereotypes and reshape expectations.

Women who have progressed in the profession carry a responsibility to mentor, sponsor, and uplift others—creating a cycle of empowerment

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Islamic Finance and Its Expanding Global Relevance in 2026

Islamic Finance: From Niche Alternative to Global Mainstream

| Ahmed Raza Baloch, ACA |

In a world grappling with economic volatility, climate challenges, technological disruption and widening inequality, the global financial system is being quietly reshaped. At the centre of this transformation stands Islamic finance — once perceived as a niche, faith-based alternative, now steadily moving into the global mainstream.

By 2026, Islamic financial assets are estimated to have crossed the USD 4 trillion mark, expanding far beyond traditional markets in the Middle East and Southeast Asia. Financial hubs in Europe, Africa and Central Asia are increasingly integrating Islamic finance into their regulatory and capital market frameworks. This shift reflects not only the industry's resilience but also its growing relevance in a world searching for more ethical, stable and inclusive financial solutions.

Beyond Faith: The Appeal of Ethical Finance

While Islamic finance is rooted in Shariah principles, its global appeal today extends far beyond religious boundaries. The system is based on risk sharing, asset-backed financing, the prohibition of excessive speculation and a commitment to ethical investment. These principles closely mirror the global rise of Environmental, Social and Governance (ESG) investing. The financial crises of the past two decades exposed the vulnerabilities of highly leveraged and speculative financial systems. Investors and policymakers alike are now placing greater emphasis on sustainability, transparency and real economic value creation. Islamic finance, by design, discourages excessive debt and promotes investments tied to tangible assets and productive activity.

This convergence between Islamic finance and ESG has been one of the defining trends of recent years. Increasingly, global investors view Islamic financial instruments as aligned with responsible and sustainable investment objectives.

The Sukuk Revolution

Perhaps the most visible sign of Islamic finance's global expansion is the rapid growth of the Sukuk market. Sukuk — often referred to as Islamic bonds — have emerged as a powerful financing tool for governments and corporations worldwide.

Unlike conventional bonds, Sukuk are structured around asset ownership and profit-sharing arrangements. This structure provides investors with greater transparency and links financing directly to real economic activity.

What was once limited to Muslim-majority countries is now embraced by global financial centres such as London, Luxembourg and Hong Kong. Sovereign Sukuk issuances by non-Muslim countries have demonstrated the universality of the model and its ability to operate within diverse legal and regulatory frameworks.

In an environment of rising interest rates and tightening liquidity, Sukuk offer governments and corporations access to a wider investor base and diversified funding sources — an advantage that has contributed significantly to their growing popularity.

A Catalyst for Financial Inclusion

Beyond capital markets, Islamic finance has the potential to drive one of the most transformative global priorities: financial inclusion. An estimated 1.4 billion adults worldwide remain outside the formal banking system. Many of these individuals avoid conventional banking due to religious or cultural concerns. Islamic banking provides an alternative pathway into the financial system, enabling millions to access savings, credit and insurance products for the first time.

Technological innovation is accelerating this progress. Mobile-based Islamic microfinance, digital wallets and peer-to-peer lending platforms are expanding financial access across Africa and South Asia.

Pakistan, with one of the world's largest Muslim populations, stands at the centre of this opportunity. Islamic banking has grown steadily in recent years, yet its full potential — particularly in agriculture, SME financing and rural development — remains largely untapped. Strengthening this sector could significantly support Pakistan's broader financial inclusion agenda.

Technology Meets Tradition

The future of Islamic finance will be shaped as much by technology as by theology. Fintech is transforming how financial services are delivered, and Islamic finance is rapidly embracing digital innovation. Blockchain-based Sukuk issuance, AI-driven compliance monitoring and smart contracts are addressing long-standing industry challenges such as transparency, standardisation and cost efficiency.

Artificial intelligence is improving risk assessment and fraud detection, while blockchain technology has the potential to automate complex contractual structures. These developments are making Islamic financial services more accessible, scalable and attractive to younger, tech-savvy populations.

Digital platforms facilitating cross-border Sukuk trading and global Islamic investment funds are also fostering greater integration of Islamic financial markets.

The Role of Chartered Accountants

As Islamic finance expands, the need for strong governance, transparency and professional oversight becomes increasingly critical. Chartered Accountants are central to this evolving landscape.

Islamic financial institutions operate within a dual governance framework — financial regulation and Shariah compliance — creating unique challenges in accounting, auditing and reporting. Ensuring transparency in Sukuk structures, strengthening internal controls and aligning global reporting standards with Islamic finance principles require specialised expertise.

Chartered Accountants play a vital role in:

- Enhancing trust through robust assurance and governance
- Supporting the development of Islamic accounting standards
- Strengthening regulatory compliance and risk management
- Bridging the gap between Shariah scholars, regulators and investors

The profession's commitment to integrity and public trust aligns naturally with the ethical foundations of Islamic finance.

Challenges Ahead

Despite its impressive growth, Islamic finance still faces structural challenges. Differences in Shariah interpretations across jurisdictions have led to fragmented regulatory frameworks and limited standardisation. The industry also requires deeper capital markets, improved liquidity management tools and greater investment in talent development.

Public awareness and financial literacy remain limited in many regions, slowing adoption and innovation. Addressing these challenges will be essential for Islamic finance to transition from a growing alternative to a fully integrated global financial system.

A System for a Changing World

The global financial landscape is evolving rapidly, driven by the need for resilience, sustainability and inclusion. Islamic finance sits at the intersection of these priorities.

Its principles promote responsible investing, discourage excessive risk-taking and encourage equitable wealth distribution — values that resonate strongly in a world seeking a more balanced and sustainable economic future.

For Pakistan, the opportunity is particularly significant. With the right regulatory support, technological investment and professional leadership, the country has the potential to become a regional hub for Islamic finance.

The rise of Islamic finance is not merely a trend; it reflects a broader rethinking of the purpose of finance itself. In 2026 and beyond, Islamic finance stands as a powerful reminder that profitability and principles need not be mutually exclusive.

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The Rising Influence of Islamic Finance in a Changing World

| Majid Ali, ACA |

What Does "Islamic Mode of Finance" Actually Mean?

Islamic finance is a financial system that operates in accordance with Shariah (Islamic law). Its core principles include: prohibition of Riba (interest/usury), avoidance of excessive uncertainty (Gharar), prohibition of speculative gambling (Maisir), financing backed by real assets, risk-sharing between parties and ethical and socially responsible investments.

The Holy Quran explicitly states:

"Allah has permitted trade and forbidden Riba." (Al-Baqarah 2:275) "Allah destroys Riba and gives increase for charities (Sadaqat)." (Al-Baqarah 2:276)
The phrase "Allah reduces Riba (interest)" does not only refer to spiritual consequences, but also carries economic wisdom. Systems based on interest can increase inequality, create heavy debt burdens, and lead to financial instability in society.

When the Holy Prophet Muhammad (PBUH) migrated to Madinah, the economic system gradually flourished due to the major reforms he introduced — most importantly, the prohibition of Riba (interest). Small traders and entrepreneurs received opportunities without falling into debt traps.

Is Islamic Finance Just a Change of Name?
A common criticism is: "Islamic banking is just conventional banking with different labels." This requires practical clarification.

In conventional finance:
- Money is lent for money.
- Interest is charged regardless of outcome.
- Risk is transferred to the borrower. In Islamic finance:
- Transactions must involve real assets or services.
- Profit is earned through trade, leasing, or partnership.
- Risk is shared between financier and client.

Common Islamic products:
- Murabaha: The bank purchases an asset and sells it to the client at a disclosed profit margin.
- Ijara: Leasing arrangement with asset ownership retained by the bank.
- Musharakah: Partnership where profit is shared and loss is borne according to capital contribution.
- Diminishing Musharakah: Common in-home financing, where ownership gradually transfers to the client.

As of 2026, global Islamic finance assets are estimated to exceed USD 3 trillion, with strong presence in: Malaysia, Saudi Arabia, UAE, Qatar, Indonesia, Bahrain & Turkey.

The difference lies in structure, asset-backing, and risk-sharing. While returns may appear similar numerically, the contractual framework and Shariah compliance mechanisms fundamentally differ.

Global Status of Islamic Finance

As of 2026, global Islamic finance assets are estimated to exceed USD 3 trillion, with strong presence in: Malaysia, Saudi Arabia, UAE, Qatar, Indonesia, Bahrain & Turkey. Further, global Muslim population exceeds 1.9 billion. Many individuals and businesses prefer Shariah-compliant finance.

Leading global Islamic banks include: Al Rajhi Bank (Saudi Arabia), Dubai Islamic Bank (UAE), Kuwait Finance House, Maybank Islamic (Malaysia) & Qatar Islamic Bank.

Islamic finance is also growing in non-Muslim jurisdictions such as the UK, where Islamic windows operate under conventional banks.

Islamic Finance in Pakistan

Pakistan's Islamic banking sector has shown remarkable growth. As of recent data:
- Islamic banking share exceeds 20% of total banking assets
- Over 22 Islamic banking institutions
- Rapid growth in Sukuk issuance
- Increasing demand for Shariah-compliant consumer and SME products

Leading Islamic banks in Pakistan include: Meezan Bank (market leader), BankIslami, Dubai Islamic Bank Pakistan, Al Baraka Bank & MCB Islamic Bank.

The State Bank of Pakistan (SBP) is actively promoting the transition toward an Islamic banking system under its Strategic Plan (2021–2025) and Vision 2028. The central bank aims to increase the share of Islamic banking to 30–35% of total banking assets and deposits by 2025. The specific targets include 30% share in overall assets and deposits, 35% share in branch network, and 10% and 8% share in SME and agriculture financing, respectively.

Role of Shariah Scholars

Islamic finance operates under the supervision of Shariah Boards, comprising qualified Islamic scholars with expertise in Fiqh al-Muamalat (Islamic commercial jurisprudence).

These scholars:
- Approve product structures
- Ensure contracts comply with Shariah principles
- Monitor ongoing compliance
- Issue Shariah compliance certificates

Their role is critical in maintaining credibility and preventing deviation from Islamic principles.

What Does Islamic Finance Include?

Islamic finance encompasses:
- Retail banking (home finance, car finance, personal finance)
- Corporate financing
- Trade finance
- Sukuk (Islamic bonds)
- Takaful (Islamic insurance) Takaful representing 15.2% of the insurance market as of date 2026.
- Islamic asset management
- Microfinance

Small Financing Needs & Social Impact

Islamic finance is particularly powerful in micro and social financing. Institutions like Akhuwat Foundation, founded by Dr. Amjad Saqib, provide interest-free microfinance (Qarz-e-Hasan), often disbursed from mosques or Akhuwat Centers. Akhuwat has disbursed billions of rupees in small loans to entrepreneurs, women, and marginalized communities.

This reflects the Islamic concept of:
- Qarz-e-Hasan (benevolent loan)
- Zakat-based redistribution
- Social solidarity

Zakat and Islamic Finance

Zakat plays a foundational role in Islamic economic justice. It:
- Reduces wealth concentration
- Supports the poor
- Encourages circulation of wealth

In contrast to interest-based accumulation, Islamic finance integrates philanthropy and economic empowerment.

Large Industrial & Corporate Financing

Islamic finance also supports:

- Infrastructure development
- Energy projects through Sukuk
- Corporate working capital
- Project finance via Musharakah and Ijara structures

Governments increasingly issue Sukuk to finance public projects, creating Shariah-compliant investment avenues.

Chartered Accountants: Guardians of Trust & Transformation

Chartered Accountants are central to:

- Ensuring Shariah-compliant financial reporting
- Designing transparent product structures
- Advising on Sukuk issuance
- Strengthening governance frameworks
- Integrating fintech into Islamic finance

With digital banking, blockchain-based Sukuk, and AI-driven compliance systems emerging, CAs must bridge traditional jurisprudence with modern financial innovation.

Conclusion

Islamic finance in 2026 is not merely a religious alternative—it is a comprehensive ethical financial system emphasizing justice, transparency, and shared prosperity. While misconceptions remain, its growth trajectory, regulatory strengthening, and global acceptance indicate a sustainable future.
The real challenge is not whether Islamic finance is viable—it is whether professionals uphold its spirit beyond contractual form.

Chartered Accountants must lead this transformation by ensuring that Islamic finance remains grounded in integrity, authenticity, and economic fairness.

In doing so, we do not merely structure transactions—we strengthen trust, promote ethical growth, and contribute to a more equitable financial system for generations to come.

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The Evolution of Islamic Finance: From Faith-Based Principles to Proven Financial Models

| Imtiaz Abbas Hussain, FCA |

Initially Islamic finance was considered to be confined to Muslims faith and was growing at snail pace. But after the collapse of Wall Street in 2008 sparked by the USA subprime mortgage crisis and excessive risk-taking which led to a global financial decline that severely impacted conventional banking, the demand of Islamic finance was shout up significantly after realizing that investments in Islamic finance was largely shielded from the initial shock due to its fundamental Islamic Shariah principles, which prevented exposure to the harmful debt-based instruments that triggered the collapse.

Islamic finance is a type of financing activity that must comply with Sharia Islamic Law principles. The concept can also refer to the investments that are permissible under Sharia. The common practices of Islamic finance and banking came into existence along with the foundation of Islam. However, the establishment of formal Islamic finance occurred only in the 20th century. Nowadays, the Islamic finance sector, from a niche and regionally concentrated sector into a mainstream pillar of international finance, grows at 15% to 25% per year.

The main difference between conventional finance and Islamic finance is that some of the practices and principles that are used in conventional finance are strictly prohibited under the Sharia Islamic Law.

The core Islamic finance shariah principles include:

01. Prohibition of Riba (Interest);
02. Profit and Loss and Risk Sharing;
03. Prohibition of Gharar (Uncertainty) means absolute clarity on terms, price, and subject matter etc;
04. Prohibition of Maysir (Gambling);
05. Tangible Asset-Backed and not Asset-Based Financing;
06. Prohibition of Haram (Prohibited) Activities;
07. All investments to be in lawful (Halal), ethical and Social activities;
08. Full disclosures even defects;
09. Equity-based and not Debt-based instruments so they held no mortgage-backed securities or collateralized debt obligations that lost value during the housing bubble burst;
10. Social responsibilities;
11. Sharia allows investment in company shares. However, the companies must not be involved in the activities prohibited by Islamic laws, such as lending at interest, gambling, and production of alcohol or pork. Islamic finance also allows private equity investments;
12. There are no conventional bonds in Islamic finance. However, there is an equivalent of bonds called “sukuk” or “Sharia-compliant bonds.” The bonds represent partial ownership in an asset, not a debt obligation.

Countries like Australia, Canada, and various European nations are witnessing increased interest in Islamic financial frameworks.

So the 2008 Wall Street collapse served as a "proof of concept" for Islamic finance, leading to significant structural shifts:

01. Global Recognition: International bodies like the International Monetary Fund (IMF) and the World Bank formally recognized the resilience of Islamic banking, positioning it as a sustainable alternative to conventional systems;
02. Regulatory Evolution: The crisis prompted new efforts by the Islamic Financial Services Board (IFSB) to harmonizes global regulations and strengthen risk management practices within the industry;
03. Market Expansion: Following the crisis, non-Muslim majority countries (such as the UK, Luxembourg, and South Africa) increased their engagement with Islamic finance to diversify their financial systems and attract investment through instruments like Sukuk (Islamic bonds).

In Pakistan, I also tested Islamic finance practicability and effective implementation by approaching a Islamic bank and has offered them billions of rupees of import and export business but their Shariah Advisor and General Manager refused to take our business on the ground that they can't allow financing before receiving letter of credit from importer, which is allowed under conventional banking.

After global recognition with the support of digitalization and Fintech, sustainability and ESG (Environmental, Social, and Governance) alignments, Sukuk (Islamic Bond) and Islamic funds, regulatory evolution and sovereign issuances, the global Islamic finance industry has experienced a phenomenon consistent, robust growth in their Shariah-compliant total global financial assets during the periods as under:

- 2015: US$1.9 trillion
- 2023: US$3.9 trillion
- 2024: US$5.4 trillion
- 2026: US$6.00 trillion

Islamic finance growth has been propelled not only by the demographic momentum of a global Muslim population exceeding two billion, representing more than 25% of the world's population, but also by rising interest from non-Muslim markets seeking ethical, resilient, asset-backed and values -based financial solutions. Even in recent years, Islamic finance has demonstrated a notable capacity to sustain growth despite global macroeconomic tightening conditions, elevated inflation, geopolitical disruptions, and financial market volatility, reinforcing its growing relevance within the global financial system.

Grounded in Shariah principles that emphasize risk sharing, asset-backed transactions, and social justice, Islamic finance today represents a diversified ecosystem encompassing Islamic banking, Sukuk (Islamic Bonds), capital markets, Takaful (Islamic insurance), fintech and social finance instruments. The Islamic finance sector is increasingly attracting non-Muslim investors and expanding beyond its traditional roots in the Middle East and Southeast Asia (specifically Malaysia and Indonesia) into Africa and Western markets.

Conclusion

Due to the strict Islamic finance Shariah principles, globally businessmen, investors etc feel comfortable in dealing with any transaction in any segments of Islamic finance. Therefore there is a high potential in growth in Islamic finance sector and it is expected that Shariah-compliant total global financial assets will touch US$9.75 trillion in 2029.

While the Gulf Cooperation Council (GCC) and Southeast Asia (specifically Malaysia and Indonesia) remain the dominant hubs, rapid growth is occurring in Africa and Central Asia.

Islamic finance is increasingly aligning with Environmental, Social, and Governance (ESG) principles, with "green" Sukuk (Islamic bonds) attracting major attention. The Islamic fintech market is expected to surge, with AI, blockchain, and digital banking platforms enhancing efficiency and access, particularly in retail financing. The Sukuk market continues to be a crucial funding mechanism, with green / sustainability-linked issuances increasing to meet global demand for ethical investments.

Countries like Australia, Canada, and various European nations are witnessing increased interest in Islamic financial frameworks as alternatives for ethical investment. There is a renewed focus on using Islamic microfinance to enhance financial inclusion for underserved populations.

A lack of standardized Shariah regulations across different jurisdictions continues to hinder smooth cross-border activity. However the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) is actively involved in creating and implementing global Shariah Standards for better and smooth functioning of Islamic finance.

Persistent constraints in managing liquidity remain a challenge, requiring better development of Shariah-compliant money markets. The GCC contributes the majority of growth, driven by massive infrastructure projects and Vision 2030 initiatives, particularly in Saudi Arabia. Africa is emerging as the fastest-growing frontier, with countries like Ethiopia, Ghana, Uganda, Tanzania, Zambia, Kenya and Somalia expanding their Islamic banking presence.

Governments in key Islamic finance markets are actively fostering the industry. For example, Pakistan is moving to eliminate Riba / interest by 2027, while Indonesia requires mandatory spinoffs for Islamic windows that exceed 50% asset concentration.

A growing global appetite for transparent, values-backed finance is driving interest, with surveys indicating that a significant portion of non-Muslim consumers view Islamic finance as a viable alternative.

There are persistent structural challenges, which include limited Shariah compliant liquidity instruments, overreliance on sovereign sukuk, and insufficient diversification beyond banking. “Without deeper and more liquid Islamic capital markets, banking-led growth alone may not be sufficient to ensure long-term financial resilience.

The Islamic finance market is highly concentrated, with the top 10 countries accounting for significant portion of Sharia-compliant assets, which includes Saudi Arabia, Malaysia, Indonesia, United Arab Emirates (UAE), Qatar, Kuwait, Pakistan, Turkey, Bahrain and other emerging markets like Nigeria, Sudan and Bangladesh show high development potential.

The global Islamic finance has been moved beyond just faith-based to tested inherent stability, ethical, asset-backed, equity-based, flexibility, risk-sharing and profit-sharing model based on Islamic Shariah principles. Therefore the Islamic finance is having high demand in international finance due to its inherent models based on Islamic Shariah principles.

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Aligning Values with Returns: The Synergy of Islamic Finance and Socially Responsible Investing

| Muhammad Hunain, FCA |

In today's rapidly evolving financial landscape, the demand for investment strategies that integrate ethical considerations and sustainable outcomes has expanded well beyond niche markets. The intersection of Islamic finance and Socially Responsible Investing (SRI) represents a significant convergence that addresses both financial returns and societal impact. By merging the principles of Shariah compliance with the rigorous frameworks of Environmental, Social, and Governance (ESG) metrics, both Islamic finance and SRI offer robust methodologies for constructing value-driven portfolios. This integration presents a dynamic financial model that fosters sustainable development while ensuring long-term profitability, harmonizing ethical values with financial objectives.

This growing recognition of the role ethics plays in investment is not merely a trend but an acknowledgment that global financial systems must evolve to meet the challenges of environmental degradation, social inequalities, and corporate governance failures. Islamic finance, with its strong ethical foundation, and SRI, which emphasizes societal well-being alongside financial gain, are both poised to play pivotal roles in reshaping the future of sustainable finance.

Transforming Traditional Capitalism with Ethical Financial Practices

Traditional financial systems, which often prioritize short-term profit maximization and shareholder primacy, are increasingly being scrutinized for their failure to consider the broader implications of financial decisions. This scrutiny has accelerated the rise of ethical finance systems such as Islamic finance and SRI. These frameworks pivot away from conventional models of capital accumulation, emphasizing long-term, responsible value creation.

