POLICY BRIEF

AI-Assisted Assessment in Professional Accounting Education: Evidence from Ghana

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Technical & Research Directorate of Institute of Chartered Accountants, Ghana

EXECUTIVE SUMMARY

Policy Goal: Transform ICAG assessment systems through AI-assisted hybrid architecture that reduces examiner workload by 40-50%, improves turnaround times, and maintains assessment quality by 2030, positioning Ghana as a regional leader in responsible professional education innovation.

The Challenge: ICAG faces escalating assessment capacity pressures as Ghana's expanding economy drives unprecedented demand for qualified chartered accountants. Limited examiner pools, marker fatigue, inter-rater inconsistency, relatively high assessment costs, and resource constraints strain traditional assessment models. Extended turnaround times delay candidate progression and affect Ghana's competitiveness in regional accounting services markets.

Key Finding: Ghana's first empirical study using July 2024 ICAG examinations evaluated four AI models (Claude 3.5, GPT-4, Perplexity, DeepSeek) across 27 scripts from nine subjects, generating 216 assessments benchmarked against human examiners. Claude 3.5 achieved mean absolute deviation of 4.1 points when provided marking schemes (46.1% improvement), substantially outperforming alternatives. Performance remained consistent across Foundation, Application, and Professional levels. However, systematic overscoring of weak candidates necessitates mandatory human verification for borderline and failing candidates.

Strategic Recommendation:

- **Pilot Implementation:** Launch pilot program in 2-3 subjects by Q2 2027 with Claude or equivalent LLM pre-marking and mandatory human verification for borderline scripts and 15-20% quality assurance sample.
- **Infrastructure Redesign:** Optimize all ICAG marking schemes with explicit criteria through senior examiner workshops.
- **Governance Architecture:** Establish AI Assessment Oversight Committee by January 2027 with Chief Examiner, Council representative, external AI expert, and Technical Review Panel.
- **Capacity Transformation:** Redesign examiner roles to AI supervisors through comprehensive CPD programs in hybrid assessment management

Transforming Professional Accounting Assessments: Detailed Policy Framework

This section provides a comprehensive examination of ICAG's assessment system challenges, empirical evidence from Ghana's first AI-assisted professional examinations, and strategic recommendations for phased implementation. It presents detailed insights into AI model performance, marking scheme optimization, governance architecture, and examiner role transformation. The purpose is to equip ICAG policymakers, examiners, and stakeholders with the evidence, guidance, and practical steps necessary to implement a hybrid AI-assisted assessment system that reduces examiner workload, improves turnaround times, maintains assessment quality, and positions Ghana as a regional leader in professional accountancy education innovation.

Policy Goal

Transform ICAG assessment systems through AI-assisted hybrid architecture that reduces examiner workload by 40-50%, improves turnaround times, and maintains or enhances assessment quality by 2030, positioning Ghana as a regional leader in responsible professional education innovation.

The Challenge

ICAG faces escalating assessment capacity pressures as Ghana's expanding economy drives unprecedented demand for qualified Chartered accountants. Limited examiner pools, marker fatigue, inter-rater inconsistency, and resource constraints strain traditional human-only assessment models. Extended turnaround times delay candidate progression and affect Ghana's competitiveness in regional accounting services markets. While AI technologies offer potential solutions, critical questions persist about AI capability to evaluate complex professional judgment, ethical reasoning, and contextual application of accounting standards, capabilities fundamental to chartered accountant competence and public trust.

Research Evidence

ICAG conducted Ghana's first empirical study of AI assessment performance using July 2024 professional examinations. The study evaluated four advanced AI models (Claude 3.5, GPT-4, Perplexity, DeepSeek) across 27 examination scripts from nine subjects spanning Foundation, Application,

and Professional levels. Each script was assessed under two conditions: autonomous assessment without marking schemes and guided assessment with official ICAG marking schemes. This generated 216 AI assessments benchmarked against human examiner scores through rigorous quantitative analysis.

Key Findings

Model selection determines success: Claude 3.5 achieved mean absolute deviation of 4.1 points from ICAG human examiners when provided marking schemes (46.1% improvement), substantially outperforming alternatives (10.5 to 15.2 points), establishing technology choice as critical governance decision.