The concept of fiduciary duty within both Islamic finance and SRI goes beyond maximizing financial returns; it extends to mitigating risks associated with moral hazards, fostering transparency and ensuring that investments align with broader social and environmental objectives. This shift presents an opportunity for investors to align their financial goals with ethical imperatives, creating value not just for shareholders but for society at large.

Islamic finance, in particular, is built on the principles of justice, equity, and social welfare. Key to this are the prohibitions on riba (interest) and gharar (excessive uncertainty), which create a more equitable and transparent financial system. Instruments such as Murabaha, Mudarabah, and Ijara are designed to promote shared risk and reward, offering ethical alternatives to conventional financial products.

The Core Principles and Foundations of Islamic Finance
Islamic finance is underpinned by several fundamental principles that distinguish it from conventional financial systems. These include risk-sharing, profit and loss sharing (PLS), and the prohibition of riba and gharar. Through financial instruments like Murabaha, Mudarabah and Ijara, Islamic finance ensures that transactions are based on real, tangible assets, reducing speculation and promoting fairness in financial dealings.

At the heart of Islamic finance is the notion of equity in ownership. Instead of charging interest on loans, which can lead to exploitation, Islamic finance structures profits around risk-sharing, where both investors and entrepreneurs share the potential gains and losses. This provides a more just system where profits are earned through actual business activity rather than the mere act of lending.

SRI, on the other hand, is a modern approach that integrates ESG factors into investment decisions. It involves both negative screening to exclude harmful industries (e.g., fossil fuels, tobacco) and positive screening to favor companies with strong environmental, social, and governance practices.

While originating from different ethical foundations, both Islamic finance and SRI prioritize social justice and responsible investment practices, making them complementary forces in the quest for ethical finance.

Synergies Between Islamic Finance and SRI

When examined through the lens of sustainable finance and socially responsible capital allocation, the synergies between Islamic finance and SRI are

profound. Both approaches prioritize investments that not only provide financial returns but also generate positive externalities for the broader ecosystem.

In Islamic finance, the focus on risk-sharing ensures that profits and losses are equitably distributed, aligning the interests of all stakeholders. SRI's emphasis on transparency, especially in ESG reporting and corporate governance, ensures that stakeholders have access to reliable information for decision-making, helping mitigate the risk of greenwashing—misleading claims about a company's environmental or social practices.

Both systems also share a commitment to long-term value creation, as seen in the integration of ESG criteria into Islamic financial products such as green Sukuk and social Sukuk. By focusing on tangible, real-world outcomes like renewable energy projects and sustainable infrastructure, Islamic finance inherently supports sustainable growth, avoiding the speculative practices that often characterize short-term investments.

Islamic Finance's Practical Contribution to Sustainable Development

The role of Islamic finance in sustainable development is not limited to theoretical principles but is actively demonstrated through the use of financial instruments such as Sukuk. Sukuk, a type of asset-backed security, offers an alternative to conventional bonds. With proceeds directed toward tangible projects that adhere to Shariah principles, Sukuk plays a crucial role in financing sustainable infrastructure, including renewable energy projects and climate adaptation initiatives.

Furthermore, Islamic finance's principles of charity and social justice manifested through instruments like Waqf (charitable endowments) and Zakat (almsgiving) align directly with the United Nations' Sustainable Development Goals (SDGs). These mechanisms promote financial inclusion, poverty alleviation, and access to healthcare and education, further contributing to the creation of a more equitable society.

The integration of Islamic finance with SRI principles also offers practical solutions for financing projects that achieve positive social and environmental outcomes. By prioritizing investments that align with both Shariah law and ESG criteria, Islamic finance ensures that ethical considerations are embedded at every stage of the financial decision-making process.

SRI-Oriented Sukuk: Bridging Islamic Finance and Sustainability

The development of SRI-oriented Sukuk represents a key moment in the evolution of Islamic finance. These Islamic green bonds are structured to ensure that the proceeds fund projects that meet both Shariah compliance and established ESG standards, offering an investment vehicle that appeals to values-driven investors.

By integrating ESG filters into the issuance and structuring of Sukuk, financial institutions can offer an investment vehicle that adheres to both the ethical standards of Islamic law and the modern sustainability frameworks such as the Global Impact Investing Rating System (GIIRS). This convergence represents a critical opportunity to align financial markets with the broader goals of sustainable development.

Challenges in Integrating Islamic Finance with SRI

While the potential for integration between Islamic finance and SRI is clear, several challenges remain. One of the most pressing issues is the lack of universally accepted standards for measuring the ESG impact of Shariah-compliant products. Regulatory fragmentation across markets and the absence of a

global standard for Islamic finance ESG products complicates the process for investors looking to assess the true sustainability of their portfolios.

The risk of greenwashing, where firms claim to adhere to ESG principles without meeting the necessary standards, is another significant challenge. Addressing these issues requires greater cooperation between regulatory bodies, including Shariah Supervisory Boards and global ESG standard-setters, to create a universal set of guidelines that promote consistency and transparency.

Opportunities for Innovation in Islamic Finance and SRI Integration

To unlock the full potential of Islamic finance and SRI integration, it is essential to pursue innovative financial engineering techniques. The creation of hybrid financial instruments, such as impact Sukuk, that blend Islamic finance principles with impact investing strategies, could pave the way for more inclusive and sustainable financing solutions.

Moreover, leveraging blockchain technology and fintech solutions can enhance transparency, reduce transaction costs, and improve access to Islamic sustainable finance products. Public-private partnerships (PPP) will also play a critical role in scaling these initiatives, driving large-scale investments into sustainable infrastructure and clean energy projects.

Shaping the Future of Finance: Uniting Islamic Finance and Ethical Investing

The integration of Islamic finance and SRI is not merely an academic exercise; it is a practical solution to the pressing challenges of our time. By combining the ethical foundations of Islamic finance with the rigor of ESG metrics, we can create financial systems that promote long-term sustainability, transparency, and social justice.

As Islamic finance and SRI gain traction in global markets, there is a unique opportunity to reshape the financial landscape. By continuing to build on the synergies between these two systems, we can create financial products that align with the values of today's world, ensuring that capital is deployed in ways that benefit society as a whole while delivering strong financial returns.

By integrating ESG filters into the issuance and structuring of Sukuk financial institutions can offer an investment vehicle that adheres to both the ethical standards of Islamic law and the modern sustainability frameworks such as the Global Impact Investing Rating System (GIIRS).

The writer is a Fellow Chartered Accountant working in the logistics and manufacturing industry

ISLAMIC FINANCE AND ITS EXPANDING GLOBAL RELEVANCE IN 2026

| Salahuddin Mahmood, FCA |

1. Introduction: A New Economic Horizon

The year 2026 marks a decisive moment in the evolution of the global financial system. For decades, conventional finance has relied heavily on interest-based lending, speculative markets, and complex derivatives. While these mechanisms have generated significant economic expansion, they have also contributed to financial crises, widening inequality, and unstable economic cycles.

Amid these challenges, Islamic finance is gaining worldwide recognition as a principled and ethical alternative. Rooted in justice, transparency, and shared responsibility, it links financial activity directly with real economic productivity. By emphasizing partnership instead of exploitation, Islamic finance seeks to create an economic system that serves humanity rather than dominating it.

This model, grounded in the teachings of the Qur'an and the guidance of Muhammad, is increasingly relevant to a world searching for sustainable economic solutions.

2. Pakistan's Foundational Vision and Constitutional Commitment

The creation of Pakistan was inspired by the aspiration to establish a society guided by Islamic ethical principles. The Constitution of Pakistan 1973 provides the legal foundation for this vision.

The Constitution's Objectives Resolution affirms that sovereignty over the universe belongs to Almighty Allah, and that authority exercised by the people is a sacred trust. Furthermore, Article 38(f) explicitly directs the state to eliminate riba (interest) as early as possible, while Article 227 requires all laws to conform to the teachings of Islam.

These constitutional provisions demonstrate that Islamic finance is not merely an optional policy but a national aspiration embedded within Pakistan's legal framework.

3. Qur'anic Foundations of Islamic Finance

Islamic finance originates directly from the ethical guidance of the Qur'an, which established principles of justice, fairness, and responsible economic behavior. Allah declares:

"Allah has permitted trade and forbidden riba."
(Qur'an 2:275)

Another verse emphasizes equitable wealth distribution:

"So that wealth may not circulate only among the rich among you."
(Qur'an 59:7)

These teachings create the central moral equation of Islamic economics:

Economic Justice = Ethical Trade + Fair Distribution - Exploitation

By encouraging productive commerce and discouraging exploitative lending, the Qur'anic framework promotes economic stability and social harmony.

4. Prophetic Guidance on Economic Justice

The teachings of Muhammad further clarify the ethical dimensions of financial activity.
A famous Hadith recorded in Sahih Muslim establishes the principle of fairness in exchange:

"Gold for gold, silver for silver... equal for equal and hand to hand."

Another narration reported in Jami at-Tirmidhi states:
"The truthful and trustworthy merchant will be with the prophets, the truthful, and the martyrs."

These teachings elevate commerce into a moral vocation based on honesty, transparency, and social responsibility.

5. Core Principles of Islamic Finance

Islamic finance operates through several foundational principles:

1. Prohibition of Interest (Riba)

Profit cannot be generated merely through lending money without risk.

2. Risk Sharing
Investors and entrepreneurs share profits and losses.

3. Asset-Based Transactions
Financial transactions must be linked to tangible assets or productive activity.

4. Ethical Investment
Investment must avoid harmful or unethical industries.
These principles ensure that financial systems remain closely connected with real economic development.

Pakistan possesses unique advantages in the development of Islamic finance.

6. Mathematical Logic of Interest-Free Economics

Conventional finance often relies on compound interest, represented by the equation:

Where:
P = principal
r = interest rate
t = time
A = final amount
Example (hypothetical):
If a loan of 1000 units is taken at 10% interest for 10 years:

The borrower must repay more than double the original loan.

Islamic finance replaces this model with profit-sharing relationships.
Profit equation:
Example:
Investment = 1000
Revenue = 1500
Cost = 1000
Profit = 500
If profits are shared equally:
Investor = 250
Entrepreneur = 250

Both partners benefit fairly while sharing risks.

7. Practical Models: Islamic Financial Instruments

Islamic finance has developed several practical instruments that implement its ethical principles.

Musharakah – joint partnership where all investors share profits and losses.

Mudarabah – partnership between capital provider and entrepreneur.

Murabaha – cost-plus financing widely used in trade transactions.

Sukuk – asset-backed Islamic bonds used to finance infrastructure and development projects.

These instruments connect financial growth directly with productive economic activity.

8. Pakistan's Strategic Opportunity in 2026

Pakistan possesses unique advantages in the development of Islamic finance. Its constitutional framework supports Islamic economic principles, while its population and institutions increasingly recognize the value of ethical financial systems.

Despite these advantages, implementation has been gradual. Conventional financial practices still dominate many sectors of the economy. However, the growing global demand for ethical finance provides Pakistan with an opportunity to strengthen Islamic financial institutions and research centers.

Through regulatory reform, educational investment, and technological innovation, Pakistan can develop a financial system that aligns with its founding vision.

9. Global Expansion of Islamic Finance

Islamic finance has expanded rapidly across the world. Leading financial hubs include Malaysia, Saudi Arabia, United Arab Emirates, and the United Kingdom, where Islamic financial institutions operate alongside conventional banks.

By 2026, global Islamic financial assets are estimated to exceed four trillion dollars. Governments and investors increasingly recognize that asset-backed finance and risk-sharing partnerships can contribute to financial stability.

This expansion demonstrates that Islamic finance is not limited to Muslim societies but has universal relevance.

10. Toward an Ethical Economic Civilization

Islamic finance represents more than a banking system; it forms part of a broader vision of ethical civilization. The Qur'an reminds humanity that wealth is a trust:

"Believe in Allah and His Messenger and spend from that which He has made you trustees."
(Qur'an 57:7)

Thus the deeper equation of Islamic economics becomes:

Sustainable Prosperity = Ethical Wealth Creation + Social Responsibility

When societies adopt these principles, economic development becomes balanced, inclusive, and humane.

11. The Role of Knowledge, Technology, and Leadership

Modern technological innovations such as financial technology (FinTech), blockchain systems, and digital banking platforms offer powerful tools for expanding Islamic finance globally.

For example, blockchain-based Sukuk platforms can increase transparency and reduce corruption, while digital banking services can expand financial inclusion for millions of people who previously lacked access to formal banking systems.

Strong leadership, ethical governance, and advanced research institutions will be essential for integrating these technologies with Islamic economic principles.

12. Conclusion: From Vision to Global Transformation

The expanding relevance of Islamic finance in 2026 reflects a deeper transformation in global economic thinking. As societies search for alternatives to unstable financial systems, the ethical framework provided by Islamic teachings offers a powerful model of justice and sustainability.

Pakistan, guided by its constitutional commitment and ideological heritage, has the opportunity to demonstrate how these principles can be implemented in a modern economic environment.

If pursued with knowledge, integrity, and vision, Islamic finance can contribute not only to national prosperity but also to the creation of a more balanced global economic order.

Ultimately, the message of Islamic finance is universal: economic power must uphold justice, wealth must serve humanity, and prosperity must be guided by moral responsibility. When these principles shape financial systems, the world moves closer to an economy defined by stability, fairness, and shared human dignity.

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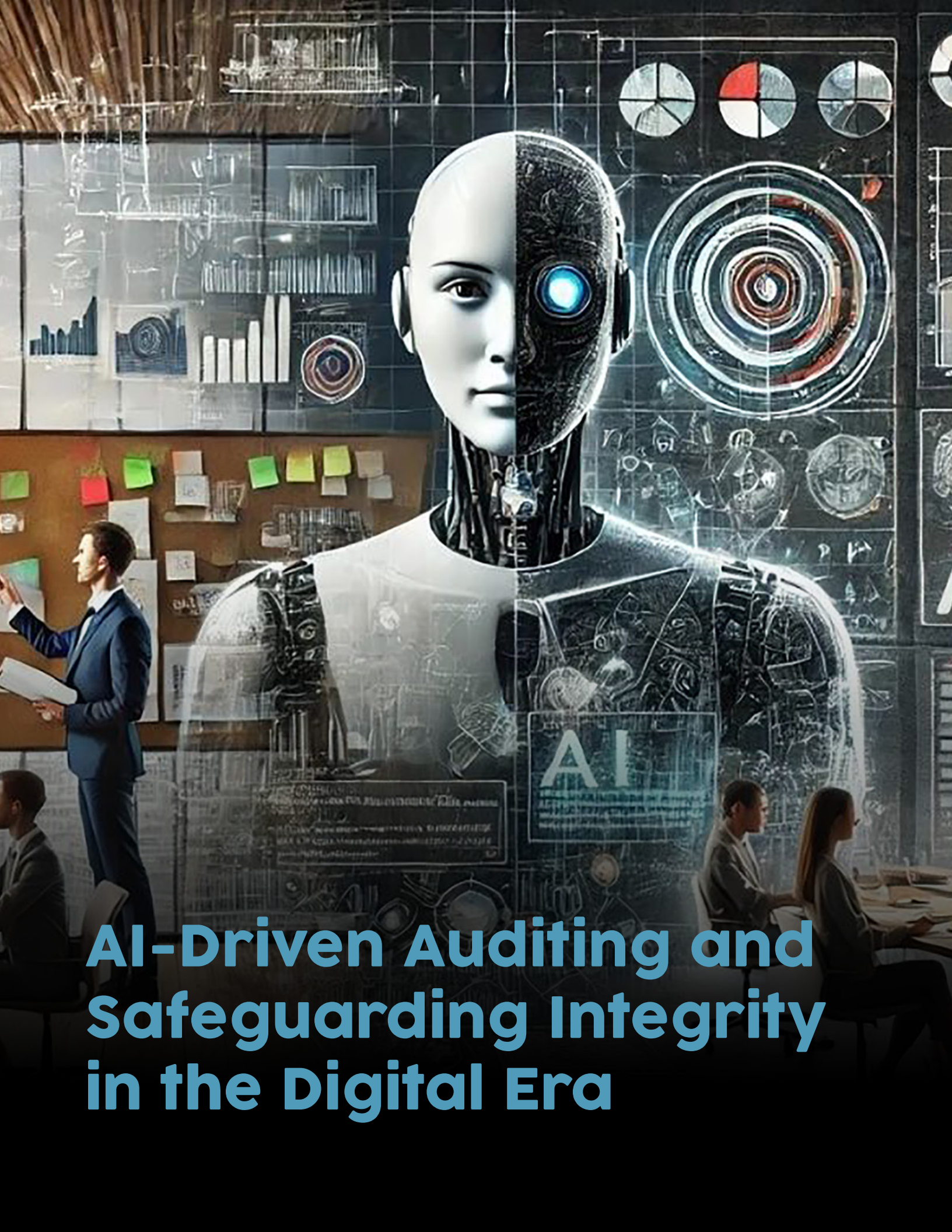

AI-Driven Auditing and Safeguarding Integrity in the Digital Era

Beyond the Rearview Mirror: Integrity Beyond the Algorithm

| Usman Farooq, ACA |

During most of our careers, auditing has been all about looking back. We reviewed what had already happened, took samples, reconciled figures, and signed off on everything. It worked well enough because the number of transactions were manageable, and the delay between an event and its review was just part of the assurance process. But those practices are obsolete now. Digital systems haven't just broadened the ledger but they've transformed it into a real-time feed. Every sale, adjustment, override, and reversal is recorded at lightning speed. Data is abundant, but attention is scarce. In this new landscape, "integrity" must either become a core part of operations or fade into mere jargon.

AI has stepped into the auditing world not as a shiny new toy, but as a necessity due to the overwhelming amount of data. The profession didn't suddenly crave algorithms; rather it simply needed them to keep up. Sampling was just an aid. We Just didn't admit It. Let's be honest: sampling was never the most sophisticated approach. It was just practical. When faced with millions of entries, you take a scoop and hope the soup tastes right. Most of the time, it did. But sometimes it didn't, and those were the files that haunted partners years down the line. AI changes that game entirely. Modern models can analyse the entire dataset, not just the neat middle but also the messy edges of back-dated entries, round-tripped revenues and vendor clusters that seem a bit too coordinated. This isn't just about speed but about gaining visibility. Here's the hard truth, once full-population testing becomes an option, opting out starts to feel less like a thoughtful choice and more like a risky gamble disguised as tradition. We're moving away from the comfort of probability and inching closer to total exposure.

When the System Raises Its Hand and Won't Explain Why

Every auditor who's paddling in advanced analytics eventually hits a familiar wall. The system flags a pattern of high risk, a trend and material potential. But when you ask for an explanation, the response is all about statistics, not storytelling. This is the real challenge in AI-driven audits, it's not about accuracy, but about explainability. If an algorithm, trained on years of messy historical data, tells you that a revenue stream looks "normal," you'd better understand what era taught it that lesson. Controls fail in patterns, and interestingly AI picks up on those patterns too. These

days, the job isn't just about accepting or rejecting the output; it's about digging deeper. Auditors are evolving into interpreters of models, assumptions, thresholds, and blind spots.

We used to question management's estimates, but now we're also questioning the machine's confidence. There's a widening gap between what the system detects and what we're ready to conclude. Bridging that gap is where professional scepticism thrives. The questions haven't vanished; rather they've simply shifted from the boardroom to the codebase.

Inventory Doesn't Lie, but Energy Bills Snitch

Consider a large manufacturing audit. The old routine was pretty standard involving physical counts, cutoff tests and variance explanations that always seemed to pop up just in time. This approach was useful but a bit limited. Now, picture a scenario where warehouse footage, production logs, ERP data, commodity prices, and energy consumption are continuously cross-checked. No drama, just correlation. If reported output spikes while power usage remains steady, the system takes note, it doesn't point fingers rather it just keeps its goggles fixed. At that moment, the auditor's value shifts away from merely counting stock. The real task becomes sense-making. Is the variance due to operations? Seasonal changes? A glitch in the system?

Or is someone inflating inventory with a bit of induced thinking, hoping no one connects the dots? AI highlights the inconsistency, eventually it's up to the auditor to craft the narrative and that distinction is crucial.

New Tools, Same Old Accountability

There's a common concern floating around that AI might push auditors out of their jobs. But that concern really misses the mark when it comes to understanding both AI and the auditing process. AI is all about precision, but it lacks wisdom. It doesn't understand the pressures, incentives, or the culture at play. Certainly, it can flag a suspicious override, but it can't determine if that's coming from a rogue manager, a flawed process, or a last-minute panic from higher-ups. That kind of context still relies on human judgement and the bravery to act on it. What's really changed is the mix of skills needed. Evaluating internal controls now involves data governance. Reviewing estimates now requires an understanding of model logic. Reporting has evolved into a task that demands translation by taking thousands of risk indicators and turning them into something actionable for the board before it's too late. The challenge now is transforming complex analytics into a concise three-slide conversation that actually resonates and that's where the real bottleneck lies, and it's a very human challenge.

Precision Isn't Integrity, Perspective Is

Here's something we don't often say out loud, just because we have more data doesn't mean we can trust it more. Sometimes, it just creates more noise.

AI has stepped into the auditing world not as a shiny new toy, but as a necessity to the overwhelming amount of data.

Integrity has never been a simple yes or no. It's influenced by the tone set at the top, the structures of incentives and the subtle choices people make when they think no one is watching. AI can sharpen our focus, but it doesn't decide where to direct that focus or when to dig deeper. The role of the auditor is evolving from merely checking boxes to conducting a symphony. The tools at our disposal are powerful, but if we don't manage them well, they can become overwhelming. When used effectively, they help keep the audit centered on what truly matters. The real danger isn't relying too much on AI; it's confusing clarity with sound judgement. AI can either be an optional add-on or it can become a fundamental part of the audit infrastructure governed, scrutinized, and led with purpose. Auditors have always been in the business of building trust. What's different now is the landscape. The ledger is no longer static, and neither can we be. We're not here to idolize the algorithm. Our mission is to ensure it conveys the truth and to raise our voices.

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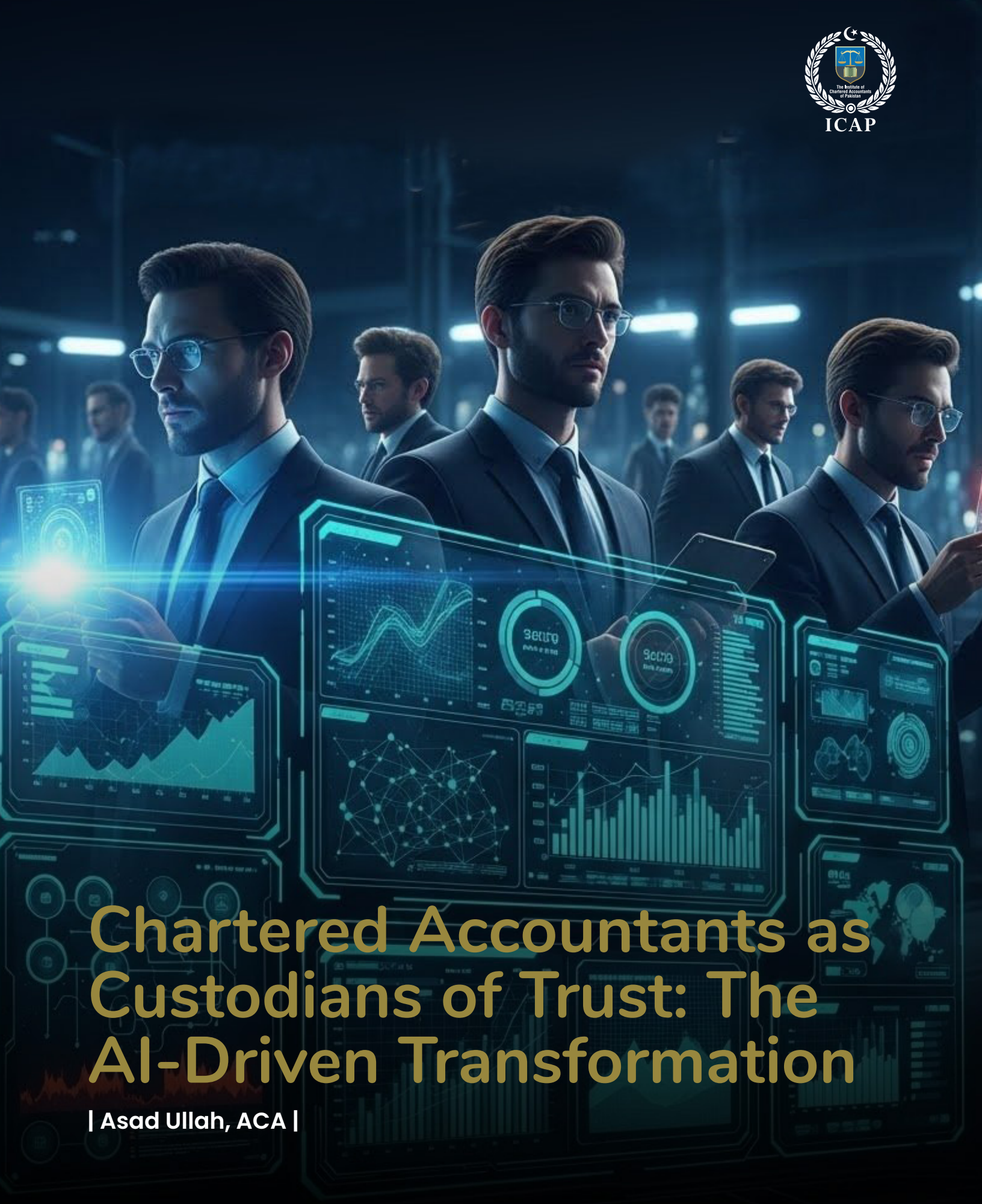

Chartered Accountants as Custodians of Trust: The AI-Driven Transformation

| Asad Ullah, ACA |

The accountancy profession is being fundamentally redefined by digital changes and the rise of artificial intelligence. Chartered Accountants are moving beyond just keeping historical records and ensuring sample-based accuracy. They are taking on the role of guardians of trust in a technology-driven economy. Accountants now need to blend their financial skills with new digital abilities and ethical principles to provide real-time, reliable assurance across complex and large data sets.

Why transformation is necessary

Modern organizations create transaction volumes and unstructured information at such levels that traditional manual verification is no longer practical. Sampling, which once offered a reasonable compromise due to human limitations, now risks missing significant but rare anomalies. AI and automation allow for complete analysis of transactions, helping auditors examine 100% of them and shift from checking past records to providing ongoing, proactive assurance. Meanwhile, the public and the market expect Chartered Accountants to be the main guarantors of accuracy and integrity. With many leading global brands relying on these professionals, the push to maintain trust has increased.

What AI brings to audit work

AI is changing the audit process from a simple checklist to an intelligence operation. The key AI technologies involved include:

- Machine Learning (ML): This detects unusual patterns in structured financial data, such as journal entries and ledgers. ML uses both supervised and unsupervised approaches to identify variations and complex patterns more reliably than manual methods, significantly improving detection rates.
- Natural Language Processing (NLP): This analyses unstructured data, including contracts, emails, and management commentary, through methods like Named Entity Recognition and sentiment analysis. NLP uncovers hidden risks in written content and checks the consistency between text and numerical data.
- Robotic Process Automation (RPA): This automates routine, rule-based tasks like data extraction and formatting. It reduces manual errors and allows auditors to focus on more analytical work.
- Predictive Analytics: This shifts the audit focus from reporting historical information to predicting potential issues, valuations, and emerging risk metrics.

The accountancy profession is shifting from merely guarding historical records to building ongoing, technology-enabled trust.

Reports show that AI can significantly enhance anomaly detection by up to 70% and improve efficiency by around 50% by automating repetitive tasks. Importantly, automation allows auditors to concentrate on activities that require judgement. They can delve into flagged items and interpret their context rather than just perform basic checks.

A reference architecture for AI audits

To avoid scattered deployments, the profession is moving toward a five-layer reference architecture for AI-enabled audits:

1. Data Integration & Management: Collect and clean structured, semi-structured, and unstructured data sources. Ensure data quality since AI results depend on the input data.
2. AI Model Development & Analytics: Create, train, validate, and implement models, using deep learning for sequence recognition and ensemble methods for reliable risk scoring.
3. Orchestration & Automation: Align bots and human workflows, triggering models during audit cycles and properly addressing any anomalies found.
4. Application & User Interface: Offer interactive dashboards and risk heatmaps. Include an explanation interface that shows confidence scores and reasons for model alerts to tackle the "black-box" issue.
5. Governance, Compliance & Security: Manage model versioning, test for bias, ensure encryption, and align with regulations (ISA, PCAOB, GDPR).

This architecture provides scalable and auditable integration of AI throughout the audit process, promoting continuous assurance rather than sporadic checks.

Continuous assurance and performance outcomes
AI and cloud technologies enable Continuous Auditing, which is automated and allows near-real-time monitoring of transactions. Continuous Assurance changes the auditor's role from a periodic reviewer to an ongoing partner in value. It offers early warnings about control failures and fraud, allowing organizations to address risks before they escalate. This transformation does not remove the need for professional judgement; it strengthens the evidence base that auditors use to be sceptical and make informed choices.

Ethics, explainability, and privacy

As AI takes on a central role, ethical and governance issues become more important. Three linked risks need attention:

- The Black Box Problem: Complex models can generate outputs without clear reasoning, making it difficult for auditors to evaluate evidence properly. The profession supports Explainable AI (XAI), which includes techniques like model cards, LIME, SHAP, and confidence scores that make AI decisions understandable, allowing auditors to critically assess outputs rather than accept them blindly.
- Algorithmic Bias: Models based on historical data can carry forward past biases, leading to unfair or inaccurate results. Accountants must conduct algorithmic audits to check data origins, run fairness tests, implement debiasing methods, and keep an eye on model drift.
- Data Privacy & Regulation: Large-scale auditing needs access to sensitive personal and business information, raising concerns about GDPR and other regulations. Principles like data minimization, purpose limitation, the right to explanation, and accountability should be central to system design. Technologies that enhance privacy, such as pseudonymization and differential privacy, are increasingly used to balance thorough analysis with legal obligations.

Standards and regulatory frameworks

New international and regional standards establish guidelines for managing AI. ISO/IEC 42001:2023 outlines an AI Management System to control AI risks

throughout its lifecycle. The EU AI Act presents a risk-based regulatory framework that categorizes certain auditing tools as "high risk," which imposes requirements for documentation, logging, and human oversight. Chartered Accountants are using these frameworks as compliance requirements and as tools to provide assurance about the trustworthiness of clients' AI systems.

Skills transformation and professional pathways

The shift to AI-enabled assurance calls for a significant upgrade in skills within the profession. Accountants must integrate traditional financial and ethical knowledge with digital expertise:

- Digital Literacy: Understanding AI, RPA, prompt engineering, and cloud collaboration while using tools effectively rather than competing against them.
- Data Mastery: Skill in data handling, cleaning, analysis, SQL, Python, and visualization to convert raw data into useful insights.
- Ethical Leadership: Knowledge in bias reduction, model governance, and professional scepticism to uphold integrity.
- Soft Skills: Skills in critical thinking, communication, empathy, and leadership to offer well-rounded strategic advice.

Professional organizations are adjusting qualifications to meet these evolving needs. Examples include ICAEW's "Next Generation ACA," which emphasizes technology, ethics, and sustainability, and ACCA's focus on data skills. Programs like ICAEW's GenAI Accelerator provide training in practical AI applications, fraud detection, tax research, and forecasting to support iterative learning and pilot-driven adoption.

Practical considerations and cultural change

Successful adoption requires finding a balance between two common pitfalls: relying too heavily on tools (automation bias) and being overly cautious (paralysis by analysis). The recommended strategy is to take an iterative approach: run pilots, track results, refine tools, and scale up with stringent governance. Incorporating human oversight, ensuring clarity, and maintaining continuous model monitoring are crucial for building trust as automation grows.

Conclusion

The accountancy profession is shifting from merely guarding historical records to building ongoing, technology-enabled trust. AI opens up much greater detection capabilities and efficiency, allowing auditors to analyse entire transaction populations and offer real-time assurance. However, technology alone cannot maintain public trust. Explainability, fairness, privacy, and ethical leadership are essential. By merging AI skills with deep professional scepticism and updated capabilities, Chartered Accountants can redefine risk management and advisory roles while maintaining their status as trusted advisors. The future involves a disciplined partnership between automation and human judgement, where digital innovation supports but does not replace the human duty to maintain integrity.

The writer is an Associate Chartered Accountant

Reimagining Audit: AI, Ethics, and the Future of Trust

| Ravi Parkash, FCA |

Trust is Fundamental

Technology has transformed how audits are performed. It has not changed why they are performed. The purpose of audit remains safeguarding trust in financial and non-financial information. That responsibility continues to rest with the Chartered Accountant.

Artificial intelligence (AI) is now embedded in many audit methodologies. Data volumes are expanding, business models are becoming more complex, and stakeholders expect greater transparency. In this environment, technology is not optional. It is necessary. However, while tools evolve, professional responsibility does not.

The central question is therefore not whether AI will influence audit. It already does. The real question is how it should be governed and applied to preserve integrity.

What AI is Changing in Audit

AI-driven tools are enhancing several aspects of audit execution.

Full-population testing is increasingly replacing traditional sampling. Algorithms can analyse large datasets and identify unusual patterns across transactions. Risk-scoring models help focus attention on higher-risk areas. Continuous monitoring tools can assess certain controls in near real time. Language models assist in summarising information and drafting documentation.

These developments improve efficiency and expand coverage. They allow auditors to direct more time toward complex judgements rather than repetitive procedures. Used appropriately, AI strengthens audit quality by enabling broader and deeper analysis.

Importantly, these tools enhance capability. They do not alter accountability.

The Limits of Automation

AI systems process data according to predefined logic and historical patterns. They identify anomalies. They do not interpret context.

An algorithm may flag a transaction as unusual. It cannot determine whether that transaction reflects fraud, error, or a legitimate commercial decision. It cannot evaluate management credibility or assess ethical implications. It does not exercise professional scepticism.

There is also the risk of automation bias – the tendency to accept system outputs without sufficient challenge. As tools become more sophisticated, the perceived authority of their outputs may increase. This can create over-reliance if not managed carefully.

In addition, some models operate as "black boxes," where the underlying logic is not fully transparent. Without understanding how conclusions are generated, professional oversight weakens.

For these reasons, AI must be viewed as a decision-support tool, not a decision-maker.

Case study: When the system flags "too much"

An audit team deploys an AI tool to analyse 100% of journal entries for anomaly detection. The system flags 8% of entries as high-risk based on unusual timing and user access patterns. At first glance, the volume of flagged entries appears alarming. However, upon investigation, the team identifies that many flagged entries relate to legitimate quarter-end adjustments processed by a newly centralised finance function.

The tool correctly identified deviations from historical patterns. It could not determine whether those deviations represented fraud, error, or operational change.

The conclusion required professional judgement – understanding organisational restructuring, assessing management explanations, and evaluating control redesigns.

The AI system highlighted risk. The Chartered Accountant determined its significance.

Preserving Professional Judgement

Judgement remains the defining attribute of the Chartered Accountant.

The decision to expand testing, to challenge management assumptions, or to modify an audit approach requires reasoning informed by experience, standards and ethics. These decisions cannot be delegated to software.

AI can enhance the audit process. Trust, however, will continue to depend on the integrity and judgement of the Chartered Accountant.

Preserving judgement in a technology-enabled environment requires deliberate action. Auditors must:

- Understand the purpose and limitations of the tools being used
- Evaluate the quality and completeness of data inputs
- Challenge outputs that appear inconsistent with business realities
- Document how technology informed, but did not replace, professional conclusions

This is not about resisting innovation. It is about integrating technology within a framework of accountability.

Governance and Integrity in the Digital Era

Safeguarding integrity requires strong governance over AI use. Firms should ensure that AI systems are appropriately validated, monitored and controlled. Data governance frameworks must address accuracy, completeness and security. Access controls, model updates and performance monitoring should be clearly defined.

At an individual level, Chartered Accountants do not need to become data scientists. However, they must develop sufficient understanding to ask informed questions:

- How was the model developed?
- What assumptions underpin the risk assessments?
- What limitations or biases may exist?
- How are errors identified and corrected?

This critical engagement is now part of professional competence. Ethical responsibilities remain unchanged. Independence, objectivity and commitment to the public interest cannot be automated. As automation increases, visible human oversight becomes even more important to sustaining stakeholder confidence.

Leading Transformation Responsibly

The transformation of the profession is not defined by speed of adoption, but by quality of application. Chartered Accountants operate at the intersection of technical knowledge, regulatory compliance and public trust. AI introduces new capabilities into that environment, but it does not alter its foundation. The profession's long-term relevance will not depend on competing with machines in processing data. It will depend on exercising judgement where machines cannot – in context, in ethical reasoning and in safeguarding the public interest. Technology will continue to evolve. Expectations of accountability will increase. The opportunity for the profession is to lead this transformation responsibly. AI can enhance the audit process. Trust, however, will continue to depend on the integrity and judgement of the Chartered Accountant.

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CHARTERED ACCOUNTANTS AT FOREFRONT OF TRUST, TECHNOLOGY & TRANSFORMATION

| Khizar Hayat , FCA |

Modern business growth depends on adopting advanced technologies and continuously evolving systems, while maintaining strong relationships with users through smooth and reliable services. Organizations are focusing on innovation, agility, efficient task handling, and user-friendly solutions. These factors are shaping trends in industrial software and support systems.

There is also an increasing need for accurate monitoring and measurement, along with strict regulatory oversight and vigilance. Environmental, Social, and Governance (ESG) factors—such as eco-economic opportunities and climate change management—are becoming increasingly important for sustainable economic growth, investment, and risk management. Strong governance practices must align effectively with operational management to ensure balance, accountability, and long-term stability.

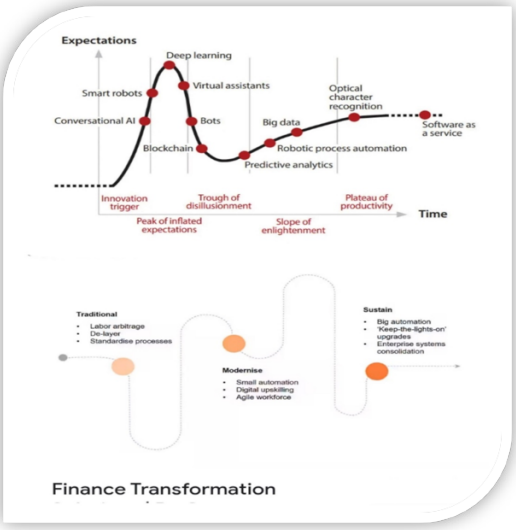
Landscape For Future (2026 Beyond)

The successful Chartered Accountant of the future would be:-

- Simply not replacing manual work with AI.
- Rather using AI to enhance human capabilities, focusing on complex judgement, interpretations, relationships, extraction and strategic foresight.

The profession is undergoing a shift where "technology first" is becoming the baseline requisition, crunch need, expectation for new accountants.

The "future accounting Key Takeaway is not about human versus machine but about thoughtful integration of both".



Financial Tolerance levels may vary from standardized conventional manual processing to medium, bid automation being Enterprise systems consolidations with Agile workforce with digital upskills.

Systems enrichments would be function of plateau of productivity coupled with peak of inflated expectations+slopes of enlightenments.

Despite emergence of InfoTech (Generative AI, Handy Infosyst), Ne of ed pharmacy for Human Braining Compus would predominate business Processes Curves/Long term radiologies.

Financial stabilizers may be derivatives culminating into short term , medium, long term strategic flows cushions / Absorptions. Striking Balance between Individuals' needs viz Businesses' fumes may dig into cornerstones for optimality in two directions. Trust, Technology, Transformation, Tolerance (4T) would define acceptable ranges for metering extents / limits to be amicable.

Discipline Forefront:

Sort of conversion to Economic, Businesses driven KPI discipline from mere manning discipline would be emphasized by changing evolving roles in order to seek fit with Global requisition and uplift. Shift of conventional to Agile, Tech led evolving roles would be adapted by global entities & large conglomerates in wake of international practices. Befitting response to occasional + phased impluses may be fashioned through transformation adopted from time to time in all limiting resources plans.

External Balancing:

Rigid Arena of external hard drives moves management would demand specialized Burrell barrel preparations/articulations. Here far – reaching impacts would be resultant keeping in view stagnant eyes – lashing norms / indifferences. Greater the degree of skillsets gap coupled with rapport in alignment, the more financial intricacies + higher volumes deplishing in long runs.

Hardest testing capabilities both ovet/ covet , inside out would be cognant for every hierarchical diffusion / even at governance layerings.

Chartered Accountants (CAs) are now perceived as to act as trusted, technology-enabled strategic partners. There is navigating a pivotal shift in profession, moving beyond traditional compliance

In 2026, CAs are bridging the cushions between old-fashioned values of trust and the new era of AI-driven transformation, establishing / leading to indispensable guardians of data integrity. Now fore-seen that Chartered Accountants are positioned to be at forefront of this evolution.

Endorsements + Hashlines:

Businesses processes embedding retreating outcomes being subject to internal/external endorsements within specified domains with expeditious disposal through e-skillsets. Economic management would postulate support Businesses Goals in totality.

- Assessing factors to play with.
- Best Fit Options sorting.
- Commit optimal outlays.
- Defining limits.
- Economic value.

Seek Plus Growth:

Survival in succession would function of :+
Seek Attitude:

- Internal lacks and bolts.
- External waves / craves.
- Identity/ Good well.

Growth Graphing:
- Growth Goals.
- Implicit Tech spooning.
- Group Altitudes.
- Almonds / Ounces metering.

CAs ought to be deemed by / vested with high- cap for Guardians of Trust in a Digital World for future organizational outlook.

Despite rise of e - commerce, Info- Tech , automated, "black box" systems & financial models in place, trustworthiness in Chartered Accountants remains high, ranking third globally.

Ethical Stewards are continuingly in amendments, As organizations adopt AI, CAs are crucial in ensuring these tools are ethical, transparent, and aligned with governance standards + global requisitions.

Allied formalization within businesses Data to functionality is ensuring Data Integrity. With 78% of businesses presuming CAs as critical to mitigate economic challenges, they are increasingly relied upon to verify non-financial data, ESG (Environmental, Social, and Governance) parameters/ metrics, and combat misinformation for data coherence.

CAs apply human judgement (Professional Skepticism) to AI-generated outputs , information, contents, insights, assessing validity of data rather than blindly trusting automated outputs / accepting generic values.

Roles Scenarios:

Professional depths in built have paved way for enriched multiple roles exhibit throughout ladders within hierarchical diffusion / play-offs.

Very rich businesses layerings Would prompt emulsified outputs + stakes executions keeping in view embedded culture coupled with external regulators up-heads.