ICAG marking schemes unlock performance: Structured ICAG marking schemes produced divergent effects. Claude 3.5 improved 46.1%, Perplexity 35.2%, while GPT-4 deteriorated 19.5%, demonstrating assessment framework quality equals technology selection in importance.

Consistent across ICAG qualification levels: Claude 3.5 maintained accuracy across Foundation, Application, and Professional levels including complex Strategic Case Study assessments ($F=2.14$, $p=0.138$), challenging assumptions about AI limitations in professional judgment.

Systematic overscoring of weak candidates: All models overestimated quality of poor scripts. Claude 3.5 by 4.7 points, alternatives by 12.1 to 19.3 points, requiring mandatory human verification for borderline and failing ICAG candidates to maintain credential integrity.

Complementary model capabilities: Each AI exhibited distinct assessment patterns enabling potential multi-model deployment strategies where Claude 3.5 serves as primary assessor with alternative models providing cross-verification.

Implementation Barriers

- No governance structures exist for AI oversight, quality assurance, and accountability in ICAG examinations.
- Limited ICAG examiner capacity in AI-assisted assessment management and verification protocols.

- Absence of policies addressing AI roles, candidate disclosure requirements, and appeals procedures.

- No mechanisms for continuous monitoring of AI performance against evolving ICAG standards and examination requirements.

Policy Recommendations

1. Phased Implementation for ICAG – Launch pilot program in 2-3 ICAG subjects by Q2 2027 combining Claude or other very good LLM pre-marking with mandatory human verification for scripts within 5 points of pass/fail threshold, below 45%, and random 15-20% quality assurance sample, expanding to additional subjects by 2028 based on demonstrated outcomes.

2. ICAG Marking Scheme Redesign – Conduct systematic review and optimization of all ICAG marking schemes incorporating explicit point allocations, quantifiable criteria, and minimized ambiguity, engaging senior examiners in workshops to articulate implicit judgment standards and pilot testing redesigned frameworks.

3. Governance Architecture for ICAG – Establish ICAG AI Assessment Oversight Committee (Chief Examiner, Council representative, external AI expert, stakeholder representatives) and Technical Review Panel responsible for policy development, quality monitoring, examiner training, and transparent appeals mechanisms.

4. ICAG Examiner Transformation – Redesign examiner roles from primary markers to AI supervisors and quality assurers through comprehensive CPD programs covering AI literacy, hybrid assessment management, marking scheme design, and verification protocols for ICAG professional standards.

5. Regional Leadership Initiative – Position ICAG as Sub-Saharan African pioneer by sharing Ghana's implementation evidence through PAFA, hosting regional workshops on AI assessment, and coordinating development of continental standards and best practices.

Critical Success Factors

- **ICAG Council Leadership** – Strong governance commitment with clear mandates, adequate budget allocation, and sustained multi-year support for assessment transformation.

- **Examiner Engagement** – Active participation from ICAG examination panel members in scheme redesign, pilot implementation, and continuous quality improvement processes.
- **Stakeholder Transparency** – Clear communication with ICAG candidates, employers, and regulators about AI roles, human oversight safeguards, and maintained credential rigor.
- **Performance Monitoring** – Real-time tracking of accuracy metrics, turnaround improvements, cost efficiency, and candidate outcomes with quarterly reviews and annual public reporting.

Call to Action

[1] ICAG Council should establish the AI Assessment Oversight Committee by January 2027, initiate comprehensive stakeholder consultations with examination panel members and candidates by March 2027, and launch controlled pilot programs in two subjects (one technical, one judgment-focused) by June 2028 with rigorous evaluation protocols.

[2] The empirical evidence from Ghana demonstrates AI-assisted assessment viability when implemented with appropriate governance and human oversight. Delayed action perpetuates capacity constraints limiting ICAG's ability to serve Ghana's expanding economy. Decisive implementation positions ICAG as innovator in professional education, enhances operational efficiency, maintains assessment quality, and strengthens Ghana's competitive position in regional accounting services markets.

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