CAs are Leading Business Transformation recently within multiple ESG environment. The role of the CA ought to be averted from "number-cruncher" to "strategic advisor".

Strategic Advisory by CAs would span around helping businesses rethink /reshape their operating models, guiding/driving efficiency through AI, and supporting companies through digital transformation & enrichments.

Online movement of financial data would pose e-hacks / Jacks, CAs are increasingly managing risks, protecting data integrity, and navigating the complexities of cybersecurity.

Prism function is being adapted by Accountancy through Sustainability and Future-Proofing.

CAs are at the forefront of ESG reporting, integrating sustainability metrics into financial strategies.

Trade-Off Pulls

Future futility optimality would be dependent on push & pull external / internal manifestations / BMR with trade off On stakes securitization. Efficient diversions towards technologies, processing transformations with combination of manning elasticities within whole organizational domains would support financial cohesion and surpasses. Key determinants laid down for extending processing absorptions / Info systems enrichments would surround around:-

- Businesses cycles and margins graphics.
- Turbulences factors identification charts.
- Balancing mix For Competitive marketing.
- Newness of Tech & Annexed Budgeting.
- Environmental Health + Global requisitions.
- Texture For Manning Governance + Retentions.

Greater the extent of BTB to be derived , larger the optimizations of NET matrix. Businesses altitudes would need preamptive mix of resources which would be heeded by suitable manning domains with due vigilance in vague.

NET Rose-wallet Role by accountancy firtinity would be deemed by businesses hubs keeping in view embedded reciprocating compressors as well as regulators upheals.

10 technology trends that will shape the coming decade:

[1 automation RPA, 2 5G and IoT, 3 cloud and edge compute, 4 quantum computing , 5 applied AI (ML NLP)] [6 software 2.0, 7 trust architecture (blockchain), 8 bio revolution, 9 NG materials, 10 clean tech].

The Silicon Valley Project aims at establishing large scale smart cities and hi-tech zones in different areas across Pakistan. Thereby driving in FDI in Technology, Tourism and Green Energy.

The future of a nation depends on advances in science, knowledge, innovation, and technology. Many countries in the Middle East aim for a digital economy using critical tech tools such as 5G, cloud and AI.

Digital technologies have transformed society on an unprecedented scale. The only way for companies to remain relevant and competitive is to transform into digital enterprises.

For Chartered Accountancy, new era of Finance Service Modeling would be overlapping businesses layerings:-

Main focus may squall around MIS-factors being Infosys Cloud Enablers with mingle up of traditional Integrated Processes to top up into healthy Finance Service.

Cloud Enablers

Big Data Processing, Business Intelligence, Machine Learning, Relational Database, Non Relational Database, Log Analytics

Integrated Processes

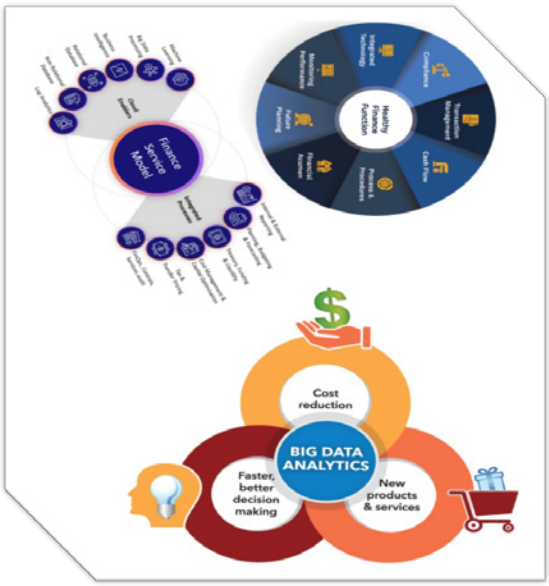
Internal & External Reporting, Planning, Budgeting & Forecasting,Treasury, Funding & Liquidity, Cost Management & Capital Optimisation, Tax & Transfer Pricing, FinOps, Controls,Services audit.

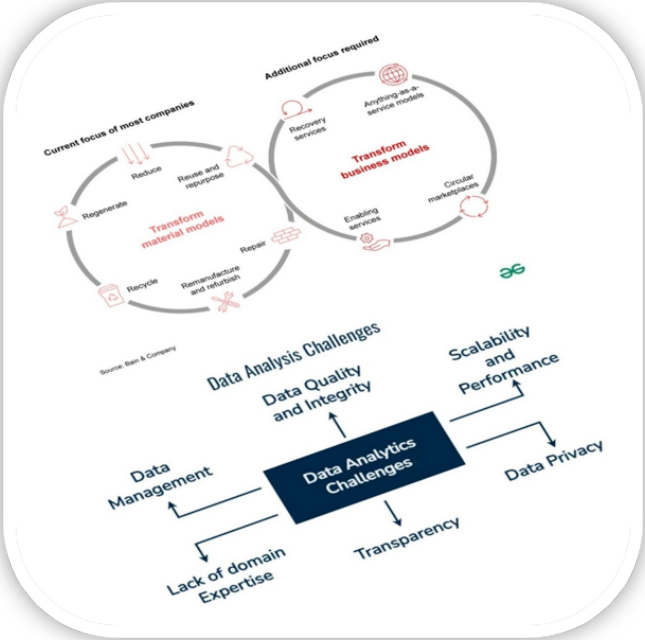
More knowledge base divulgence would be of greater value in programming data skills.

Healthy Finance Function

Compliance, Integrated Technology Monitoring, Performance , Transaction Management, Future Planning, Cash Flow Process & Procedures, Financial

Acumen. Bundling of afore processes would laid down efficiency/growth iteratively.





Infosys gadgets enabling BIG DATA ANALYTICS would strive for businesses heading towards:-

- Faster,better decision making, performances Monitoring, Acumen, Cost reduction.
- New products & services, Healthy Cash Flow Management.

Businesses transformation may be triggered into:-
Transform material models:-

- Current focus of most companies, Regenerate, Reduce, Reuse and repurpose.
- Recycle, Remanufacture and refurbish.

Data Analysis Challenges:

Data Quality and Integrity, Data Analytics Challenges, Circular marketplaces, Scalability and Performance, Transparency, Data Privacy .

Overall Business Transformation to be oversighted by CAs would be pendulum around S - methodologies:-

- System, Support, State, Spool.
- Superbness, Serviceness, Scalability.
- Succession, Salvage, Skillets.

The writer is a Fellow Chartered Accountant, working in Finance Department at Attock Refinery Ltd.

Synergy or Subsistence? Evaluating the Role of AI in Modern Auditing

| Zain Raheel, ACA |

The landscape of both accounting and auditing profession is undergoing a seismic shift. In an era where data is the new currency, traditional auditing methods, long reliant on sampling and retrospective analysis, are being augmented by powerful algorithms capable of providing unprecedented levels of assurance and integrity. As put in by Dr. Andrew Ng, globally recognized leader in AI learning and Generative AI, "AI is the new electricity. Just as 100 years ago it transformed industry after industry, AI will now do the same."

Is AI new to the audit?

Studies have found that firms have been using AI for over a decade now. While big firms have developed their own AI technology, smaller firms rely on off the shelf solutions. The Big Four (PwC, Deloitte, EY, KPMG) alongside BDO and Grant Thornton have moved beyond simple automation to deploy "Agentic AI" through platforms like PwC's Aura, Deloitte's Omnia, and KPMG Clara. These tools leverage advanced Large Language Models (LLMs) and neural networks.

AI can add value to each element of audit, the image below shows the contribution by AI, in form of load bars, to different phases of audit. But to benefit from AI's potential might take years.

Strategic Pillars of AI in the Modern Audit

Artificial intelligence (AI) can significantly support audit processes by automating repetitive procedures (data entry and reconciliation), identify hidden discrepancies in reports (unusual patterns in transactions or inconsistencies between a reported revenue and receipts/payments) and enhance audit quality (turning sample based audit into complete data set audit). Techniques such as robotic process automation, anomaly detection algorithms, and automated reconciliation engines, enhanced with natural language processing, can quickly review vast amounts of structured and unstructured data to uncover potential inaccuracies. Simple AI technologies are widely used in audit whereas Complex AI tools are being experimented with. But such tools are maturing rapidly and will be used widely soon.

Key technologies driving this change include:

Simple AI	Common use case types	Typical use cases in audit
Rule engines	Robotic process automation (RPA)	data-gathering across a sequence of tasks
Simple machine learning	Predictive analytics	financial anomaly detection
Computational linguistics	Simple natural language processing (text analytics, speech recognition)	extraction of contractual terms
Complex AI/Machine Learning		
Deep learning neural networks	Image recognition, predictive models	physical inventory counting
Generative AI	Natural language processing, code generation	controls reviews, code generation for data analysis

Examples of AI technologies used in auditing: Bias of AI systems and audit ethics

The AI systems have their own baggage despite the revolutionary impact on audit profession. AI is afflicted with data deficiencies, algorithmic/optimization biases and human/cognitive biases. Additional to this is non-deterministic results which are limiting to its use as well as spurious correlation and skill erosion.

Regulatory and standard-setting bodies are not convinced that reliance on AI is a good idea since it remains a Black-Box technology. Biases in either input data or distortion of the algorithm may lead to misjudging the decision which will increase the wrong judgement.

Ethical implication of the use of AI in auditing can be evaluated at three levels. The first one is the individual (auditor) level, the second one is the institutional (audit firm) level and the third one is the socio-political level (profession and societal level).

The ethical imperative of Due Care is challenged at the Auditor Level by the introduction of AI since black-box systems may complicate the ability of professionals to justify their approach. This is a source of Professional Skepticism and judgement problems, namely, the so-called automation bias or deskilling, where auditors develop blind spots or fail to do their complex jobs because they have become over-reliant on technology. Moreover, the development of AI raises concerns about the Auditor Competence and transparency.

At the Audit Firm Level, organizations have to address ethical risks of the confidentiality and data security, so that the data about clients used to train AI is not subject to breach or inappropriate commingling. The data quality (Inclusion/Exclusion) of these systems is also critical since biased or unbalanced training data may undermine the objectivity of audit outputs.

At the Profession and Societal Level, the proliferation of AI could cause differences in audit quality across the profession, possibly establishing a two-tier system where smaller firms are barred by the high entry cost. The beneficence principle is questioned by the so-called invisible workforce and the disappearance of the traditional back-office jobs, whereas the absence of transparency about the capabilities of AI may cause an expectation gap between the stakeholders. Finally, these changes threaten to de-professionalize auditing because the role of the traditional auditor can be further replaced by data scientists who are not subject to the same professional codes of ethics.

Safeguarding Integrity: The New Ethical Frontier

Integrity remains the bedrock of the audit profession. While AI provides an objective, data-driven layer to the audit, it also introduces new ethical dimensions and tensions among stakeholders—including auditors, clients, regulators, and society.

The "Human-in-the-Loop" Necessity: Algorithms do not create public trust, and independence of auditors and transparency is also necessary. The best audit models are the so-called augmented, in which AI-based tools automate mundane tasks and release auditors to work on more intricate tasks. Such AI-generated information should be thoroughly examined and confirmed by professional auditors who exercise professional skepticism and judgement to identify accuracy and completeness.

Mitigating Bias and the "Black Box" Risk: The profession should be aware of black box risks - in which the reasoning behind an AI decision is unclear. In order to preserve integrity, companies are embracing Trustworthy AI models that emphasize on explain ability and transparency. Some of the remedies are causal modeling to reveal the hidden biases, regular audit of AI systems, and integrating accountability into system design.

AI in audit is a developing technology and there are three approaches to address ethics in futuristic technologies. First, to disregard the ethical consequences to enable the technology to bloom, this would presuppose that the advantages of technology will surpass the disadvantages. Second, to address ethical concerns when they arise. Both these methods are contrary to audit profession. Third approach is a futuristic strategy that predicts the ethical consequences of any new technology. It does not strive towards a single future, but starts dialogue about possibilities. Existing frameworks that give the guideline on the ethical assessment of futuristic technologies are numerous. They include Ethics of Emerging Information and Communication Technologies (ETICA), created by a European consortium and Anticipatory Technology Ethics (ATE), a continuation of the ETICA model.

Impact on the Professional Ecosystem

The adoption of AI is not merely a technical change; it is a structural one that impacts audit firms and their employees.

Audit Quality and Fees: Research shows that investment in AI by audit firms (rather than the clients) leads to higher quality outcomes. A significant increase in a firm's AI workforce correlates with a 5% reduction in the likelihood of a restatement and a 1.9% reduction in restatements related to revenue recognition.

Artificial intelligence (AI) can significantly support audit processes by automating repetitive procedures, identify hidden discrepancies in reports and enhance audit quality.

Furthermore, AI integration predicts a reduction in audit fees over a three-year horizon.

Resource Composition and the Skills Gap: AI tends to automate repetitive tasks rather than entire jobs. However, this shift concentrates job reduction at the junior level, while no significant displacement is found at mid-tier or senior levels. The primary barrier to widespread adoption remains the lack of trained human capital.

Technical Challenges: Auditors face significant hurdles in achieving consistency in data formats across clients and dealing with poor-quality data. Additionally, there is often a lack of compatibility between third-party AI tools and existing client ERP systems.

A Call for Formalized Collaboration

With this radical and fast-paced technological path, the audit profession can no longer afford to address ethical issues when they occur. It needs to be a proactive, future-oriented strategy, which entails institutionalized cooperation among developers, adopting companies, practitioners and regulators in order to come up with workable advice and governance. The application of AI technology in financial industry of Pakistan and its capability of detecting fraud has encouraging outcomes as local studies have found. Time will simply run out before audit will involve the assessment of AI based products and their role in internal controls.

In order to make the members of ICAP a beacon of integrity in the ever more complex digital world, AI should be viewed as a powerful ally rather than an alternative to auditor judgement. This change will start by revising the CA curriculum to include specialized AI subject so that the future generation of chartered accountants will be technically literate enough to work in automated environments. Moreover, the Institute should take into consideration the use of AI technologies by firms and companies during Quality Control Reviews and develop stringent supervision to make sure that technology-based audits correspond to the international objectivity and evidence standards. In the end, the responsible use of these tools will help to make sure that the foundation of trust of the profession is not shaken by the technological changes.

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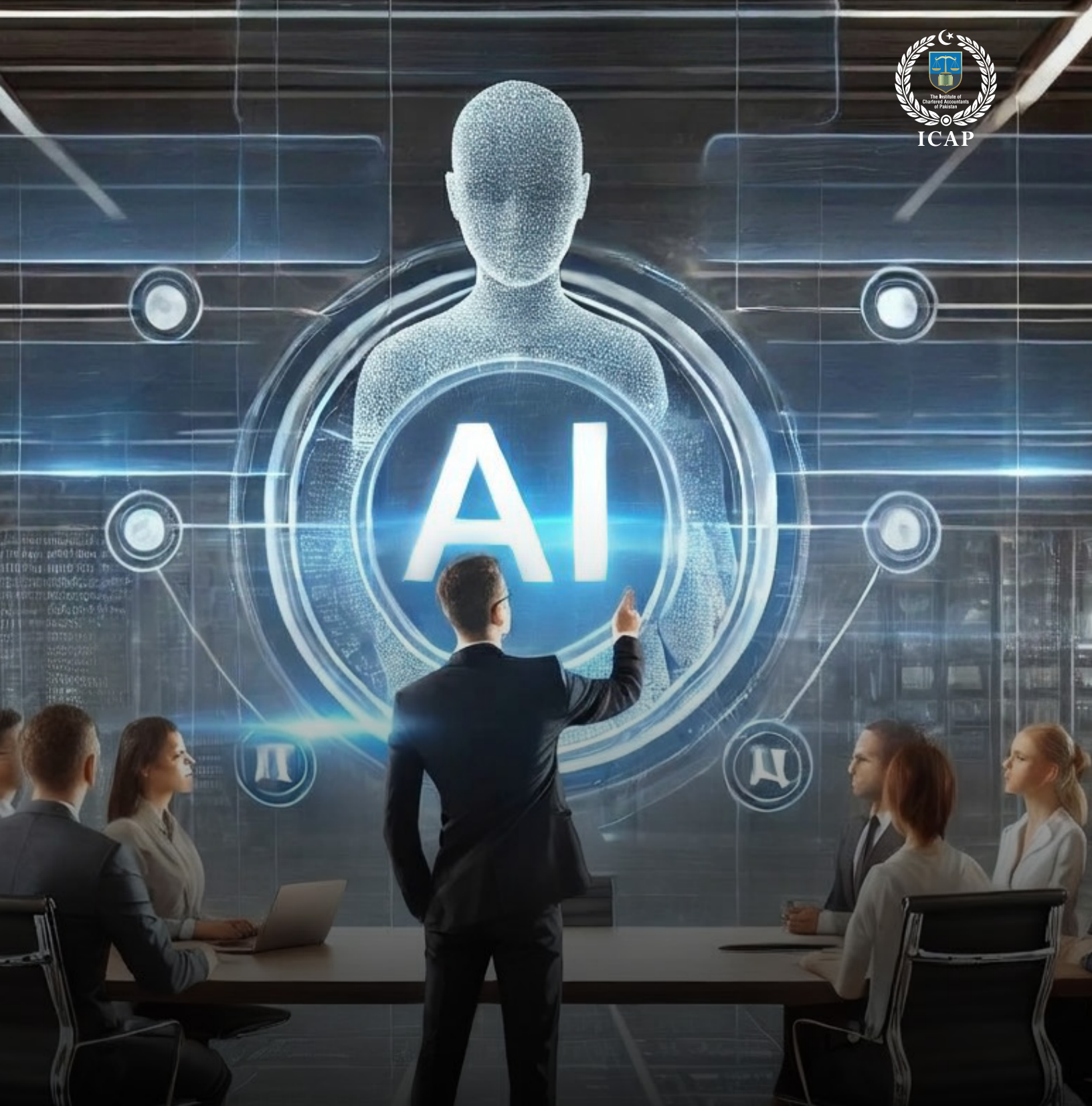


Intelligent Assurance: The Future of Auditing in a Digital Economy

| Muhammad Mubashir Farooq, FCA |

Traditional sampling-based audit methodologies are increasingly inadequate in environments characterised by vast data volumes, algorithmic trading and cyber-enabled fraud.

-Issa, Sun and Vasarhelyi, 2016

The rules of assurance have changed

In today's digital economy, transactions move at the speed of light. Supply chains are automated, payments are processed in milliseconds, and algorithms make decisionsonce reserved for humans. However, many audit approaches remain rooted in periodic reviewsand statistical sampling methodsdesigned for a slower, analogue world.

In an environment defined by scale, complexity and cyber risk, that is no longer enough.Artificial intelligence (AI) is not simply enhancing audit; it is redefining how integrity is safeguarded. The question is no longer whether AI belongs in the audit function, but how it can be deployed responsibly to strengthen trust in an increasingly automated economy.

From Retrospective Checks to Real-Time Assurance

Auditing has always evolved alongside commerce. From hand- written ledgers to structured financial reporting, each era has required new tools. In the 20th century, statistical sampling allowed auditors to provide "reasonable assurance" without reviewing every transaction. It was efficient and proportionate for its time. But digital transformation has rendered sampling increasingly blunt. High-frequency transactions, algorithmic trading and platform-based business models generate volumes of data that dwarf historical norms. Risk now emerges in patterns too subtle and too fast for manual review.

The conceptual foundation for continuous auditing was proposed decades ago, but only recent advances in computing power and machine learning have made it viable at scale (Issa, Sun and Vasarhelyi, 2016).

AI changes the equation. Rather than examining a fraction of transactions, AI systems can analyse entire data populations in real time. Instead of waiting for quarterly reviews, anomalies can be flagged as they occur.

The shift is profound: from retrospective verification to continuous oversight.

Fraud in the Age of Automation

Financial crime has evolved. Cyber-enabled fraud, credential theft and structured payment schemes are increasingly sophisticated. Criminals exploit automation; auditors must do the same.

A recent case in UK financial services illustrates the point. A major institution deployed an AI-driven transaction monitoring model capable of analysing behaviour across its entire customer base. In late 2024, the system detected an unusual cluster of low-value transfers from dormant accounts, each transaction just below approval thresholds and processed outside standard operating hours. Individually, the transactions appeared innocuous. Collectively, they revealed coordinated fraud. Human investigation confirmed exploitation of legacy system credentials.

This is the power of behavioural modelling: seeing not just isolated entries, but relationships and anomalies at scale.

Early detection prevented significant financial loss and regulatory exposure. Traditional sampling would likely have missed the pattern.

Leading firms such as Deloitte and PwC have already embedded machine learning tools into audit methodologies, enabling deeper pattern recognition and faster risk identification. But the real transformation lies not in efficiency alone; it lies in resilience.

The Architecture of Intelligent Assurance

AI-driven auditing rests on three pillars:

1. Comprehensive Data Integration
   Secure pipelines extract structured and unstructured data from enterprise systems, payment gateways and compliance databases. Without reliable data foundations, intelligent systems cannot function.

2. Advanced Analytics and Machine Learning
   Unsupervised models detect anomalies without predefined rules, while supervised models learn from historical fraud cases. Natural language processing enables review of contracts and communications at scale.

Unsupervised techniques are particularly effective in identifying previously unknown fraud patterns (Appelbaum, Kogan and Vasarhelyi, 2017).

3. Explainability and Governance Controls
   Interpretability tools clarify why transactions are flagged, mitigating "black box" risks. Continuous monitoring identifies model drift and performance degradation, ensuring systems remain robust.

Regulation: Guardrails, Not Roadblocks

The regulatory community has rightly approached AI with caution. In the UK, the Financial Conduct Authority has emphasised that AI must support, not replace, human oversight. Accountability remains firmly with senior management.

Supervisors expect:

- Transparent and explainable models
- Independent validation and recalibration
- Clear documentation of assumptions
- Compliance with UK GDPR and data protection requirements

The Bank of England has similarly highlighted model risk governance as critical to financial stability.

These expectations are not barriers to innovation; they are essential guardrails. Opaque systems may produce impressive outputs, but without interpretability, they undermine trust. In high-stakes environments, explainability is not optional; it is foundational.

The Human Dimension

For all its sophistication, AI does not replace professional judgement. It reshapes it.

Auditors must now understand algorithmic logic, challenge model outputs and identify blind spots. Overreliance on automation risks complacency; underutilisation risks inefficiency. The balance is critical.

Trust ultimately rests on people, on scepticism, ethical reasoning and accountability. AI is a force multiplier, not a moral compass. Boards and audit committees, therefore,have a pivotal role.

Independent model reviews, clear escalation procedures and defined accountability structures are essential. Technology must sit within governance, not above it.

Imperative for Leadership

AI-driven auditing represents a structural evolution in how organisations protect value and sustain trust. It offers comprehensive transaction coverage, faster fraud detection and enhanced visibility across complex systems. But technology alone cannot guarantee integrity.

The future of audit is not merely faster, it is smarter, more integrated and more preventive.

Sustained impact requires:
- Strong data governance
- The Explainable and validated models
- Regulatory alignment
- Cyber resilience
- Continuous human oversight

Data Governance: The Bedrock of Trust

AI systems are only as strong as the data that feeds them. Inconsistent definitions, incomplete datasets or embedded bias can distort outcomes. The principle remains unchanged: poor inputs produce poor outputs.

Bias audits and fairness testing are increasingly recognised as best practice (European Commission,2021).

Robust governance, therefore, requires:
- Clear data ownership
- Standardised taxonomies
- Secure access controls
- Ongoing bias and quality assessments

Safeguarding integrity extends beyond financial accuracy. It includes fairness, privacy and ethical responsibility. In a digital economy where, reputational damage can spread in hours, this broader lens is essential.

Towards Embedded Integrity

Looking ahead, the integration of AI with distributed ledger technologies may enable near real-time assurance, where transactions are immutably recorded and continuously analysed. The audit function could become embedded within operations rather thanlayered on top of them.

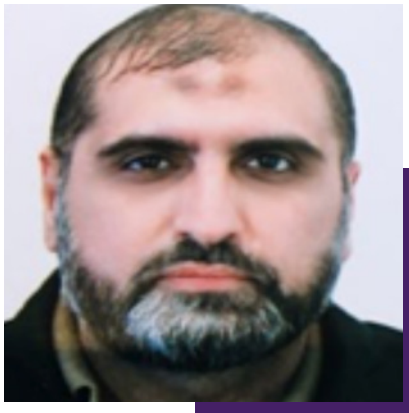
This "embedded assurance" model integrates risk monitoring directly into operational systems.

Such a model promises unprecedented transparency. Yet scalability, regulatory harmonisation and ethical safeguards remain prerequisites.

The future of audit is not merely faster, it is smarter, more integrated and more preventive.

Organisations that embrace AI responsibly will move from reactive compliance to proactive assurance. Those that fail to modernise risk being outpaced, not only by competitors, but by the threats themselves.

In the digital era, integrity cannot be inspected after the fact. It must be designed into the system. AI, deployed wisely, enables precisely that.



The writer is a Fellow Chartered Accountant workingin financial services in the United Kingdom

The Rise of the Digital Auditor: How Agentic AI Is Rewriting the Operating Model of Assurance

| Sami Ullah Khan, ACA |

Your next senior associate may not carry a briefcase or hold a degree. But it will review every transaction your human team never had the capacity to touch.

Picture the following sequence inside a mid-tier audit firm. A piece of software pulls a client's general ledger data, populates a lead schedule, drafts a bank confirmation request, dispatches it electronically, and, when the bank's response arrives, reconciles it against the workpaper and flags discrepancies for a human reviewer. No one instructed it step by step. It received a goal and determined the workflow independently.

This is already happening. At Citrin Cooperman in New York, a partner leading audit innovation described precisely this sequence as an active build within her team's agentic AI programme. PwC launched Agent OS in March 2025 and has since deployed over 250 AI agents internally across its tax, assurance, and advisory practices. EY's Agentic Platform, built with NVIDIA, integrated 150 AI agents in its initial rollout supporting 80,000 professionals across more than three million tax compliance outcomes annually. KPMG's Workbench, released in June 2025, orchestrates fifty specialised agents that pass tasks to one another with the cadence and rigour of a well-run human engagement team, with nearly a thousand more in active development.

The profession is crossing a threshold, and the nature of that threshold warrants precise language. We are not witnessing AI as a faster spreadsheet. We are witnessing the emergence of the Digital Full-Time Equivalent (FTE): an autonomous software entity that plans, reasons, executes, and documents audit procedures with limited human intervention. For Pakistan's chartered accountants, reckoning with this shift is no longer a matter of curiosity. It is a matter of professional survival.

Three Eras: Manual, Automated, Agentic

The trajectory is instructive. The first era of audit was manual: tick marks, paper files, physical confirmations posted by courier. The second era, still the prevailing mode across most Pakistani practices, introduced rule-based automation through CAATs, Excel macros, and audit software. These instruments execute predefined instructions with admirable precision but possess zero capacity to adapt. If a bank alters its confirmation format, the bot stalls.

Agentic AI constitutes the third era, and the distinction from its predecessors is fundamental. An agentic system is neither a chatbot nor a macro. It is software that receives a high-level objective, such as "test the completeness assertion for revenue," and autonomously determines how to accomplish it: selecting data sources, choosing analytical procedures, executing tests, documenting results, and escalating exceptions that demand professional judgement. RSM's global audit network already deploys language models that enable staff to query the firm's entire repository of prior memos, judicial rulings, and regulatory releases, producing technical position papers in minutes rather than days. Caseware has released AiDA, a digital assistant embedded in its cloud platform that retrieves firm-specific documentation, analyses contracts, and generates first-draft working papers while preserving human authority at every approval gate.

The terminology gaining traction among practitioners is deliberate: these are not tools. They are digital FTEs. Like junior staff, they can learn, adapt, and handle complex assignments. And like junior staff, they require supervision, because they will, on occasion, get things wrong. That duality sits at the heart of the governance challenge confronting the profession over the next decade.

What the Empirical Record Tells Us

The anxiety that AI will hollow out audit teams is widespread but, to date, unsupported by rigorous evidence. A landmark study published in Management Science by Law and Shen in 2025, analysing over four hundred thousand résumés across 648 audit offices of 163 firms in the United States, produced a finding that surprised even the researchers: offices that hired AI employees experienced a 4.3 per cent increase in auditor headcount, concentrated among junior and mid-level professionals. AI adoption correlated with more accurate going-concern and internal-control opinions. Interviews with eleven senior audit partners within the same research produced a unanimous conclusion: not one believed AI had replaced, or would replace, human auditors.

A complementary investigation in the Review of Accounting Studies, examining over 310,000 individual profiles across the 36 largest audit firms, found that sustained AI investment was associated with a five per cent reduction in the likelihood of audit restatements and a measurable decline in audit fees. Where displacement effects appeared, they took several years to materialise and were substantially offset by the emergence of new roles in data governance, model oversight, and strategic advisory.

The logic, once unpacked, is straightforward. Digital FTEs do not eliminate work. They surface the work that manual processes were structurally incapable of reaching: the anomalies buried in the untested ninety-five per cent of transactions, the related-party patterns obscured across corporate registries, the going-concern signals that traditional ratio analysis detects months too late.

Pakistan's Position: Strong Foundations, Widening Gap

Pakistan's institutional groundwork is more advanced than the profession sometimes recognises. ICAP established its Digital Assurance and Accounting Board in 2018, ahead of most peer bodies across South Asia. The Board's Data Analytics Training Programme has enrolled over 1,500 professionals across sixteen cohorts. The Digital Technology Awards, now in their second edition, have created a credible platform connecting ICAP with the corporate technology community. In the public sector, the Auditor General's office operationalised an Audit Management Information System covering the entire audit lifecycle, and a Centre for Government Data Analytics was inaugurated in December 2025 by the Federal Minister for Finance and Revenue.

The candid reality, however, is that the majority of Pakistan's practising firms remain anchored in the second era of audit technology. The distance between what global platforms now enable and what most domestic engagements deploy is growing, not contracting. An AuditBoard survey in January 2025 found that sixty-four per cent of audit teams worldwide were exploring or considering AI agent adoption within twelve months. In Pakistan, that proportion is almost certainly a fraction of the global figure. For a profession that audits textile exporters, pharmaceutical manufacturers, financial institutions, and the rapidly expanding digital payments ecosystem, this gap carries tangible consequences for audit quality, talent retention, and the public confidence on which the entire assurance franchise rests.

Three Imperatives for Governing the Digital Associate

Deploying agentic AI in an audit environment is not a procurement decision. It is an operating model redesign, and it demands deliberate action on three fronts.

First, data architecture. An AI agent performs only as well as the data it can access. Firms that have not standardised their workpapers, templates, and internal knowledge repositories will discover that their digital FTEs perform no better than a poorly briefed trainee assigned to fieldwork on day one. Citrin Cooperman invested over a year in precisely this standardisation effort before activating its agentic capabilities, engaging not only technologists but subject-matter experts, engagement managers, and the firm's quality and standards teams.

Second, oversight methodology. Every action a digital FTE takes must be logged, attributable, and reviewable. The global firms are embedding this discipline into their platforms through comprehensive decision logs, human-in-the-loop checkpoints, and structured escalation protocols. ISACA's 2025 guidance on auditing agentic AI articulates the challenge with clarity: the profession can no longer confine itself to establishing "who did what." It must now also establish why the system took a particular action, particularly when the decision-maker is an algorithm rather than a professional.

Third, talent transformation. Gartner projects that by 2029, one-third of finance professionals globally will work interdependently with an AI counterpart. Titles such as "AI-Augmented Auditor" are already surfacing in recruitment listings at major firms. For Pakistan's CA graduates, the skillset that commands value is shifting from technical recall towards something considerably harder to cultivate: contextual judgement, ethical reasoning, and the capacity to supervise a machine that can process a million transactions before the morning tea arrives.

The Window Is Narrow

The question confronting Pakistan's chartered accountants is not whether agentic AI will enter our engagement rooms. It is already present in every global firm office operating in Karachi, Lahore, and Islamabad. The real question is whether the wider profession will participate in shaping its deployment or simply observe as the operating model of assurance is rewritten from outside our borders.

ICAP possesses both the institutional credibility and the regulatory mandate to lead this transition. What is required now is a structured agenda: embedding AI agent governance into CPD requirements, establishing a shared-services technology platform accessible to small and medium practices, engaging the SECP and SBP in developing proportionate regulatory frameworks, and, most consequentially, redesigning the CA curriculum so that the next generation of chartered accountants enters the profession equipped not merely as competent accountants but as competent managers of the digital workforce that will sit beside them on every engagement.

The firms that master this transition will not merely endure. They will redefine what assurance means in a digital economy. Those that defer the decision will discover, with uncomfortable speed, that the question of relevance has already been answered for them

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Digital Risk Management in the Age of Intelligent Systems

| Muhammad Albab Sial, ACA |

Back when auditing meant stacks of bundled paper ledgers and dark red pens scratching across pages day in and day out. The work used to be slow, manual and deliberate.Then came the era of spreadsheets. They quietly transformed the audit process and reduced much of the repetitive work. Tasks that once required long hours could now be performed with greater speed and accuracy.

After that, the age of audit software emerged. From planning and testing to conclusions and documentation, it gradually became the central file where the entire audit process was organized and preserved.Current era is the era of AI spell, it has blessed audit with speed C accuracy, enabled faster work, deeper analysis C broader reach. And through all of it, one thing hasn't changed a bit, it still takes a human brain to make sense of it all. AI combined with smart algorithms have enabled humans to dig deeper to reach the very soul of financial data.

The ultimate AI feature that fascinates humanity is the psychological element embedded in it. AI went beyond crunching number and testing data. It reads patterns, links data and connections, spot red flags and provides detailed financial, operational and control compliance reports for humans to interpret.Human auditor now stands as a check point between raw data and the truth.

From Sampling to Seeing Everything

Auditors sampled and tested because they needed to test whether the underlying evidence and controls support their audit opinion. They had limited time, tough deadlines, excel fatigue and two eyes to review and close the audit files.

Now that much of the testing can be carried out using AI, auditors are able to spend more time understanding financial behaviour and interpreting the results of the audit procedures.

Modern audit software can digest hundred percent raw accounting data. It does not take the input as rows or columns. It ingests data in the form of behavioural events. Every single journal entry becomes a micro story. From whom posted it and from where the posting initiated to the device used for posting and the pattern that posting identifies; AI captures it all. What once took months now take seconds and reveals what sampling never could.

It is an important factor to consider that in large organisations the fraud rarely begins as an anomaly. It begins as a pattern that almost always fits. The AI models that are trained on temporal behaviour detects these “almost normal” sequences.

Audit Trail is No Longer Linear

We have seen that in classical audits the evidence flows in a straight line. Invoice > Payment/Receipt > Ledger posting > Report

In the modern Era the audit trail is multi-dimensional. Now a single transaction can be linked simultaneously to:

- User behaviour analytics
- Network access logs
- Historical peer behaviour
- Seasonal transaction rhythms
- Even linguistic tone in approval comments

One advanced technique rarely discussed outside elite audit labs is cross-modal triangulation. This is the exact difference where AI correlates financial behaviours with the non-financial signals. Now adays machines do not ask whether this is allowed, they ask whether something is plausible. This distinction indeed changes everything.

AI Doesn’t Catch Fraud - It Understands Intent

Catching fraud using rules is no longer rational. As we have witnessed that criminals bend around rules. This is where AI plays its part. For example, an employee starts posting legitimate correction entries. Then start posting slightly larger ones with weak documentation and afterwards post entries that appear to be corrective but in real do not correct anything at all. Here each step is explainable and together they form a narrative Arc. AI reads this narrative arc & models intent drift.

Continuous Auditing: The End of the Audit “Moment”

Annual audit was the ultimate ritual. With AI embedded in the systems, auditing is now continuous and quite vigilant. It operates in the background, always present, rarely intrusive and constantly self-learning.

Model Fatigue

Very few people talk about model fatigue. It is but certain that when an AI model will watch everything. It will start normalising risk. This is the reason why elite audit teams must keep rotating models just the way that intelligence agencies rotate codes. They must intentionally introduce model diversity to avoid blind spots created by over learning the organisation’s poor habits.

This is not considered automation. This is a governance at machine scale.

When Algorithms Themselves Need Auditing

The auditors must not trust a single opaque model to the extent that their self opinion becomes biased.

The deep learning AI systems can be right for all the wrong reasons. An algorithm might flag fraud because of a proxy variable like department or geography rather than actual risk behaviour. If auditors leave it unchecked then this becomes algorithmic bias with audit authority.

Modern audit teams while conducting Model Risk Audits ask questions such as:

1. Which features dominate the decisions?
2. Which data was excluded and why?
3. How does the model behave under synthetic stress scenarios?
4. Can we explain this decision to a regulator, without embarrassment?

Intentionally inserting known fake fraud into live systems to ensure whether AI still recognises the truth when reality is stagged is an outstanding approach that auditors should include in their system testing.

Ethics Is the New Control Framework

In AI driven auditing, integrity is not just about accuracy and speed. It is about restraint. Although, we can now monitor keystrokes and micro behaviours. This does not mean we should.

The leading organisations embed ethical governors into AI logic layers. It flags instances where human review is mandatory and have rules over insights access set in place. This limits the way insights can be used.

AI should feel and act like a guardian and not like a spy. Human Judgement: No Longer Replaced, Finally Respected

In contrast to the popular fear. AI has not reduced the importance of human auditors. Noise is now handled by machines and human now handles the meaning. The auditors now spend less time checking boxes and more time interpreting the results.

Deep tech and AI companies have high demand of people with background in:

1. Behavioural economics
2. Cognitive psychology
3. Data ethics
4. Narrative analysis

AI Makes Auditing Creative Again

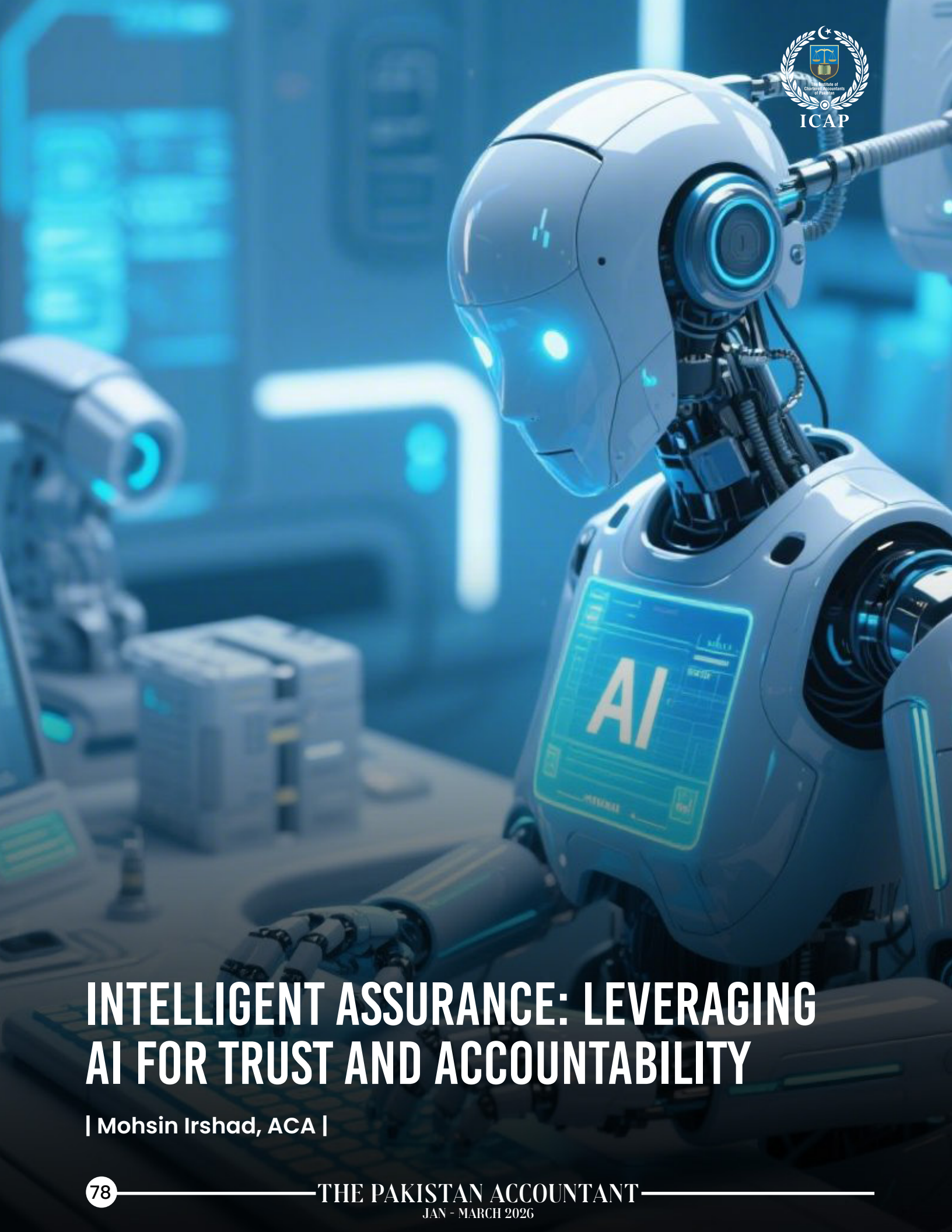
AI is turning audits into explorations. It allows auditors to test hypotheses and simulate alternate realities. It helps visualize risk as living systems rather than static charts.

Conclusion: Integrity at the Speed of Thought

Audit driven by AI isn't about the trust in machine. It is about scaling trust in a fast-paced work that is complex and digitalised for intuition alone.

The future auditor is a mix of technologist, ethicist, psychologist and analyst. Indeed, AI when guided wisely becomes the lantern that auditing field demands.

After all the integrity is not the absence of wrongdoing, it is the presence of vigilance.



INTELLIGENT ASSURANCE: LEVERAGING AI FOR TRUST AND ACCOUNTABILITY

| Mohsin Irshad, ACA |

Artificial Intelligence is no longer a distant concept confined to tech conferences. It has arrived at the heart of the audit, promising unprecedented efficiency while demanding that we rethink what it means to be guardians of financial integrity. It is a paradigm shift that is redefining how we detect fraud, assess risk, and deliver assurance in an increasingly complex digital economy. The New Landscape of Audit Technology The numbers tell a compelling story.

The global auditing services market, valued at $228.6 billion in 2024, is projected to reach $363.5 billion by 2034, with technology integration serving as a primary growth catalyst. More significantly, 68% of audit firms are now integrating AI driven analytics into their workflows, while 53% are leveraging blockchain for rigid audit trails. This is not experimentation. It is transformation at scale. Consider the investment being made by the profession's global leaders. EY's US committed $1 billion to AI capabilities, building on a separate $1.4 billion global pledge. The result? EY anticipates that less than 10% of its 2025 audits will fall short of PCAOB standards, which is a dramatic improvement from the 28% deficiency rate in its previous inspection report.

Beyond Automation: The Intelligent Audit What does AI driven auditing look like in practice?

Far from the simplistic automation of repetitive tasks, today's AI tools are augmenting professional judgement in profound ways. Finance leaders are leveraging AI across a spectrum of audit activities, such as data management (61%), risk detection (54%), automating data entry (50%), fraud detection (45%), and predictive analytics (43%). These are not fringe applications. Instead, they are becoming the new baseline for audit quality. KPMG has introduced AI agents that automate routine tasks, freeing auditors to focus on higher risk areas. The firm has also deployed generative AI tools that allow auditors to query vast libraries of technical accounting guidance, matching figures on financial statements with internal documents, which is a fundamental task known as the "tie-out", with unprecedented speed and accuracy. The market for AI in accounting, valued at just $5.5 billion in 2024, is expected to explode at a compound annual growth rate of 25.8%, reaching $54.2 billion by 2034. This growth reflects fundamental recognition. AI is not replacing the auditor. It is

Building Trust in the Age of Algorithms

With great power comes great responsibility. As we embrace these tools, we must confront uncomfortable questions about accountability, transparency, and the very nature of professional Judgement. A recent BDO survey reveals both promise and the peril. While 81% of finance leaders express greater confidence in auditors who utilize advanced technologies, concerns about data governance are growing. Only 46% of organisations now consider their data governance practices to be "mature," down from 55% a year ago. Even more concerning, while most finance teams have implemented or plan to implement AI solutions, merely 43% report having a formal governance framework in place The risks are real and multifaceted. The National Audit Office of China has identified several critical vulnerabilities in AI powered auditing, such as data quality issues leading to model inaccuracies, inadequate protection causing data leaks, AI hallucinations producing convincing but false conclusions, and the black box problem where algorithmic decision making becomes impossible to verify.

The Accountability Imperative

Perhaps the most profound challenge lies in what IBM's researchers term the "accountability gap." When an AI agent makes an autonomous decision such as blocking a transaction, flagging an anomaly, approving a reconciliation, who exactly bears responsibility? The auditor who deployed the tool? The firm that developed it? The algorithm itself? Julie Banfield of IBM poses a haunting question, "If the agent makes a mistake, who gets called into the audit meeting?". Under existing compliance frameworks like SOC 2, GDPR, and ISO 27001, auditors must be able to explain decisions in human understandable terms, often months after the fact. "The algorithm decided" is simply not an acceptable explanation. In a deeply embarrassing incident, a KPMG partner in Australia was recently fined $10,000 for using AI to cheat on an internal AI examination. It was a case that pushed the firm to upgrade its detection processes and has raised uncomfortable questions about ethics in the digital age. KPMG Australia CEO Andrew Yates acknowledged the challenge, "Like most organisations, we have been grappling with the role and use of AI as it relates to internal training and testing. It is a very hard thing to get on top of given how quickly society has embraced it"

The Human Element: Our Superpower

Amidst the technological frenzy, a voice of wisdom emerges. Richard Chambers, senior risk and audit advisor at AuditBoard and former CEO of the Institute of Internal Auditors, offers a necessary corrective, "AI is going to fundamentally transform what you do and how you do it. But it's a clarion call for auditors to step back and say, "What are our superpowers?" Those superpowers, Chambers argues, are the very qualities that algorithms cannot replicate. They are professional skepticism, intellectual curiosity, critical thinking, building relationships, and negotiating. "Those are skills that AI hasn't mastered," he emphasises. "We have to realise what really makes us unique and what really drives the value proposition for internal audit". The data supports this view. While 63% of finance leaders now see technology as making audit processes more efficient and collaborative, and 85% feel their auditors' technological abilities meet or surpass expectations, trust remains fundamentally human.

Brian Miller of BDO captures it perfectly: "Audit technology has reached an inflection point. Finance leaders no longer ask if their auditor uses advanced technology. They expect it. But while technology is an enabler of today's audit, people remain the most critical factor".

The Path Forward for Pakistan

For Pakistan's chartered accountants, these global trends carry profound implications. As our economy digitises and our businesses integrate into global supply chains, the expectation for AIenhanced audit quality will only intensify. The firms and professionals who invest now in understanding these tools, while never losing sight of their ethical responsibilities, will surely define the next generation of audit leadership. The challenges are significant. Only 29% of organisations feel prepared for the governance requirements of AI, according to AuditBoard research. Regulatory uncertainty concerns 74% of finance leaders, while cybersecurity risks (82%) and data privacy (80%) remain paramount worries. By embracing AI-driven auditing while strengthening our commitment to ethics, transparency, and professional Judgement, we can deliver assurance that is not only more efficient but more trustworthy than ever before. Conclusion: The Auditor's New Treaty AI-driven auditing is not an endpoint but a beginning. It challenges us to be more than number crunchers, more than compliance officers. It calls us to be what we have always aspired to be, i.e., trusted advisors, ethical guardians, and strategic navigators in a complex world. Technology will continue to evolve. We can cling to comfortable traditions and watch our relevance erode, or we can embrace transformation while holding fast to the principles that define us. The algorithms will become more sophisticated. But the covenant between auditor and society remains unchanged. In the digital era, as in every era before it, that is our true north.

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The Future of Audit: Preserving Integrity in an AI-Enabled World

|Arsalan Saleem, ACA|

The rapid advance of digital transformation has reshaped how organizations operate, generate data, and manage risk. Artificial Intelligence (AI) is no longer experimental—it has become a practical force influencing governance, financial reporting, and assurance functions. Among the most profound changes is its impact on auditing. Traditional audit approaches based on sampling, periodic reviews, and manual procedures are increasingly inadequate in an environment of real-time data flows and complex digital transactions.

AI-driven auditing offers a new paradigm: continuous, comprehensive, and predictive assurance. Yet, as AI enhances audit capabilities, it also introduces ethical, technical, and governance challenges that make safeguarding integrity more critical than ever. This article examines how AI is transforming auditing, the opportunities it creates, the risks it introduces, and the governance measures required to preserve trust and accountability in the digital era.

The Changing Landscape of Auditing

Traditional auditing, based on sampling, manual review, and professional judgement, was effectivewhendatavolumeswere small.

However,intoday'senvironment of real-time systems, massive transaction volumes, complex digital business models, and technology-driven fraud, this approachisnolongersufficientto detect risks and irregularities effectively.

Sampling Limitation
Sampling-based audits risk over looking dispersed anomalies and emerging risks within massive data sets.

Periodic Reiviews
Periodic audits provide retrospective assurance rather than timely intervention when issues arise.

Integrity Gap
Errors and misconductc an remain hidden within massive data sets using traditional approaches.

AI addresses these challenges by:
- Enabling full-population testing
- Continuous monitoring
- Pattern recognition beyond human capacity.
- Machine learning (ML)
- Natural language processing (NLP) and
- Robotic process automation (RPA)

How AI Enhances Auditing

AI-driven auditing fundamentally transforms traditional practices by leveraging advanced technologies to process vast amounts of data,identify patterns, and provide real-time insights that were previously impossible to achieve.

Comprehensive Data Analysis
AI eliminates the need for sampling by analyzing entire datasets. It can process millions of transactions to identify a nomalies such as unusual patterns, abnormal ltiming, and irregular relationships.

This allows auditors to detect risks like unexplained payment spikes, duplicate vendors, and potential fraud more effectively than traditional methods.

Continuous Monitoring
Unlike periodic traditional audits, AI enables continuous monitoring of transactions and controls in real time.
Thisallows:
- Issues to be identified as they arise
- improvingfraud detection
- regulatory compliance
- early risk warnings
- overall management oversight

Automation of Routine Tasks
RoboticProcessAutomation (RPA) automates routine audit tasks like:
- reconciliations
- invoice matching, and data extraction
- reducing manual effort
- enabling auditors to focus on professional judgement, investigations and higher-value analysis

Predictive Analytics

AI shifts auditing from reactive detection to proactive prevention.

Predictive models assess the likelihood of control breakdowns, financial misstatements, or regulatory breaches based on historical behavior.

This enables risk-based audit planning and targeted interventions before issues escalate into material problems.

Natural Language Processing

NLP enables AI to interpretun structured data such as contracts, policies, emails, and board minutes.

It can identify risky clauses,inconsistencies between agreements and execution ,or language associated with misconduct, there by expanding auditscope beyond numerica ldata into qualitative documentation and communications.

Opportunities Created by AI-Driven Auditing

Enhanced Audit Quality

AI detects patterns and a nomalies invisible to human reviewers, reduces oversight risk and increase sconfidence in audit conclusions.

Faster Audit Cycle

Processes that once required weeks can be completed within hours. This improves time liness of reporting and decision -making.

Improved Fraud Detection

Machine learning models trained on historical fraud cases can identify subtle irregularities even when fraud stersat temptto conceal them through complex schemes.

Cost Efficiency

Automation reduces manual effort and audit labor hours, lowering operational costs without compromising quality.

Strategic Value

By handling data-heavy analysis, AI allows auditors to act as advisors and investigators rather than clerical testers, elevating the profession's strategic role.

Challenges and Risks of AI-Driven Auditing

Data Quality and Bias

AI outcomes rely heavily on training data quality; biasedor incomplete data can produce skewed or unreliable results, embedding past discrimination or anomalies into model sand affecting audit focus and decisions.

Explainability and Transparency

Advanced AI models often act as "black boxes," making it hard for auditors to explain decisions,which undermines accountability, regulatory trust, and compliance with professional standards.

Over-Reliance on Technology

Overreliance on AI can erode professional skepticism; auditors must use AI as a tool, not a substitute, to avoid missing context, exceptions, or new risks.

Cybersecurity Exposures

AI handling sensitive data faces risks of breaches, manipulation,or adversarial attacks that can compromise training data and model outputs.

Safeguarding Integrity in the Digital Era

To preserve trust while adopting AI, organizations must establish strong governance frame works that ensure technology serves integrity rathe rthan under miningit.

01

Data Governance

Reliable AI depends on high-quality, secure data, with strong controls, regular audits,and practices like master data management and data lineage tracking.

02

Model Validation and Monitoring

AI models require independent testing,regular monitoring and updates, documented validation, and performance reviews to maintain fairness and relevance.

03

Explainability and Documentation

Audit models should be documented with assumptions, limitations, and validation; explainable AI and audit trails ensure transparency and regulatory compliance.

04

Human-AI Collaboration

AI can handled at a processing and pattern detection,but humans must make ethical judgements and final decisions,requiring audit or stounderst and analytics and AI ethics.

Implementation Framework and Ethical Principles

Ethical AI Frameworks

Key principles include fairness, accountability, transparency, privacy protection, and human oversight.

RegulatoryAlignment

Auditors must understand evolving legal equirements and professional standards governing AI, data protection, and accountability.

The Future of AI-Driven Auditing

Future developments promise to further transform auditing from historical verification toward real-time risk intelligence and predictive assurance.

Predictive Risk Scoring
Auto mated risk ratings for accounts and transactions based on dynamic analysis of patterns,anomalies,and external factors.

Augmented Reality Audits
Visual overlays of data insights during physical inspections and inventory countsusing AR glasses and mobile devices

1 2 3 4

Block chain Integration
Immutable audit trails combined with AIanalytics for tamper-proof transaction verification and smart contract auditing

Global AI Standards
International consistency in AI governance,validation protocols, and professional standards for algorithmic assurance

AI has the capacity to transform auditing by enabling continuous monitoring, full-population analysis,and predictive insights. However,technological power alone does not guarantee integrity.

The future of auditing lies in symbiotic collaboration between human judgement and machine intelligence. AI identifies patterns; humans interpret meaning. AI processes scale; humans uphold ethics. Together, they enable auditing to remain credible, resilient, and relevant in a complex digital world.

Integrity in the digital era is no longer a static achievement—it is a dynamic state requiring constant vigilance. AI-driven auditing provides the tools for that vigilance, but trust will always depend on the values and judgement of those who deploy it.

Organizations that embrace AI while maintaining rigorous governance, transparency, and human oversight will lead the profession into its next era.

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CYBER SECURITY AND DATA GOVERNANCE PROTECTING FINANCIAL INFORMATION IN A CONNECTED WORLD

Cyber Resilience in 2026: Why Cybersecurity and Data Governance Matter More Than Ever

|Faizan Muneer, ACA|

"Cyber crime is the greatest threat to every company in the world." - Ginni Rometty, former CEO of IBM

In 2026, cybersecurity and data governance have not only remained just IT concerns; they have become perilous strategic imperatives for every single organization, profoundly interconnected with functioning pliability, trust, and embracement of AI. As digital rebellion hastens, the tome and worth of data make it a prime objective for increasingly erudite, AI-driven cyber threats. The focus has divulged from sheer perimeter protection to cyber resilience supercilious breaches will ensue and focusing on the ability to antedate and recuperate quickly. Data governance these days is driven by AI culpability, with a dramatic move to non-offensive, automated governance that integrates trust signals into systems.

Protecting financial information in a connected world entails a harmonized approach compounding robust cybersecurity (apologetic tools like encryption) and stern data governance policies for access, storage, and acquiescence) to avert fissures and maintain trust. Financial institutions must secure data through its entirety from assemblage to disposal amidst intensifying cyber threats to manage data drift securely.

The Juncture: Cyber Security + Data Governance = Resilience

Both cyber security and data governance are two flanks of the same coin as governance through its widely implemented policies identifies where is the data (referred to as the asset for the organization), accessibility to the data, places where data is stored.

"There are only two types of companies in the world: those that have been breached and know it and those that have been breached and don't know it –"
Attributed to Ted Schlein, Dmitri Alperovitch, or John Chambers

Cyber security provides protection to the identified assets. The cumulation of both provides synergistic effect that minimizes risk of non-compliances with the defined data protection policy.

Relevance in today's world

- Regulations including EU AI Act (2025) & different U.S. state laws, dictate real-time data answerability and transparency
- Exploitation of AI to systematize vulnerability discovery and convincing phishing, making cybersecurity graver than ever
- Data motivates business decisions, but in the absence of governance, it converts into an obligation.
- Susceptibility in a third-party vendor can compromise the entire establishment, raising cyber-risk bars on vendor governance.
- Cyber-attacks cause colossal interruption and reputational harm. Effective governance lessens the "blast radius" of cyber outbreaks

"The next race in cybersecurity is AI versus AI."
— Vasu Murthy, Cohesity

Why Cyber Security has become relevant for Chartered Accountants and particularly financial information

Cybersecurity has become a serious and strategic precedence for chartered accountants and financial institutions due to swift digital revolution, the high value of the data that is being used, and a gush in erudite cyber-attacks. With financial institutions being 30% more probable to be targeted than other sectors, and accountants holding the proprietary "digital gold" i.e., tax records, bank details etc. Data security is merely no longer just an IT matter, but a fundamental component of proficient fiduciary onus.

Following are few plausible rationales due to which this profession and particularly financial institutions is highly targeted by cyber criminals:

- Attacks have advanced from purely locking systems to thieving data and menacing to circulate it, with ransomware demands from firms expected to exceed $500,000 by 2026.
- Cloud services - indecorous conformation of cloud storage, weak access security controls, and "shadow IT" provide viable entry points for criminals.
- Non-compliance with regulations like GDPR or local data protection acts can lead to enormous financial penalties, un-bearable data loss which includes purely confidential customer-oriented data attracting serious legal repercussions.
- Cyber criminals are exploiting AI to make persuasive and bespoke phishing attacks (deepfakes) that evade traditional security, making it more challenging to extricate fake requests from original ones.
- Reputation is the foremost intangible asset for which the owners of the organizations are anxious and are willing to invest huge capital to protect and sustain. A data breach corrodes trust, making it difficult to re-establish trustworthiness and fascinate new cliental. Stéphane Nappo, Global CISO, highlights that “Building a good reputation takes time, but a cyber-incident can quickly damage it”

Contemporary techniques and tactics used by Cyber-criminals

Techniques and methodologies used by cyber criminals these days are as follows:

- AI-Powered Attacks: Cyberfraudsters are now using modern AI tools to target their attacks, by making more persuasive social engineering drives and identify exposures much earlier.
- Spear Phishing & Whaling: Targeted emails/ messages intended at high-profile officials, using personal information to look genuine and hoax them to reveal IDs or remitting funds.
- Ransomware: Encrypts user’s data and ask for payment to release the same.
- Smishing & Vishing: Illusory text messages/ phone calls that generate a sense of earnestness to pressurize victims to provide confidential information, often by imitating banks/ government officials.
- Data Breaches & Cloud Misconfigurations: Unauthorized access is acquired by the hackers to company’s records or incorrectly configured data on cloud to rob huge data.
- Credential Stuffing: Exploit customer’s habit of using similar passwords on different platforms by gaining access to customer’s credential information such as username and password obtained from a data defiance.
- Man-in-the-Middle Attacks: Seizing communication made between the users probably on indiscreet public Wi-Fi networks, to trap confidential information such as login ID’s.
- Supply Chain Attacks: Misuse rather exploit weak data security controls at third-party service provider’s network to gain access to gigantic customer database of big organizations.
- Deepfakes: AI-generated audio/ video used to satirize trusted individuals realistically, often used in approved push payment (APP) scams to fool people to transfer funds.
- Malicious QR Codes: Cybercriminals push in phishing links into QR codes, which are challenging for security system to perceive. These malicious codes are smeared through social applications or by physically sticking over genuine codes in public places.

In 2025, the financial sector confronted an uptick in complex, AI-driven, and third-party cybercrimes. High-profile incidents involved ransomware, data coercion, and noteworthy financial losses, often pursuing the intersected web of vendors, and cryptocurrency exchanges.

- Bybit Cryptocurrency Exchange (February 2025) - Cryptocurrency thefts in which criminal theft USD 1.5 billion in Ethereum. Exploited malicious JavaScript to control transaction signing during wallet transfers.
- Prosper Marketplace (Q4 2025) - Huge data breach affecting 13.1 million individuals. Stole personal information through illegitimate queries on database.
- Jaguar Land Rover (September 2025) - ransomware attack by Scattered Spider group paused production for weeks, causing an estimated revenue loss of USD 2.5 billion . Exploited vulnerabilities in third-party software (SAP NetWeaver) to gain access to systems.
- 700Credit (October 2025) – provides compliance solutions for automotive dealers compromised the data of 5.8 million consumers. Hackers abused an API vulnerability, compromising a third-party partner to get identification.
- TransUnion (July 2025) - Credit reporting agency underwent a breach encompassing a third-party

application, imperiling records of 4.5 million individuals through voice phishing.

- Marquis Software Solutions (August 2025) - offers marketing and compliance services, cascaded across the banking sector, affecting at least 400,000 consumers (more than 70 banks). Exploited a weakness in a SonicWall VPN device to retrieve the network.
- Coinbase (May 2025) – A $20 million extortion attempt (Cryptocurrency exchange) following an insider-enabled breach impacting around 70,000 customers.
- Bank Sepah (March 2025) – Hacker stole 42 million customer records and demand USD 42 million ransom. Fraction of information was leaked when their demands were not fulfilled.

In 2025, the financial sector in Pakistan challenges an extreme uptick in cybercrime, with intelligences suggesting a 35% increase in cyber-crime incidents. National Cyber Crime Investigation Agency (NCCIA) show up handling over 81,996 complaints amounting to Rs. 2.716 billion allied to financial fraud in 2025, with over Rs. 0.46 billion regained in stolen funds.

Key Advancements made in Cybersecurity and data governance

Advancements in cybersecurity and data governance have moved the model from traditional reactive approach to proactive, AI-driven, and unified frameworks constructed for hybrid cloud environments and regulatory acquiescence.

- AI and Machine Learning Integration: AI-powered security services to anticipate threats, explore extensive datasets for un-authorized activity, and automate responses (reduction in response time by 99%).
- Zero Trust Architecture: Model assumes all user/device are compromised by default, mandating vigilant verification for every single access request.
- Secure Access Service Edge (SASE): SASE unify network security functions with WAN into a single platform.
- Hybrid Mesh Firewalls: Combine disparate firewall types (cloud, on-premises) into a solitary, centrally controlled design.
- Quantum Cryptography: The development of quantum key distribution (QKD) provides resilient encryption for confidential information.
- Data Security Governance: Embeds data security, privacy, and defiance into the data management lifecycle.
- Automated Data Discovery and Classification: Auto scan, discover, and categorize data based on sensitivity.

Timothy Youngblood, CISO, says that

"AI without data governance is risky, and the industry is moving towards AI making autonomous security decisions".

Cybercrime endures to levy massive costs on the global economy. Estimates endeavor cybercrime damages to touch trillions of dollars annually by the end of the decade. Resultantly, cybersecurity expending is increasing across all segments, from SMEs to large enterprises. In retort to rising threats and costs, governments are globally tightening regulations such as the EU's NIS2 Directive and banking-sector security standards involve faster reporting and convincing controls. As per Global Skill Development Council, Global information security outlays will reach and continue to grow to about US$240 billion in 2026. However, research proposes that human mistakes account for as much as 95% of data breaches. This fruition in cyber security and data governance regimen urges organizations to set in security into risk management, compliance functions, and governance particularly by increasing cybersecurity oversight and linking governance to cyber insurance. Measures needs to be taken for this forefront risk to which every organization is posed to. AI is the foremost choice that every organization is thriving for to minimize the probability of incidents and early detect to

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Cybersecurity and Data Governance: Protecting Financial Integrity in the Digital Age

|Rana Muhammad Umer Nafees, ACA|

In today's hyper-connected digital economy, financial information no longer resides quietly in ledgers and filing cabinets. It flows continuously across cloud servers, mobile devices, ERP systems, audit software, banking platforms, and regulatory portals. This transformation has made financial reporting faster, smarter, and more accessible—but also significantly more vulnerable.

For Chartered Accountants, the responsibility of safeguarding financial information has expanded beyond traditional controls and reconciliations. It now includes understanding cybersecurity risks, enforcing robust data governance practices, and ensuring that organizations remain resilient in the face of evolving digital threats.

Cybersecurity and data governance are no longer IT concerns alone; they are core elements of financial integrity, stakeholder trust, and professional accountability.

The New Nature of Financial Risk

Historically, financial risk was associated with misstatements, fraud, or non-compliance. Today, a cyberattack can compromise an entire financial system in minutes. Ransomware can lock accounting records. Phishing attacks can redirect payments. Unauthorized access to financial databases can expose confidential information of customers, employees, and investors.

Globally, financial data has become one of the most targeted assets for cybercriminals. In Pakistan as well, banks, fintechs, listed companies, and even audit firms have experienced cyber incidents. The consequences are severe:

- Financial loss
- Regulatory penalties
- Legal liabilities
- Reputational damage
- Loss of stakeholder confidence

A single breach can undermine years of credibility built through sound financial reporting.

This is where Chartered Accountants step into a critical role-not just as financial experts, but as guardians of information integrity.

Understanding Data Governance in Financial Context

Data governance refers to the framework of policies, procedures, and controls that ensure data is accurate, secure, available, and used responsibly.

For financial information, data governance ensures:

- Accuracy of financial records
- Controlled access to sensitive data
- Proper data classification (confidential, restricted, public)
- Secure storage and transmission
- Defined data ownership and accountability
- Compliance with legal and regulatory requirements

Inadequate data governance leads to inconsistent financial records, unauthorized disclosures, and unreliable reporting systems.

Chartered Accountants, being custodians of financial data, are uniquely positioned to design and enforce effective data governance structures within organizations.

Cybersecurity: A Pillar of Financial Integrity

Cybersecurity focuses on protecting systems, networks, and data from digital attacks. In financial environments, this includes:

- Protection of accounting software and ERP systems
- Secure online banking and payment platforms
- Safeguarding cloud-based financial records
- Preventing unauthorized access to audit documentation
- Protecting digital evidence and working papers

When cybersecurity fails, financial integrity is directly compromised.

For example:

- If audit working papers stored in the cloud are hacked, audit evidence loses reliability.
- If financial databases are altered through malware, financial statements become unreliable.
- If payroll systems are breached, employee data is exposed.

Chartered Accountants, being custodians of financial data, are uniquely positioned to design and enforce effective data organizations.

Thus, cybersecurity is inseparable from financial reporting quality.

The Expanding Role of Chartered Accountants

Chartered Accountants are no longer passive users of IT systems. They must actively engage with cybersecurity and data governance through:

1. Risk Assessment
CAs should identify cyber risks that can impact financial reporting and internal controls. This includes evaluating vulnerabilities in accounting systems, access controls, and data storage practices.

2. Internal Controls over Information Systems
Internal controls now extend to IT general controls (ITGCs) such as:

- Access management
- Change management
- Backup and recovery procedures
- System monitoring

These controls are essential to ensure reliability of financial information.

3. Compliance and Regulatory Oversight
With increasing focus from regulators on data protection and privacy, organizations must comply with evolving laws and standards. CAs ensure that financial data handling aligns with these requirements.

4. Advisory and Governance Role
CAs sitting on boards and audit committees must question management on cybersecurity readiness, data protection policies, and incident response plans.

5. Audit Perspective
Auditors must evaluate whether cybersecurity weaknesses could lead to material misstatements. ISA 315 and ISA 330 require understanding of IT environment and controls affecting financial reporting.

Common Vulnerabilities in Financial Environments

Many organizations still underestimate cyber risks in their finance functions. Common weaknesses include:

- Shared login credentials for accounting systems
- Lack of encryption for financial data backups
- Unrestricted access to sensitive financial folders
- Absence of disaster recovery plans
- No monitoring of unusual system activities
- Reliance on outdated software without security patches

Such weaknesses make financial systems easy targets.

A Chartered Accountant with awareness of these issues can significantly strengthen the organization's defense.

Building a Culture of Data Responsibility

Technology alone cannot solve cybersecurity challenges. Human behavior remains the weakest link. Finance teams often:

- Open suspicious email attachments
- Use weak passwords
- Transfer financial data through unsecured channels
- Store sensitive files on personal devices

CAs must promote a culture where data protection is seen as a professional responsibility. Regular training, awareness sessions, and enforcement of policies are essential.

Cloud Computing and Remote Work Challenges

The shift to cloud platforms and remote working has increased exposure. Financial data is now accessed from homes, cafes, and mobile devices.

While cloud systems offer convenience and scalability, they require:

- Multi-factor authentication
- Secure VPN connections
- Strong password policies
- Continuous monitoring of access logs
- Vendor risk assessment

CAs should understand where financial data resides and how it is protected, even when managed by third-party service providers.

Incident Response and Business Continuity

Despite best efforts, cyber incidents may still occur.

The key is preparedness.
Organizations must have:

- Incident response plans
- Data backup strategies
- Disaster recovery mechanisms
- Clear reporting lines

From a financial reporting perspective, loss of data or system downtime can delay reporting and affect audit timelines. Proper planning ensures continuity.

The Way Forward for the Profession

To remain effective in atechnology-driven environment, Chartered Accountants must need to:

- Develop basic understanding of cybersecurity principles
- Collaborate closely with IT and risk management teams
- Integrate IT control evaluation into routine financial work
- Encourage organizations to invest in data protection
- Stay updated with emerging cyber threats and best practices

Professional bodies, including ICAP, are increasingly emphasizing technology competence. This shift is essential for the future of the profession.

Conclusion

In a connected world, financial information is one of the most valuable digital assets. Protecting it requires more than firewalls and antivirus software—it requires strong data governance, vigilant professionals, and a culture of accountability.

Cybersecurity and data governance are now integral to financial integrity, audit quality, and stakeholder trust. Chartered Accountants, with their deep understanding of controls, risk, and governance, are uniquely positioned to lead this transformation.

By embracing this broader role, Chartered Accountants safeguard not only numbers, but the very trust that underpins the digital age.

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Cybersecurity, Data Governance and Resilience in Finance: Safeguarding Trust in the Digital Era

|Jalal Anwar Brohi, ACA|

Cybersecurity is the practice of protectingsensitive financial data systems and transactions from cyber threats and data governanceis a strategic framework of policies, processes, roles and technology that ensures data accuracy, confidentiality, integrity, authenticity, availability,security and usability throughout its lifecycle.

According to recent industryreports, the financial sector experiences some of the highest costs per data breach, often exceeding US$ 6 million per incident.

Common Cybersecurity Threats:

- Phishing remains the most widespread threat, where attackers trick users into revealing sensitive data through fake emails or websites.
- Malware and Ransomware infect systems, steal data or lock files until a ransom is paid.
- Insider Threats where employees misuse their access, are particularly dangerous in finance sector because of privileged access to sensitive data.
- Distributed Denial of Service (DDoS) attackers flood financial servers with traffic, making online banking or payment services unavailable to customers.

Fundamental Cybersecurity Concepts:

- Encryption is the process of converting readable information into an unreadable format using a mathematical key. Only the intended recipient with the right decryption key can unlock the data.
- **Types of Encryption:**
  - Symmetric Encryption is used to safeguard databases containing millions of financial records, because the process is optimized for performance without compromising security.
  - Asymmetric Encryption is used in online banking, digital signatures and secure e-commerce transactions. When you log into your net banking portal, asymmetric encryption helps establish the secure session, after which symmetric encryption is used to transmit data efficiently.

- **Secure Transaction Protocols:**
- Secure Sockets Layer (SSL) or Transport Layer Security (TLS) Protocols are critical for online banking logins, fund transfers, credit card numbers, bank details and e-commerce checkouts, where any data leak could result in fraud or financial loss.
- Hypertext Transfer Protocol Secure (HTTPS) is mandatory for online banking platforms, mobile wallets, trading systems and payment gateways, ensuring that sensitive data such as banking credentials, credit card details or payment authorizations is transmitted securely.
- Digital Certificates help minimize fraud in the financial industry, where phishing sites and fake banking portals are common. When you visit a banking or payment site, your browser checks its certificate. If valid, it confirms that the site truly belongs to the financial institution it claims to represent.
- Hashing is used to validate transaction integrity by ensuring that the data has not been altered during transmission or storage.

Techniques like data masking and tokenization protect sensitive information during processing or transmission, especially in payment systems.

A practical example is found in blockchain technology, where hashing secures and links each block to the previous one, creating an immutable chain of financial transactions. This ensures that no block can be altered without affecting the entire chain, making fraud or manipulation nearly impossible.

- Digital Signatures are used to secure online loan agreements, digital contracts and electronic fund transfers, ensuring that transactions are legally binding. They are also vital in verifying software updates in banking applications, protecting users from tampered or malicious code. By combining cryptographic techniques, digital signatures provide a trusted seal of authenticity, critical in safeguarding sensitive financial data.

Let's imagine a scenario, when you digitally sign a document in a financial system, encryption ensures it cannot be tampered with and your identity is verified.

Protecting Financial Systems and Data:

- Key Digital Assets in Finance: Financial data is among the most valuable digital assets. It spans customer information, transaction records, credit card details and trading data, each holding direct monetary worth. This sensitive information flows through critical systems like core banking applications, payment gateways, trading platforms and mobile banking apps, all essential to modern finance. Unsurprisingly, these high value targets attract cyber-criminals, who exploit vulnerabilities to steal data, commit fraud or disrupt operations.

- Data Governance: Organizations must identify what data is sensitive, confidential or public, so they can apply the right level of protection. Techniques like data masking and tokenization protect sensitive information during processing or transmission, especially in payment systems. Finally, regular backups provide resilience, allowing recovery from ransomware, breaches or accidental data loss without crippling operations.

For example, imagine a credit card database. If attackers get raw access, the damage is huge. But if that data is tokenized or masked, even if breached, it's useless.

Real World Case Studies:

- JP Morgan Chase Breach of 2014: Hackers compromised information of 76 million households and 7 million small businesses. What was the cause? It was a server. A server had no two-factor (2F) authentication enabled and that ended up as a catastrophe. The lesson learned, even one overlooked control can jeopardize an entire network.

- The Bangladesh Bank Heist of 2016: Cyber criminals used malware to send fraudulent SWIFT messages, stealing US$81 million. The cause details? There was a lack of robust monitoring of outbound messages. The lesson learned, secure transaction messaging systems and monitor anomalies in real time.

- Capital 1 breach of 2019:Personal information of more than 100 million customers became leaked. The cause? It was a misconfigured firewall in AWS cloud. The lesson learned,cloud environments require as much vigilance as on premises systems with strict configuration audits.

- Goldman Sachs: Goldman Sachs has proactive adoption of zero trust policies and AI-powered fraud detection. They reported a significant drop in unauthorized transaction attempts, proving that proactive measures save billions.

Emerging Trends and Technologies in Cybersecurity:

- Artificial Intelligence (AI) and Machine Learning (ML): AI-driven systems continuously monitor massive volumes of transaction data, detecting anomalies in real time and reducing the risk of fraud before it escalates. ML models strengthen this defense by learning from historical patterns of attacks, evolving with each new data point to become smarter and more accurate over time.

For instance, credit card companies use AI-powered fraud detection systems that instantly flag and block suspicious purchases such as unusual spending locations or abnormal transaction sizes before financial losses occur.

- Blockchain is a decentralized and tamperproof ledger, meaning once data is recorded, it cannot be altered without detection. Smart contracts, self-executing agreements coded on the blockchain, further enhance security by eliminating intermediaries, ensuring transparency and automatically enforcing rules. Financial ecosystems benefit from faster settlements, reduced operational costs and minimized reconciliation errors.

Financial industry is actively piloting or adopting blockchain for crossbar payments, trade finance and transparent auditing. By merging cryptographic security with automation, blockchain not only strengthens trust, but also creates a future ready infrastructure for the finance sector, resilient against cyberattacks and manipulation.

- Quantum Computing and Cryptography: Classical algorithms such as Rivest-Shamir-Adleman (RSA) and Elliptic Curve Cryptography (ECC) could be broken by powerful quantum computers, threatening the confidentiality of transactions and long-term data archives. To counter this, postquantum cryptography (PQC) is being developed. Sensitive records like customer identities, credit histories and transaction logs need to remain secure not just today, but decades into the future. By preparing early and testing quantum resistant protocols, financial industry can ensure regulatory compliance, safeguard customer trust and future proof their systems against the coming wave of quantum computing.

- Cloud Security Enhancements: As the finance sector increasingly shifts to cloud platforms, security strategies must evolve alongside this transformation. Tools like Cloud Access Security Brokers (CASB) play a central role in safeguarding sensitive data, particularly in multi-cloud environments, where financial institutions use a mix of public and private clouds, creating new challenges and threats.

For example, financial industry is adopting cloud-native security architectures, which not only protect against evolving threats, but also enhance scalability, resilience and regulatory compliance en-bloc.

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Building Trust in Digital Finance: Strengthening Cybersecurity and Data Governance

|Muhammad Aqib, FCA|

The world is not only moving at a very fast pace but also becoming more digital, connected and integrated. Couples of years before imagine opening a bank account. The process required you to physically go to the bank, fill the forms and provide all the required documents to the bank. Nowadays opening a bank account has become digital. The difference is that you don't need to go physically to the bank and provide all the documents. All the process can be done online.

With passage of time many things which were previously done physically have now been digitalized. We only have our online accounts profile and by logging in our gadgets or other devices, we can easily see our bank balances etc. Similarly the use of cash transactions in many places has been reduced as payments are done through online banking. Digitalization has made life easy but at the same time there are risks associated with it. Accordingly, with more focus on digitalization, and growing size of the financial data, there is a need of cyber security of the data at the same time.

The cyber security of the data is important as in case of its breach, people will not only lose confidence but also will not support the digitalization. Due to leakage of information business and individuals may suffer financial losses. It is therefore of great importance to invest in financial information security solutions so as to have confidence and integrity. All the financial data is stored in various forms of storage devices. It depends on the size of the data, for individuals it may be in simple hard drive but for corporate sectors there are data centers comprising of various data storage techniques. All the stored data whether financial or non-financial is prone to cyber-attacks at any time by hackers.

Day by day hacker's techniques are getting refined, advance and innovative, As a result of this the frequency of data breaches are becoming regular. Due to ever growing threat the need of dynamic, up-to-date and robust financial data security is mandatory for individuals and businesses. This important crucial aspect of data and cyber protection involves protecting key and sensitive financial information from unauthorized use, access, theft, etc.

What is actually meant by protecting financial information? In simple terms it refers to all the check and controls put in place to protect unauthorized use of data (credit cards numbers, disclosure of banks accounts, etc.). These check and controls may include coding, access authority, continuous monitoring of data etc.

Types of threats to financial information

One of the most common threats to financial information is the cyber-attacks. The financial institutions hold lot of financial data and are accordingly prone to cyber-attacks on a regular basis. Accordingly, the various regulators keep a close eye on them and keep on introducing regulations; issuing pronouncement from time to time so as to ensure that financial information is safe guarded. As it may look that there is only one threat i.e. cyber threat to financial information as it is being stored digitally. It is not like this. There are many other ways in which financial information is under threat. Another common form of threat to financial information is insider trading. Employees, contractors, or any other relevant stake holder who has access to the data may breach their contractual obligations or non-disclosure agreements and share the data. Similarly lack of investments in data tools or not updating the systems hardware and software by the custodians of the data may prone the systems to theft of data through cyber-attacks. Moreover, another way of getting the financial information is by baiting. Attackers use various ways such as phone calls pretending to be the data owners to get the confidential information.

In recent times we have all heard about WikiLeaks and Panama leaks which disclosed a lot of secret information. The disclosure of secret information had severe impacts on individuals, corporate sectors and peoples from various walks of life. This unauthorized disclosure of information not only undermine the confidence of stakeholders on digitalization but also at same time raised the importance of having a robust governance mechanism which can prevent these types of mishaps such as cyber-attack, insider trading , data leakage, baiting etc.

There are always attempts made on a regular basis to acquire the financial information of companies and individuals. In order to safe guard the financial information in this connected and integrated world, a strong governance mechanism has to be established which is dynamic and robust to meet the ever-growing threat on the financial information data. A strong governance mechanism should include a very robust "coding" mechanism. This ensures that all the data is coded and only person responsible can decode after following the strict protocols applicable in this respect. A governance mechanism should ensure that the coding needs are reviewed and updated on a regular basis. Another important aspect

is the allocation and review of access rights. Instead of giving general access there is a need to give access based on the roles and responsibilities. As soon as there is a change in roles and responsibilities, access rights should be updated immediately.

One of the common features which we also encounter on a daily basis is the two way verification. Once we log into our bank accounts, we have to not only enter password but also need to enter one time password send to mobile. This double check measure prevents the unauthorized used to our account. Likewise, we have also seen the monitoring techniques. In case, if there is any unusual activity in our account or it has been logged in from a different location, we immediately receive a message from our bank in this respect. Last but not the least there is a need to have regular security audits. This will enable to take timely actions required in meeting the ever-growing needs of adopting the best financial data security protocols.

The importance of communication is vital. It is highly imperative that importance of financial data security is explained from top to bottom to everyone who has access to the financial information data. Moreover, it responsibility of all the decision makers to extend full support in implementation of the value added governance mechanism. In addition to this the Chief Financial Officer of the company should ensure timely availability of the funds so that there is no delay in implementation of the robust governance mechanism.

With passage of time governance mechanism has become more advance but at the same time the techniques and method used to breach them have also changed. We have recently seen that one of the television networks transmissions was hacked in Pakistan. Similarly in current conflict in Middle East there is active use of cyber-attacks. The need of the hour is to have a robust and dynamic governance mechanism which is capable of not only protecting the financial information on a timely basis from hackers but also sustain it for a longer period of time.

Continuous Enhancement of Security Protocols ensures the protection of sensitive financial data in an increasingly connected digital environment.

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Digital Trust Under Fire: How Cybersecurity and Data Governance Safeguard Financial Integrity in Pakistan's Connected Economy

|Farheen Shehzad, FCA|

In a digital economy, trust is no longer built solely on audited financial statements. It is built on secure systems, reliable data, and resilient digital infrastructure. As financial transactions migrate to cloud platforms, mobile applications, and AI-enabled systems, the responsibility of Chartered Accountants extends beyond compliance into cybersecurity governance and data stewardship.

For Pakistan, where digital adoption is accelerating rapidly, safeguarding financial information is not merely a technical necessity—it is an economic imperative.

The Escalating Global and Local Cyber Risk

The scale of cyber risk is quantifiable and growing. IBM Security's Cost of a Data Breach Report 2023 estimates the global average cost of a data breach at USD 4.45 million, the highest ever recorded. Financial services remain among the most targeted industries due to the immediate monetization potential of stolen financial data.

The World Economic Forum Global Risks Report 2024 ranks cyber insecurity among the most severe short-term global risks, warning of ransomware escalation and systemic vulnerabilities in digital infrastructure.

Pakistan is not insulated from this trend.
According to Pakistan's National CERT (Computer Emergency Response Team), thousands of cyber incidents are reported annually, ranging from phishing attacks and ransomware to data leaks affecting financial and public-sector institutions. The expansion of digital banking and fintech has significantly increased exposure.

The State Bank of Pakistan (SBP), in its annual reports and regulatory communications, has repeatedly emphasized strengthening cybersecurity frameworks within banks and financial institutions. With over 100 million branchless banking accounts and rapidly expanding digital payment volumes under initiatives such as Raast (Pakistan's instant payment system), financial data flows have multiplied exponentially.

This digital growth is encouraging—but it also enlarges the attack surface.

For Chartered Accountants, cyber risk is now inseparable from financial risk.

Financial Information: A High-Value Asset

Financial data is uniquely sensitive. It includes payroll records, vendor databases, tax filings, strategic forecasts, procurement contracts, and board deliberations. A breach can trigger fraud, regulatory sanctions, shareholder litigation, and reputational damage.

The Financial Stability Board has cautioned that cyber incidents could pose systemic risks to financial stability. In emerging markets like Pakistan, where digital transformation is still maturing, a significant cyber disruption could undermine public trust in banking and capital markets.

For finance professionals, this risk directly affects internal controls over financial reporting (ICFR), audit reliability, and compliance assurance.

Regulatory Momentum in Pakistan

Pakistan's regulatory landscape is evolving to address digital risk.

The State Bank of Pakistan has issued detailed cybersecurity frameworks requiring financial institutions to implement risk assessments, incident response mechanisms, and third-party vendor oversight. Similarly, the Securities and Exchange Commission of Pakistan (SECP) has emphasized IT governance and data protection within regulated entities.

Cybersecurity is no longer an IT issue-it is a governance issue.

Globally, regulators increasingly expect transparent cyber risk disclosures. Investors now assess cybersecurity maturity as part of governance evaluations.

For Pakistani organizations seeking foreign investment or international partnerships, demonstrating robust cybersecurity and data governance is becoming a competitive advantage.

Chartered Accountants play a crucial bridging role—translating regulatory requirements into practical governance structures.

The Financial Impact of Cyber Incidents

Cyber incidents are measurable financial events. IBM's 2023 report indicates that organizations deploying security AI and automation reduced breach costs by approximately USD 1.76 million compared to those without such capabilities. This demonstrates that proactive cyber investment yields tangible financial returns.

In Pakistan, while exact breach cost data is less publicly disclosed, reported incidents have led to service disruptions, reputational harm, and regulatory scrutiny. Ransomware attacks globally have demanded multi-million-dollar payments, excluding operational downtime and recovery costs.

For CFOs and audit committees, cybersecurity expenditure must be evaluated not as discretionary IT spending but as strategic risk mitigation.

The key financial questions include:
- What is the estimated financial exposure from a major breach?
- Are disaster recovery and business continuity plans tested?
- Is cyber insurance aligned with risk exposure?
- Are third-party vendors independently assessed?

Chartered Accountants are uniquely trained to quantify risk, evaluate controls, and assess cost-benefit trade-offs.

Data Governance: The Hidden Determinant of Financial Accuracy

While cybersecurity protects systems from intrusion, data governance ensures that information remains accurate, consistent, and reliable.

In Pakistan's corporate sector, many organizations are transitioning from manual systems to integrated ERP platforms. During this transformation, data migration risks, inconsistent master data, and weak access controls can compromise financial integrity—even without external attacks.

The OECD emphasizes that effective data governance strengthens transparency and economic resilience. For finance teams, this translates into:
- Defined data ownership and accountability
- Standardized chart of accounts and data classification
- Segregation of system access rights
- Retention and archival policies aligned with legal requirements
- Regular reconciliations and validation checks

Poor data governance can distort financial statements, impair forecasting accuracy, and weaken audit assurance.

As AI and analytics tools become more prevalent, the quality of outputs depends entirely on the integrity of underlying data. "Garbage in, garbage out" is no longer a cliché—it is a material financial risk.

AI, Automation and Emerging Vulnerabilities

Artificial Intelligence is transforming accounting functions—from automated journal entries to fraud detection algorithms and predictive financial modeling.

However, the European Union Agency for Cybersecurity (ENISA) warns of emerging risks such as algorithm manipulation, data poisoning, and automated system exploitation.

In a Pakistani context, where digital adoption is accelerating but governance maturity varies, over-reliance on automation without proper controls could amplify errors.

Chartered Accountants must therefore:
- Validate data feeding AI systems
- Monitor automated posting rules

- Ensure audit trails for system-generated entries
- Oversee transparency in algorithm-driven decision-making

Technology enhances efficiency—but governance safeguards integrity.

The Human Element: Culture as Control

Verizon's Data Breach Investigations Report 2023 highlights that a significant portion of breaches involve human factors, including phishing and credential misuse.

In Pakistan, phishing scams targeting banking customers and corporate employees have become increasingly sophisticated.
No firewall can compensate for weak internal discipline.

Finance leaders must champion cyber awareness through:

- Regular staff training and simulated phishing exercises
- Strong segregation of duties in digital workflows
- Clear incident reporting protocols
- Tone at the top emphasizing ethical responsibility

Cybersecurity culture begins in leadership—and Chartered Accountants often occupy those leadership roles.

Chartered Accountants as Guardians of Digital Trust

The profession has always been built on trust. In earlier decades, that trust centered on ledger accuracy. Today, it encompasses digital resilience.

Chartered Accountants in Pakistan serve as CFOs, internal auditors, board members, advisors, and regulators. Their training in risk assessment, internal controls, and compliance uniquely positions them to integrate cybersecurity into enterprise risk management.
They must:

- Translate cyber exposure into financial impact
- Strengthen digital internal controls
- Align governance with SBP and SECP expectations
- Embed cybersecurity metrics into board reporting
- Advocate ethical data stewardship

By doing so, they contribute not only to organizational resilience but to national economic stability.

Conclusion: Safeguarding Pakistan's Digital Future

Pakistan's digital economy is expanding rapidly—through fintech innovation, e-commerce growth, mobile banking penetration, and digital public infrastructure like Raast. This transformation presents immense opportunity.

But opportunity without protection invites vulnerability. Cybersecurity and data governance are not technical luxuries; they are foundational requirements for sustainable economic growth. Protecting financial information preserves investor confidence, strengthens regulatory compliance, and enhances international credibility.

In a connected world, the Chartered Accountant's mandate extends beyond reporting performance—it includes safeguarding the systems that generate that performance.

Trust remains our profession's defining asset. In Pakistan's digital era, protecting that trust demands vigilance, leadership, and unwavering commitment to cybersecurity and data governance.

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THE BILATERAL INDUSTRIAL REVIVAL LOAN PROGRAM (BIRLP) "FAZAL"

Author |Tahir Mahmood|
Review | Mohammad Maqbool, FCA|

OBJECTIVE — The Bilateral Industrial Revival Loan Program (BIRLP) branded as "Fazal" proposes an innovative development finance framework designed to address escalating sovereign debt distress, industrial stagnation and structural inequalities in the global economy.

CONTRAST — In contrast to conventional sovereign lending mechanisms, BIRLP "Fazal" integrates (i) project-linked financing (ii) joint venture partnerships and (iii) dividend-based repayment structures to ensure debt sustainability and productive capital formation.

THEORETICAL FOUNDATION — Grounded in (a) endogenous growth theory, (b) comparative advantage (c) public–private partnership models and (d) modern risk-sharing principles, the program aligns capital mobilization with industrial revival and long-term economic transformation.

INSTRUMENTS — The model introduces (i) quasi-equity instruments (ii) blockchain-enabled transparency systems (iii) AI-driven oversight frameworks and (iv) structured risk mitigation mechanisms to reduce default probability and enhance accountability.

MECHANISM — By linking loan repayment to project profitability rather than rigid interest obligations, BIRLP reduces debt overhang while incentivizing efficient project governance.

SCOPE — The program targets high-impact sectors including (i) industrial modernization (ii) renewable energy (iii) research and development (iv) critical minerals exploration and (v) social infrastructure.

CONTRIBUTION — This paper outlines (i) the theoretical foundations (ii) structural design (iii) operational mechanisms and (iv) macroeconomic implications of BIRLP "Fazal" positioning it as a viable alternative to traditional sovereign debt instruments in an era of global financial instability.

1. Introduction

The global economy is experiencing significant structural stress marked by rising sovereign debt levels and repeated defaults. Recent assessments indicate that a large number of developing countries are either in or near debt distress with sovereign defaults increasing compared to previous decades [1][2].According to international development institutions, over 50 countries require urgent debt relief due to unsustainable fiscal burdens [3].Traditional lending models particularly high-interest foreign currency-denominated loans with rigid repayment schedules have often exacerbated fiscal fragility rather than fostering productive development.

When external shocks occur including (i) commodity price volatility (ii) pandemics or (iii) geopolitical conflict, borrowers face repayment crises due to structural mismatches between debt obligations and revenue generation capacity [1][4].The Bilateral Industrial Revival Loan Program (BIRLP) responds to these structural weaknesses by reconceptualising sovereign lending as a collaborative industrial development partnership.

Rather than functioning solely as a debt instrument, BIRLP "Fazal" integrates (i) financing with cross-border joint ventures (ii) technology transfer and (iii) structured profit-sharing arrangements.

This transformation from passive lending to active industrial partnership constitutes the core innovation of the framework.

2. Structural Weaknesses in Conventional Sovereign Lending

Many sovereign debt crises emerge not solely from governance failures but from flawed structural design in loan agreements. High interest rates compound fiscal pressure particularly when growth projections fail to materialize. Short repayment periods frequently mismatch the long gestation periods of infrastructure and industrial projects, creating liquidity crises before productive assets mature. Foreign currency denomination introduces exchange rate risk. When local currencies depreciate, repayment burdens increase substantially. Several analyses of recent debt crises demonstrate that currency volatility and rising global interest rates significantly contributed to repayment difficulties in developing countries and rigid repayment schedules without contingency clauses prevent adaptive restructuring during external shocks. Moreover, overly optimistic revenue projections especially in commodity-dependent economies have historically intensified fiscal vulnerability when global prices fall [5]. Loan agreements may also lack transparent restructuring mechanisms increasing systemic risk. Excessive reliance on external borrowing amplifies vulnerability to global financial volatility. These structural weaknesses collectively contribute to debt cycles that

undermine sustainable development [1][3]. The inadequacy of traditional lending practices underscores the need for a knowledge-based, adaptive and partnership-driven financing model.

3. From Experience-Based to Knowledge-Based Lending

Traditional sovereign lending has often relied on precedent and generalized risk profiling.

While experiential insights can inform decision-making, overreliance on observational analogies may overlook country-specific economic conditions and sectoral realities. Uniform loan structures applied across heterogeneous economies frequently produce mismatched obligations. Knowledge-based lending integrates (i) macroeconomic modelling, (ii) sectoral feasibility studies and (iii) stakeholder engagement. It emphasizes fiscal sustainability analysis and long-term growth projections. Contemporary research on public-private partnerships and structured development finance highlights the importance of data-driven risk assessment and institutional design in achieving sustainable outcomes [6][7]. Knowledge-based lending (i) enhances risk assessment accuracy (ii) enables flexible repayment mechanisms and (iii) supports contingency planning. It prioritizes sustainability over short-term financial returns. The BIRLP "Fazal" framework builds explicitly upon this paradigm by embedding (i) feasibility analysis (ii) oversight algorithms and (iii) adaptive financial instruments within its operational design.

4. Conceptual Framework of BIRLP

BIRLP "Fazal" redefines sovereign bonds as instruments of industrial collaboration rather than purely financial liabilities. The program operates through bilateral agreements between (i) bond-issuing and (ii) bond-purchasing countries while simultaneously establishing joint ventures between private sector entities. The central innovation lies in linking debt servicing to project profitability. Instead of relying exclusively on fixed interest payments, an agreed portion of net profits generated by joint ventures is allocated toward repayment. This self-liquidating mechanism (i) reduces debt overhang and (ii) aligns incentives between borrower and lender. Hybrid financing structures may incorporate quasi-equity instruments designed to distribute risk and enhance viability. Modern portfolio theory supports diversified risk-sharing structures to optimize returns while minimizing systemic exposure [6].By embedding capital flows within productive industrial ecosystems, BIRLP "Fazal" ensures that borrowing translates into asset creation rather than consumption-driven liabilities.

5. Operational Mechanisms and Governance Architecture

BIRLP "Fazal" integrates advanced monitoring and verification systems to enhance transparency and accountability. Blockchain-enabled smart contracts automate disbursement and repayment processes, reducing discretionary manipulation. A Loan Repayment Oversight Framework utilizes predictive analytics to identify emerging financial risks. Structured oversight aligns with contemporary approaches to financial governance and development finance risk management [7]. Risk mitigation mechanisms include (i) sovereign guarantees (ii) credit insurance instruments and (iii) diversified investment portfolios.

These features reduce exposure to market volatility and geopolitical disruptions. Institutional design within BIRLP reflects public–private partnership theory, emphasizing co-production between state and private actors [6].

6. Sectoral Scope and Strategic Priorities

BIRLP "Fazal" supports investment in (i) industrial modernization, (ii) renewable energy (iii) research and development (iv) critical minerals exploration and (v) social infrastructure.

Such diversification is consistent with endogenous growth theory which identifies innovation and human capital accumulation as primary engines of sustained growth [8]. Strategic specialization between capital-rich and labour-rich economies reflects Ricardian comparative advantage enabling mutually beneficial collaboration [8].By facilitating structured cross-border partnerships, the program (i) enhances participation in global value chains and (ii) strengthens economic integration.

7. Theoretical Foundations

Endogenous growth theory emphasizes (i) knowledge spill overs (ii) innovation and (iii) technology transfer as drivers of sustained development [8].BIRLP "Fazal" operationalizes these principles through structured R&D collaboration and skill development mechanisms. Public–private partnership theory supports risk-sharing arrangements that combine state coordination with private efficiency [6][7]. Modern portfolio theory informs quasi-equity structuring to optimize financial resilience [6]. Keynesian multiplier effects further suggest that industrial investment stimulates (i) employment (ii) aggregate demand and (iii) secondary economic activity contributing to macroeconomic stability.

8. Debt Sustainability and Financial Innovation

A defining feature of BIRLP "Fazal" is its dividend-based repayment mechanism.

Linking repayment to profitability ensures that debt obligations correspond to actual revenue generation capacity. Traditional GDP-linked instruments have faced criticism due to (i) manipulation risks and (ii) limited creditor protection [9]. By contrast, BIRLP "Fazal" anchors repayment in operational joint venture performance with transparent accounting standards. Reinvestment of dividends into further industrial development creates a cyclical growth mechanism, strengthening fiscal resilience. Structured oversight enhances creditor confidence while reducing sovereign default risk.

9. Transparency and Anti-Corruption Safeguards

Financial mismanagement frequently undermines development finance. BIRLP "Fazal" addresses these risks through (i) blockchain-based transparency (ii) digital auditing systems and (iii) multi-level oversight bodies. Pre-project feasibility assessments and defined profit utilization protocols prevent diversion of funds. These mechanisms strengthen institutional credibility and align with contemporary governance best practices in development finance [7].

10. Macroeconomic and Geopolitical Implications

At the macroeconomic level, BIRLP "Fazal" can enhance foreign direct investment inflows by linking bond purchases with joint venture commitments. Industrial diversification reduces commodity dependency and vulnerability to external shocks. Globally, the program promotes economic interdependence. Structured bilateral collaboration may reduce adversarial creditor-debtor dynamics observed in recent debt crises [4]. By aligning with sustainable development priorities, BIRLP "Fazal" contributes to inclusive growth and green transition objectives.

11.1 Research Design

This study adopts a conceptual-analytical and model-development methodology combining normative institutional design with applied development finance theory. The objective is not merely descriptive but constructive: to develop and structurally evaluate a new sovereign financing framework (BIRLP) "Fazal" in response to documented weaknesses in existing debt instruments [1][2][4].
The research design integrates:

(i) Comparative institutional analysis of conventional sovereign lending mechanisms.
(ii) Theoretical synthesis drawing from (a) endogenous growth theory (b) comparative advantage (c) public–private partnership (PPP) economics and (d) portfolio diversification theory [6][8].
(iii) Structural financial modelling of repayment mechanisms based on profit-linked instruments.
(iv) Governance and risk assessment modelling incorporating digital transparency tools and oversight algorithms.

The methodology therefore combines qualitative institutional evaluation with financial-structural modelling to test feasibility and internal coherence.

11.2 Analytical Framework

The analytical framework rests on four pillars:

(a) Debt Sustainability Diagnostics

The study evaluates traditional sovereign lending using debt sustainability criteria including:
a. Interest-to-GDP ratios
b. Debt service-to-export ratios
c. Currency mismatch exposure
d. Maturity structure misalignment

These metrics are commonly used in international debt sustainability assessments [2]. Structural weaknesses in conventional loans (i) high interest rates (ii) rigid repayment schedules and (iii) foreign currency denomination are examined through this diagnostic lens.

BIRLP "Fazal" is then evaluated comparatively under a modified sustainability structure where repayment is tied to project net profitability rather than fixed coupon payments.

(b) Financial Structure Simulation

A simplified repayment model is conceptually structured as follows:
Let: D = Principal debt r = Conventional interest rate
π = Net project profit
α = Agreed dividend allocation for debt servicing
Traditional sovereign model: Annual obligation = D(r + amortization schedule)
BIRLP "Fazal"model: Annual obligation = α(π)

Under this structure: (i) If π increases, repayment accelerates. (ii) If π decreases due to external shocks, repayment automatically adjusts downward reducing default probability.

This embedded countercyclical property reduces debt overhang risk compared to fixed-coupon sovereign bonds. While the model remains conceptual in this paper, its structure allows for empirical simulation using macroeconomic forecasting datasets in future applied research.

(c) Institutional Governance Modelling

The study incorporates institutional design analysis to reduce moral hazard and fund misallocation risks. Governance mechanisms evaluated include:
a. Blockchain-enabled disbursement verification
b. AI-driven risk flagging algorithms
c. Pre-project feasibility filtering
d. Multi-level oversight architecture

These mechanisms are assessed against known governance vulnerabilities in sovereign debt implementation [7].

(d) Comparative Case Referencing

Although the paper does not conduct a country-level empirical regression analysis, it draws upon documented sovereign debt crises [1][3][4] as comparative reference cases. These serve as contextual validation for structural deficiencies in traditional debt instruments.

Future empirical research may apply the BIRLP "Fazal" framework to:
a. Sub-Saharan African debt restructuring cases
b. South Asian and South America industrial financing needs
c. Resource-dependent economies facing commodity volatility

11.3 Introduction to the Dual-Return Model

The preceding section established the foundational BIRLP model wherein debt servicing is determined

exclusively by profit-linked dividend allocations: Annual obligation = α(π).

This section extends the model by introducing a dual-return mechanism that combines:

(i) A nominal fixed interest rate on the principal debt, set substantially below conventional market rates; and
(ii) A dividend participation component that provides lenders with upside potential exceeding traditional commercial loan returns.

This hybrid structure serves dual objectives:

(a) For borrowers: Immediate fiscal relief through minimally burdensome interest obligations.
(b) For lenders: Enhanced total return potential through equity-style participation in project upside, potentially exceeding yields available in conventional sovereign lending.

11.4 Feasibility Assessment

Feasibility is evaluated along three dimensions:

(a) Financial Feasibility

The hybrid debt–quasi equity structure distributes risk, aligning with modern portfolio diversification theory [6]. Profit-linked repayment reduces fixed fiscal stress.

(b) Institutional Feasibility

Public–private partnership literature demonstrates that co-production models improve infrastructure and industrial performance when governance safeguards are embedded [6][7].

(c) Political Feasibility

By aligning lender returns with productive joint ventures rather than extractive interest payments, BIRLP "Fazal" reduces adversarial creditor-debtor dynamics observed in recent restructuring negotiations [4].

11.5 Limitations

This research is conceptual and structural rather than econometrically empirical. Limitations include: (i) Absence of real-world pilot data. (ii) Profit volatility risk in early-stage industrial projects.(iii) Requirement of strong institutional capacity for oversight implementation.

Future research should include (i) simulation modelling using IMF or World Bank debt datasets and (ii) pilot implementation case studies.

12.1 Implications for Sovereign Debt Architecture

BIRLP proposes a shift from fixed-income sovereign debt instruments toward performance-linked sovereign-industrial partnerships. If adopted, this could: (i) Reduce systemic default cycles. (ii) Lower restructuring frequency. (iii) Improve creditor confidence through structured transparency. (iv) Reduce reliance on austerity-based adjustment programs.

The dividend-based model introduces automatic stabilization properties absent in traditional bonds.

12.2 Implications for Developing Economies

For developing nations, the framework offers structural advantages:

(i) Reduced exchange rate vulnerability, as repayment aligns with productive output.
(ii) Industrial asset creation instead of consumption-based borrowing.
(iii) Embedded technology transfer through joint ventures.
(iv) Skill development and value-chain upgrading.

By integrating financing with industrial strategy, BIRLP "Fazal" operationalizes endogenous growth principles [8].

12.3 Implications for Developed Economies and Institutional Investors

For capital-exporting nations and institutional investors:

(i) Returns are tied to productive enterprise rather than sovereign fiscal extraction.
(ii) Long-term equity-style upside potential may exceed traditional bond yields.
(iii) Diversified exposure to emerging market industrial growth.

This shifts sovereign lending from passive credit provision to strategic economic partnership.

12.4 Geopolitical Implications

Sovereign debt crises often intensify geopolitical tensions while BIRLP's partnership model may: (i) Reduce strategic leverage disputes. (ii) Encourage economic interdependence.
(iii) Promote cooperative industrial ecosystems rather than dependency structures.
By replacing zero-sum creditor-debtor dynamics with shared enterprise, the model aligns with cooperative development diplomacy principles.

12.5 Implications for Sustainable Development Goals (SDGs)

The framework directly contributes to: (i) SDG 8 (Decent Work and Economic Growth)
(ii) SDG 9 (Industry, Innovation, and Infrastructure) (iii) SDG 17 (Partnerships for the Goals)
Green industrial projects and renewable energy financing align with climate transition priorities.

12.6 Systemic Financial Stability

At a systemic level, widespread adoption of profit-linked sovereign financing could: (i) Reduce contagion risk during global downturns. (ii) Mitigate debt spiral effects. (iii) Improve global capital allocation efficiency.
Traditional debt instruments amplify crises through fixed obligations while Performance-linked structures dampen shocks through automatic adjustment.

13. Conclusion

The Bilateral Industrial Revival Loan Program represents a structural reimagining of sovereign lending in response to escalating global debt distress and industrial stagnation.

By integrating (i) knowledge-based lending principles (ii) profit-linked repayment mechanisms and (iii) cross-border joint ventures, the framework aligns financial obligations with productive economic transformation. Its theoretical foundations in (i) endogenous growth, (ii) comparative advantage, (iii) PPP models and (iv) portfolio diversification provide intellectual coherence. Technological safeguards and structured oversight enhance governance credibility.
In an era characterized by sovereign defaults and volatile capital flows, BIRLP offers a viable alternative to traditional debt paradigms. By transforming debt into partnership and interest into shared productivity, the model contributes to sustainable industrial revival and resilient global economic integration.

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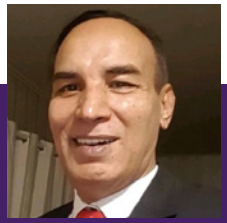

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